The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

TACIS 117107

Improvement of Maritime Links between TRACECA and TENs Corridors

Bulgaria Georgia Romania Turkey Ukraine

Final Report

May 2009

This project is funded
by the European Union

A project executed by
Royal Haskoning,
NEA
BCEOM

This Project is funded
by the European Union

1 Report cover page

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors	
Project Number:	TACIS 117107	
Country:	Bulgaria, Georgia, Romania, Turkey, Ukraine	
Document Name	Maritime Links TRACECA-TEN Final Report	
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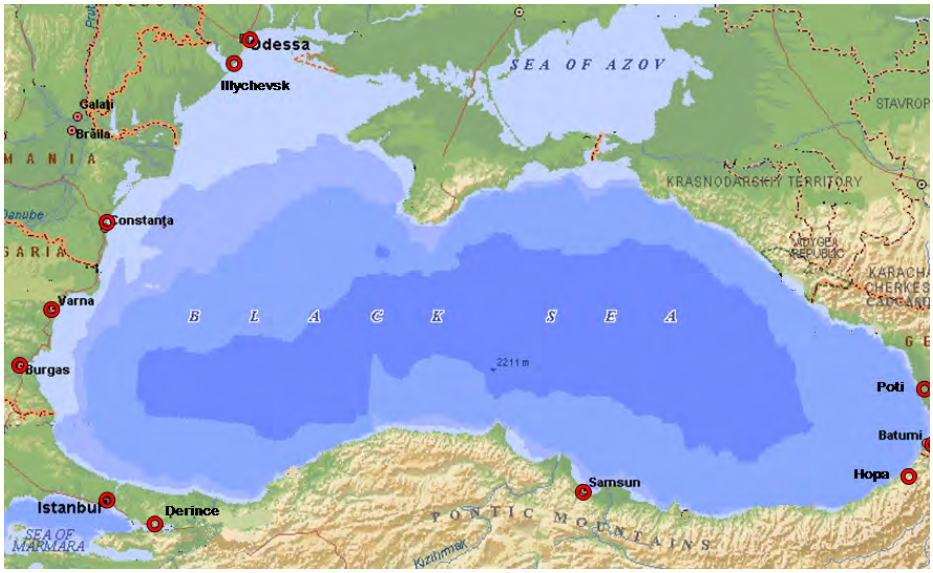
2 Introduction

The purpose of the project was to create the basis for the improvement of maritime links in the Black Sea region. This relates to reliable, safe, secure, competitive and efficient shipping and port services and to enable viable links with the Trans European Networks mainly with regard to rail ferry, Ro-Ro ferry and container services.

The project focused on the Black Sea countries of the Ukraine, Romania, Bulgaria, Turkey and Georgia.

The ports covered by the project are pointed out in the following figure.



Overall Project Objective:
"To facilitate trade along the corridor Europe - Black Sea Region – Caucasus - Central Asia by increasing its competitiveness and attractiveness as stated in the Basic Multilateral Agreement for International Transport for Development of the Europe-Caucasus-Asia corridor"

Specific Project Objective:
The project's purpose is to create the basis for the improvement of maritime links in the Black Sea region. This relates to reliable, safe, secure, competitive and efficient shipping and port services and to enable viable links with the Trans European Networks mainly with regard to rail ferry, Ro-Ro ferry and container services.

Five Planned Outputs:

- Result 1: Market Research and Action Plan Maritime Transport Black Sea region
- Result 2: Feasibility Study Ro-ro Terminal Samsun and Pre-Feasibility Study Port of Filyos
- Result 3: Safety and Security Management Systems
- Result 4: Port Community Systems
- Result 5: Port Public Private Partnership and Bankable Projects

Project activities:

Phase 0: Inception

Phase 1A: Preparation of the Market Study

Phase 1B: Preparation of the Action Plan
Development of Port PPP Framework

Phase 2: Preparation of the Feasibility Study for Samsun Ro-ro Terminal and Pre-Feasibility Study Port of Filyos
Implementation of maritime safety and security improvements
Development of a Port Community Pilot Scheme
Assessment of the PPP potential of port investment needs/projects in the region and selection of Bankable Projects.

Project starting date: 16 April 2007
Project duration: 24 months

Project implemented by: Royal Haskoning (The Netherlands) and consortium partners:
NEA Transport Research and Training (The Netherlands)
Egis-BCEOM (France)

The project team consisted of the following experts:

Name Expert	**Position**
• ***Key experts***	
Edwin Lock	Team Leader
Klaas Westerkamp	Transport Economist
Peter Verwaerde	PCS Expert
Andre Merrien	Port Infrastructure Expert
Johan Gauderis	PPP Expert
• ***International non-key experts***	
Bertrand Apperry	Safety & Security Expert
Wim Welvaarts	Port Operations & Maritime Transport Expert (1)
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Wouter van Nus	Port Tariffs
Xavier Dolbeau	Environmental Expert
Sean Newton	Traffic Forecast Expert
Barry Zondag	Modelling Expert
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Gönül Ertürer	Local Environmental Expert
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Julian Totev	Draftsman
Vesela Georgieva	Software Development Expert
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Ekaterina Bassova	Country coordinator Ukraine
Ioan Cuncev	Country coordinator Romania
Georgi Gogiashvili	Country coordinator Georgia
Ozan Kuyumcuoglu	Country coordinator Turkey

3 Project Execution

3.1 Project Objectives

3.1.1 Market Research and Action Plan

An in-depth market research of the actual maritime transport situation in the Black Sea area is drafted and support in implementing a successful marketing policy is provided to the relevant ports and shipping lines in the Black Sea area. Marketing strategies are developed, comprising not only PR, advertising and other means of communication to the clients and the public, but also ranges from systematic market research to the determination of services to be rendered, optimised tariff setting for the services, quality and safety/security management. A more transparent transport tariffs and transit fees structure applied in maritime sections of TRACECA corridor are developed, which will finally result in predictable prices on this route. Removal of illegal and non-physical barriers for transport services shall be promoted, in order to ensure customers' confidence and increase the attractiveness of the route The Black Sea ports capacities, as stations for forming, accumulating, depositing, redistributing, forwarding and receiving freights will be used maximum effectively. Further on, these ports will be converted into centres offering optimal logistic schemes and more effective use of the ferry lines and the combined transport to the carriers.

3.1.2 Feasibility Study Ro-ro Ferry Terminal Samsun & Pre-Feasibility Study Port of Filyos

A Feasibility study is provided on the provision of a better Road – Sea combined transportation (ro-ro ferry transportation) between Samsun port and other TRACECA countries located on Black Sea coast, and to identify the potential of ro-ro ferry transport links in the Black Sea. The study findings should provide all the necessary information to further discuss and decide the eventual introduction of new ro-ro ferry services at the port of Samsun and on the technical, economic, financial and environmental feasibility of a ro-ro terminal.
Additionally, a pre-feasibility study for the greenfield port of Filyos is to be prepared.

The original Terms of Reference included the drafting of a feasibility study for a rail ferry terminal at the port of Samsun, but in the course of the first year of the project it turned out that the upgrading and extension of the rail ferry terminal was already underway and therefore the project management and TRACECA National Secretary of Turkey decided to change the project results towards ro-ro at the port of Samsun and the Port of Filyos.

3.1.3 Safety and Security

Existing safety and security management systems are improved in the respective countries and adjusted in order to achieve proper interoperation and to comply with IMOs (International Maritime Organisation) International Code for Ships and Port Facility Security (ISPS Code). Favourable conditions are laid down for the creation of a common security management system applicable for the maritime transport and operation in the Black Sea area in order to reduce risk levels and to protect port facilities, ships, environment and people.

3.1.4 Port Community Systems

A pilot scheme for efficient port communication and information system, which facilitates and fastens maritime transportation within the Black Sea region, is established and findings are disseminated. That implies tracing of movements and handling of the ships in the ports, tracing and control of cargo-handling operations and information services of outer clients. For the pilot scheme the port of Varna is to be envisaged, provided the information obtained in the review phase (please refer also to result 1) does not suggest otherwise.

3.1.5 PPP and Bankable Projects

A Port Public Private Partnership (4P) framework is to be developed for (i) the identification of PPP opportunities in the port and maritime transport sector on the TRACECA-TEN routes, (ii) the assessment of the added value of PPP with respect to traditional, public financed solutions, and (iii) the optimal design of PPP constructions in order to effectively achieve this added value. The 4P framework is applied to the investment needs and project plans in the Black Sea region. The result will be an assessment of the PPP potential of these investments and a selection of Bankable Projects.

3.2 Project Activities

3.2.1 Final reporting period

During the project execution period, the following activities have been organised.

The workshop Market Research & Port Marketing and the Action Plan seminar were organised in the first year of the project, all other activities in the second year.

2008	**Place**	**Date**
Market Research & Port Marketing workshop	Varna	6 March
Action Plan seminar	Istanbul	5 June
Filyos stakeholders meeting	Ankara	4 Nov.
S&S Training workshop Bulgaria	Burgas	4-6 Nov.
PCS-PPP Workshop Turkey	Ankara	11-12 Nov.
PCS-PPP Workshop Ukraine	Odessa	25-26 Nov.
S&S Training workshop Turkey	Istanbul	25-27 Nov.
Preparation PCS-PPP workshop Georgia	Tbilisi	15-19 Dec.
S&S Training workshop Ukraine	Odessa	16-18 Dec.
2009		
PCS-PPP Workshop Bulgaria	Varna	13-14 Jan.
PCS-PPP Workshop Romania	Constantza	20-21 Jan.
S&S Training workshop Georgia	Batumi	3-5 Feb.
PCS-PPP Workshop Georgia	Batumi	10-11 Feb.
S&S Training workshop Romania	Constantza	17-19 Feb.
Samsun stakeholders workshop	Ankara	26 Feb.
Study tour PSC - General Western Europe	NL/BE	9-13 March
Completion Seminar	Sofia	26 March

The project was concluded with the Completion seminar in Sofia, Bulgaria, on the 26th of March.

3.2.2 Project result 1: Market Research and Action Plan

In the first phase of the project (year 1), the Market Research, including the traffic forecast till the year 2020 was executed.

In order to obtain full understanding and consent about the Market Research report, in March 2008 the Market Research & Port Marketing seminar was organised in Varna, Bulgaria, followed by the Action Plan seminar in Istanbul in June 2008.

The final report market research was distributed to all the relevant beneficiary parties.

This report is also included as an Annex in this final report.

3.2.3 Project result 2A: Feasibility Study Ro-ro Ferry Terminal Samsun

As in the first phase it was identified that a feasibility study for a rail ferry terminal in the port of Samsun was not longer required the project diverted its resources to the preparation of a feasibility study for a ro-ro terminal in the port of Samsun and a pre-feasibility study for the greenfield Port of Filyos.

The full final feasibility study report for the ro-ro terminal at the port of Samsun has been distributed to the relevant beneficiary organisations and the EU.

Herewith follows a summary of that report.

Summary Feasibility Study Ro-ro Ferry Terminal Samsun

The port of Samsun has a good location on the north-eastern coast of Turkey, connected by waterways to TENs corridors 4, 7 and 8 on the western shore of the Black Sea, not too far from Ankara metropolitan area and opposite Mersin on the Mediterranean, which could enable Samsun to play the role of a north point for a land-bridge across Anatolia, relieving traffic congestion in the Bosporus and Canakkale straits.

Samsun annual traffic varies between 2 and 3 million tons, mainly consisting of dry bulk, general cargo and ro-ro (between 25,000 and 35,000 trailers per annum). So far container traffic did not develop in Samsun, just a few boxes being transported by ro-ro on road chassis. Ro-ro shipping routes link Samsun to Russian ports on the northern shore of the Black Sea (cf. location map 1). Samsun has in principle a substantive market potential in ro-ro transport, which could reach 60,000 to 80,000 trailers per year on the medium term. However, doubts remain regarding willingness of Russia to carry on operating ro-ro terminals in its ports, whereas ro-ro facilities in the ports are inadequate, especially in Samsun. Container might soon become a serious competitor to ro-ro.

This feasibility study proposes 3 technical options for development of adequate ro-ro facilities in Samsun, based on a modest start level of 15,000 to 20,000 trailers per year because of the current worldwide economic crisis, yet able to meet in the future a larger demand of 60,000 to 80,000 trailers. The 2 options consisting in keeping ro-ro activities in the port area where they are currently based are rather expensive, reaching 6 to 7 million euro in capital cost, as they call for significant demolition and re-pavement works, whereas the option located in the north would be approximately twice cheaper, worth euro 3 million. Besides, as ro-ro revenues for the port would be the same, the northern option logically

exhibits the best financial results in terms of internal rates of return. As far as environment is concerned the northern option should also be the preferred one, although expected impacts on the environment are pretty limited in all cases.

The port masterplan study which is currently being launched by the future port concessionaire should consider development of ro-ro in close relationship with that of container. First because they can both address similar commodities, second because they can share common areas on port yards. In principle container is more effective than ro-ro at sea as well as in ports, but container mode requires specific handling and storage facilities along the whole chain, from origin to destination, which are not sufficiently available in the Black Sea region for the time being.

Development of ro-ro in Samsun would also require construction of refrigerated warehouses allowing preserving fresh fruits and vegetables for export, as well as a large trailer park located a few kilometres away from the port.

Lastly, the port of Samsun benefits from a large reserve of protected area in the southern part of its inner basin, leaving room for significant traffic growth. The Consortium is aware that part of this protected area is currently occupied by municipal “green areas” dedicated to leisure activities, yet he is of the opinion that in case of maritime growth demand an agreement should be found between the Port Authority and the Municipality, allowing to make use of these green areas for port development purposes, for instance by proposing compensatory leisure areas outside the port.

3.2.4 Project result 2B: Pre-Feasibility Study Port of Filyos

The full final pre-feasibility study report for the Port of Filyos has been distributed to the relevant beneficiary organisations and the EU.

Herewith follows a summary of that report.

Summary Pre-Feasibility Study Port of Filyos

In early 2008, in the scope of the TACIS project "Improvement of Maritime Links between TRACECA and TENs Corridors", the consortium in charge of the project was requested to undertake an up-to-date pre-feasibility study for the Filyos port project. This brief study, carried out between May and December 2008, included the following steps:

- Review of the JICA study report and of additional studies performed since 1991, notably in-situ wave measurements.
- Establishment of planning criteria.
- Update of the Japanese market study, including rough traffic projections.
- Development of a set of preliminary port projects.
- Multi-criteria comparison of the various port projects.

This pre-feasibility study will be followed by detailed studies for which a tender has been launched by the EC at the end of August 2008, covering full feasibility studies, environmental impact assessments and works tender dossiers. These detailed tasks are scheduled to start at the beginning of year 2009 and to be completed in the middle of 2010.

The new port will be located near the city of Filyos, also called Hisarönü, at the delta of the Filyos river, which is a relatively flat and level area of approximately 700 ha. The city of Filyos is located at the north-western part of Turkey at the Black Sea. The Filyos river is a meandering river.

This project is not only a port project, it is a wide "Filyos Valley Project" consisting of river rehabilitation, land acquisition, industrial development, port development, transport systems and urban settlements. At the moment the area land-use is 48% for agriculture, 38% in forests and 14% with rural settlements.

The project falls into the Turkish "A Class Category", meaning that high risks will have to be mitigated and/or compensated for.

Possible direct impacts of the global project are as follows:

- Increased employment.
- Increased local economy.
- Increased population.
- Increased land prices.
- Decreased flood risks.
- Increased transportation flows (by air, road, rail and seaborne).
- Loss of agricultural land.
- Emissions, especially in case of oil refineries, other petrochemical industries, steel industry.
- Noise.
- Wastewater discharges.
- Solid waste disposal.
- Loss of sensitive habitats.

Receptors will be the marine environment, the Filyos river ecosystems, the communities in the river basin, fishermen, farmers, tourists and archaeological assets. Public will need to be informed and associated to the project development, as well as NGOs. The project is already approved in the frame of the Zonguldak-Bartin-Karabük regional development plan (see following extract).

There is a need for strategies towards sustainability and for detailed zoning in each basin (basin management units should be set up), as well as needs for:

- Baseline gap analysis.
- Identification of impact zones.
- Zoning of conservation sites.
- Environmental mitigation plans.
- Social awareness/community investment programmes.
- Emergency response plans.
- Resettlement plans.
- Project packages for settlements, infrastructure and social facilities.

In 1991 the Japanese JICA made a feasibility study for the port of Filyos. The cargo flow forecast of JICA pointed at an estimated throughput of around 7 Mt per annum by 2000, and approximately 18 Mt by 2010. The TINA study [2] concluded that maritime transport via the Zonguldak region (not only Filyos) would increase from 8.5 million tons in 2004 to 24.5 million tons in 2020.

For this pre-feasibility study the consultant has worked on an update of the traffic forecast for the port, based on interviews with stakeholders, results of the traffic forecast for the Black Sea region in the 2008 Maritime Links project and additional data on throughput of Turkish ports collected at the end of 2008.

Results of the forecasts depend for a part on what will happen with the port of Zonguldak, some sources indicate this port will be closed while other sources indicate the port will stay open. There the consultant has developed two scenarios. In the first scenario Zonguldak will be closed and all relevant cargo will be handled at Filyos. In the second scenario Zonguldak will stay open but focuses mainly on coal given the limited growth possibilities due to the fact that the port is in the centre of the city. The consultant estimates that the effect on Filyos will be around 3.5 Mt of dry bulk.

The main conclusions are:

1. In the pre-feasibility stage, it has not been possible to review the revenue forecasts, or by implication, the expected rates of return.
2. However, it has been possible to update the market analysis, and to assess the validity of the other studies.
3. To this end, the JICA proposal for a facility capable of handling containers and a mix of dry bulk and semi-bulk cargo is broadly supported.
4. Our estimates show for the port of Filyos a substantial market for dry bulk and container transport. Following two scenarios the port of Filyos could attract between 9 and 19 million tonnes of cargo in 2020.
5. If the port development plan would include (as set out by JICA) additional industrial complexes, it is also possible for the plan to bring new traffic into the hinterland of Filyos.
6. Compared to the 2020 TINA forecasts, this would imply that Filyos would attract more than 40% of the port traffic in the Zonguldak region by tonnage.
7. At this stage, preliminary analysis indicates that the Filyos-Mersin land bridge option is approximately twice as expensive as the direct sea route through the Bosphorus, and the reliability and transit times seem not very positive. It is therefore not part of the expected volume. However this issue should be further investigated in the course of the detailed studies to be performed in 2009.

The main recommendations are:

1. Greater certainty is required in relation to the mix of cargoes within the region. Several available sources are potentially conflicting, and greater detail is required concerning the data definition and the true mix of traffic in Zonguldak and Eregli in particular. This should include confirmation of both international and domestic cargoes.
2. Analysis of the maritime sector within Turkey is hindered by the fact that no official statistical source exists with a comprehensive record of all maritime flows (international and domestic) for all Turkish ports (public and private sector). Without this, there is a great deal of uncertainty about recent traffic evolution. This would be a pre-requisite for further analysis.
3. The mix of facilities in the port design needs to be reviewed in light of current traffic volumes, and additional market research.

4. To this end it is also necessary to improve and update the analysis of transport costs in the region, and to revise this in view of the network enhancements set out by the TINA study. This is necessary to define in greater detail the potential catchment area of the port.
5. The understanding of transport costs must also include a more detailed understanding of the potential revenue streams for the port. From this basis, and with reference to updated construction cost estimates it would be possible to consider financial feasibility of the project.
6. Furthermore it is necessary to consider the ship deployment patterns in the container sector and to combine this with an updated understanding of shipping costs, in order to consider in more details the prospects for a land-bridge between Mersin and Filyos, taking notably into account waiting times in the Turkish straits.
7. The influence of the future rail-ferry connection between Samsun and Russia needs to be estimated (to be opened in 2009, upon completion of the Samsun terminal).

Five port options have been developed in 2008, on the basis of the previous planning criteria, environmental considerations and project requirements. Options 1 to 4 were purely developed by the consultant, whereas Option 5 is inspired from the project previously prepared by DLH and handed over to the consultant in October 2008 – the latter also appears in the Zonguldak-Bartin-Karabük Regional Development Plan.

The following table shows that Options 1 to 4 meet pre-defined berth and yard requirements, which is not the case with Option 5, except regarding containers (even its fairway is a bit narrow). Option 5 could match in case traffic does not develop as much as anticipated in the high forecast scenario (for instance, regarding general cargo and semi-bulk, Option 5 meets requirements of the conservative traffic forecast).

	General Cargo & Semi Bulk		Dry Bulk		Container		Ro-Ro	
	Berth (lm)	Yard (m2)	Berth (lm)	Yard (m2)	Berth (lm)	Yard (m2)	Berth (unit)	Yard (m2)
Requirements:	**1,911**	**357,000**	**1,440**	**221,000**	**1,211**	**387,000**	**4**	**195,000**
Option 1 offers:	1,911	382,000	1,440	215,000	1,211	424,000	4	194,000
Option 2 offers:	1,911	382,000	1,440	204,000	1,211	424,000	4	194,000
Option 3 offers:	1,911	395,000	1,440	231,000	1,211	424,000	4	184,000
Option 4 offers:	1,911	410,000	1,440	243,000	1,211	424,000	4	197,000
Option 5 offers:	997	165,000	540	45,000	1,208	567,000	3	78,000

Projects opened to the East (1, 3) should not risk any siltation in their fairways and basins, but ports opened to the West (2, 4, 5) would require in-depth studies with that regard, in 2009 and 2010. The

consultant in charge of detailed designs will have to consider possible future dams on the Filyos river upper sections, as these would impact discharges of water and sediment.

Regarding liquid bulk, although the market study does not clearly express any needs for liquid bulk, all proposed port projects offer 2 berths for liquid bulk, located such that they can be developed independently of the other port facilities and therefore, in case the need for liquid bulk does not appear, these berths can easily be skipped.

The future port will be integrated into the Regional Business Zone, which will require adequate road and rail connections to national transportation networks. As far as rail is concerned it is understood that an improved connection to Ankara is already planned (attached drawings simply show an indicative rail connection to the existing rail line). Regarding roads, the minimum requirement will be a new highway connecting to the existing 4-lane road, near Zonguldak airport.

The consultant has drafted estimates of capital construction costs for each of the 5 project options, in euro, based on recent international large port constructions. Only port infrastructures have been priced (dredging and reclamation works, earthworks, berths[1], breakwaters, revetments and yard pavements). Costs of buildings, sheds, warehouses and handling equipment are not included in the following sums, these items being usually borne by operators. River canalization works are also completely out, as well as connections to rail and road networks (bridges over the river will be needed).

Indicative Cost Estimates for Construction of Port Infrastructures

Option 1	Option 2	Option 3	Option 4	Option 5
564 M€	580 M€	498 M€	523 M€	443 M€

Options 1 to 4 post rather similar costs but, although Option 5 offers much lower capacities (except for container), it is almost as expensive as the other four projects.

this pre-feasibility study, based on a series of criteria: fulfilment of requirements, construction cost, potential environmental impacts, ease of construction into phases, risk of siltation in fairway and basin (for the time being it is assumed that all options offer adequate protection against waves).

	Option 1	Option 2	Option 3	Option 4	Option 5	Comments
Fulfilment of requirements	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 low scenario	Option 5: lower capacity/cost ratio
Construction cost	564 M€	580 M€	498 M€	523 M€	443 M€	
Potential	medium	medium	higher	higher	lower	

[1] If confirmed, very poor sub-soil conditions will entail higher rates for berthing structures.

environmental impacts						
Ease of construction into phases	not convenient	not convenient	easier	easier	not convenient	Construction in phases is important for such a large port
Risk of siltation in fairway and basin	very limited	probably significant	very limited	probably significant	probably significant	Siltation may entail high maintenance costs, unless overdredging is anticipated

The above table does not allow any straight selection. Of course, Option 5 does not look very attractive, but the fact that this port layout has now been introduced in several Turkish official documents may lead future studies to consider it further. From technical and cost points of view Option 3 should be the preferred one; coming detailed studies should therefore seriously consider its principles.

3.2.5 Project result 3: Safety and Security

In the first year of the project, the present situation in the project countries with respect to safety and security in the maritime sector had been evaluated.

In the last year of the project, training workshops were prepared and executed.

It was also identified that the implementation of a common integrated management system for safety and security would enhance the objective to increase the maritime safety and security in the Black Sea region and therefore the consortium has worked out the framework of a management system for safety and security in the Black Sea region.

This integrated common management for safety and security in the Black Sea is named: Black SEA SASEMAS.

Black Sea SASEMAS was introduced and explained during the five country safety and security workshops held within the framework of the project in the period November 2008 – February 2009.

A summary and outline of SASEMAS was submitted to the TRACECA National Secretaries in the beginning of March 2009, with the question to comment on the SASEMAS proposal during the projects' Completion Seminar (Sofia, Bulgaria, 26 March).

During the regional completion seminar, representatives of the five countries gave their opinion about Black Sea SASEMAS.

2008	**Place**	**Date**
S&S Training workshop Bulgaria	Burgas	4-6 Nov.
S&S Training workshop Turkey	Istanbul	25-27 Nov.
S&S Training workshop Ukraine	Odessa	16-18 Dec.
2009		

S&S Training workshop Georgia	Batumi	3-5 Feb.
S&S Training workshop Romania	Constantza	17-19 Feb.
Completion Seminar	Sofia	26 March

The final report Safety & Security is included in the Annex.

3.2.6 Project result 4: Port Community Systems

During the first year of the project it became clear that in the ports of the Black Sea, no PCS system is operational. Moreover, it seems not all relevant officials are aware of the functioning of a PCS.

Therefore, during the second phase of the project, workshops were organized in all the five project countries where PCS was explained detailed and which steps to take to come from nothing till a full operational PCS. The Harbour Messages for the port of Varna were used to prepare a pilot PCS, which was used during the PCS workshops.

Moreover, during the Study Tour The Netherlands & Belgium, the participants were shown different operational PCS systems.

Principal findings

There is no PCS in one off the 11 ports. In all these ports lack of computerized (interactive) data processing does not allow efficient data sharing between users:

- within the own port community,
- between the authorities &
- between the ports themselves.

Attention also to be drawn to the fact that:

- a 'good & fair ICT-awareness',
- a believe in unambiguous procedures/definitions/... and
- the feeling of 'e-commerce' as a tool of competitiveness (whether it be e-navigation, e-maritime, e-customs, e-freight, etc...)

is (mostly) ***not in place***

Current computerized data is often/mostly not shared with all key stakeholders and the lack of computerized data exists.

The already computerized customs declaration data is often not reused for other purposes (even for the preparation of other customs declarations).

- During the workshops - and when the Customs were present - the general feeling was that they are willingly to open up there (information) systems for multiple use (other port community actors) but only on their own conditions and terms (cfr. Private port actors)

The PCS has great potential to automate streamline the planning process.

(Pre)Announcing of vessels and cargo/containers arrival can be a great help for the various service providers (and assist in producing berth, gangs, machinery and warehouses work plans).

It was clear, from in the beginning, that the port's management model would be fundamental. Especially in view of the 'leading party/partner' (= who is going to manage such a PCS?) an ***unambiguous, objective & neutral structure*** should be in place.

Port management models

Key characteristics of port management models

- public/private mix of ownership of port assets and control of port functions
- degree of integration of port assets and functions
  - port assets and functions managed by a single entity are integrated
  - port assets and functions managed by different entities are not integrated
- degree of centralisation/decentralisation (in case of public ports)
  - ports managed by central authorities (e.g. one ore more departments within a Ministry of Transport)
  - autonomous ports: local port authority with own management and separate accounts

There are many port management models

- Depending on the particular institutional context in a country the port functions may be distributed in many different ways among various public and private entities
- Port authority
  - There is no universally accepted definition of a port authority!
- Organisations that are considered as "port authorities" usually:
  - cover at least the landlord functions and the local regulatory functions
  - have some autonomy (they are regulated and supervised, but not managed by central authorities)
- The aim of this project is not to give recommendations on the best port management model
- Nevertheless, we need to devote attention to port management models because they have a profound impact on the feasibility and desirability of both PCS and PPP

- Impact of integration
  - High degree of integration (example: public service port)
    - easier to implement PCS because benefits are largely internal
    - but benefits of PCS are lower because there are few port actors
  - Low degree of integration
    - more difficult to implement PCS because
      - benefits are diffuse
      - costs and benefits may be unbalanced: some actors win and other lose
    - but potential benefits of PCS are larger

- Impact of centralisation
  - Centralised port management
    - lack of operational and market knowledge
    - long and politically influenced decision processes
    - deep pockets
  - Autonomous port
    - good insight in operational and market processes
    - short decision lines
    - smaller financial resources

Overall conclusions	**To-do**
Is there need of an integrated PCS?	Depending size of port, of handled commodities, etc. In any case all ports should evolve towards automated & structured procedures and try to aim at paper-poor procedures. Re-keying must be avoided.
As in almost all ports the Port manager seems to be an 'operator', most meetings were difficult (an	Redefine the organisation and/or port management 's models/system

operator not being quite familiar with ship's follow-up and vv.)	Incl. their procedures
There is a huge difference between the various visions on PCS and the results (as well qua organisation as qua functional/technical approach):	Do not tackle all the problems at once Go on with a 'pilot project'
EU-vision: more Maritime adm. oriented (VT(IM)S -> SSN -> safety	PCS should treat all the port community actors
Perception of 'private' vs. 'public' issues	A result of too long 'plan-economical' thinking.
Traceca ports: Too much 'operator' oriented	Operator's information needs are different from 'Authority' needs. Idem with information sources. Better insight in PCS required through e.g. pilot project
It is not clear who ***might*** be the coordinating/leading party (everybody pretending to be the 'starting point'	Define 1. a viable port community and it's actors 2. define all the (business, procedure) cases and their information flows It will show (almost automatically) that only an objective/neutral body may be the leading party/partner
Correct use of definitions, interpretations, perceptions	May be more courses, seminars, (even abroad; such as APEC, STC, NEA,…..)
The roles and functions of all the involved (public) sectors/parties is not clear – ports depend of too much organisations (or too much involvement of too many parties)	When starting with a PCS: Appoint coordinating/leading party/partner. Be sure that the leading power is hierarchically capable of guiding such a project
Some fundamental issues before starting any concept-phase should be answered:	WHO is doing WHAT with WHICH information? What is the ADDED VALUE for your own job/function/organisation? What service do you think you should give?
The gains/profits are still not clear for the Traceca-ports/actors	A result of too much 'job protection' and 'over esteem'. They should better understand: ***"Improve the communication and facilitate the workload of the port user and/or service/information provider"***
Some ports were privatised. Further co-operation towards a PCS might be very tricky	Only if Port Authority functions (incl. traffic mgmt) are well and clearly defined a solution might be feasible.
The existing ***walls*** between the public sector (with too many involvement within the operational level) and the private (even if they	Only time and the necessary reorganisations might solve this 'problem' (if any?)

are 100% state owned) is a hard to surmount issue	
There is no idea of cost/time needed to build a PCS	Separate study via a pilot project
Up to now, the information exchange (what?), was/is too much 'point-to-point oriented and actor-dependant	Separate study via a pilot project Incl information flows and re-engineering proposals

In the Annex, the complete report PCS is included.

3.2.7 Project result 5: PPP and Bankable Projects

Project result 5 was divided into two phases.

The first phase corresponds to phase 1B of the overall project, and was carried out in the period October 2007-April 2008. It comprised the following activities:

- desk study on PPP in ports (contract forms, costs and benefits compared to classic public procurement, best practices)
- fact-finding visits to relevant central authorities[2] in the five project countries to establish the current state of affairs and future plans with respect to PPP in ports;
- assessment of legal and institutional framework with respect to PPP in ports in the five countries.

The activities of the first phase resulted into two products:

a. Port PPP (4P) framework for the (i) the identification of Public Private Partnership (PPP) opportunities in the port and maritime transport sector on the TRACECA routes, (ii) the assessment of the added value of PPP (with respect to traditional, public solutions), and (iii) the optimal design of PPP models in order to effectively achieve this added value;
b. country-by-country assessment of the current state of affairs with respect to PPP in ports.

The second phase of the project was carried out in the period April 2008 – April 2009. Its original objective was the application of the 4P Framework to port infrastructure investment needs and plans in the TRACECA region in order to obtain a selection of Bankable Projects. However, on the basis of the findings of the first phase, we concluded that the second phase could not be carried out as originally intended. The results of the market study (result no. 1) and the information collected during the first phase of the project did not allow us to identify specific investment projects for which the PPP potential and bankability could be assessed. The project ideas we encountered were either too early in the project cycle (requiring additional feasibility assessment before financing and PPP issues could be addressed in detail) or too late (funding had already been arranged).

In the first phase of the project we discovered several points requiring improvement with respect to the way port investment projects were put on the market, for instance (not all points apply to all countries or to all agencies in a given country):

- lack of familiarity with the principles and different forms of PPP;
- no explicit analysis and balancing of (potentially conflicting) public and private interests in the choice of a procurement approach (classic or PPP) for the financing and the construction of port infrastructure.

[2] Central authorities responsible for port investment planning, port policy and PPP. The identity of these authorities depends on the institutional context and administrative organisation in the respective countries. A list of authorities and contact persons visited has been included in the progress reports. Generally out visits extended to departments in the ministry of transport responsible for ports, infrastructure investments in general and public procurement/concessions.

- insufficient elaboration of the business case of investment projects before putting them on the market, resulting in weak market interest for some projects and protracted negotiations for other.

Consequently we have used the second phase of the project to conduct series of five interactive workshops (one in each country) in which the areas of improvement were addressed. This means:

- increasing familiarity with the principles and different forms of PPP;
- showing how to select a PPP model on the basis of an explicit consideration of the advantages and disadvantages of the different PPP models;
- increasing awareness about the implementation issues of PPP (tender preparation, ensuring sufficient market interest and competition).

The objective of the workshops was not to impose a uniform best model for the financing and construction of port infrastructure. Such a uniformly optimal model does not exist. The ambition was instead to learn the participants which good options are available, and how they can make a rational choice between these options in function of their port's and country's particular needs and wants. The workshops were attended by participants from relevant central authorities and from both the public and private sector in the ports. Workshops have been held in Ankara, Odessa, Constantza, Varna and Batumi.

Main conclusions

Substantial port investment needs

The market study conducted in sub-project 1 of this project has demonstrated that the ports covered by this project (Burgas, Varna, Constantza, Illiychevsk, Odessa, Poti, Batumi, Hopa, Samsung, Istanbul and Derince) will experience a substantial increase of cargo handling demand in the next decennium (up to 2020). To accommodate the expected traffic growth these ports will require large investments in the renovation, upgrading and/or expansion of their facilities. This will place a heavy strain on the budget of the governments financing the seaports.

Sole reliance on public sector budgets to finance investments in seaport infrastructure crates the risk that the needed expansion of port capacity can not be realised in time to meet demand, thereby hurting the competitiveness and economic development of the TRACECA member states using the ports mentioned above for overseas exports and imports.

Options for PPP in ports

There is a range of PPP models that is potentially optimal for the delivery of port infrastructure services. Ranked by degree of private involvement they include management contracts, operating concession/land lease, DBFMO (Design-Build-Operate-Maintenance-Operate) contracts, BOT (Build-Operate-Transfer) concessions and concession of management rights. These models are all potentially optimal. Which one is optimal in a particular project depends on the characteristics of the project and the objectives of the public sector.

Benefits of PPP

The advantages of PPP fall into two categories.

- The first category is grouped under the term "Value for Money". Experience across the world has shown that PPP can supply public services with a better price to quality ratio than the traditional public delivery model.
- The second category of benefits of PPP derives from the use of private finance. Governments often lack the funds to make the investments that are required to provide public infrastructure and services, especially in areas with fast-growing needs. Using PPP gives access to private capital and allows accelerating the required investments so that needs are met in a more timely fashion.

The access to private capital for the funding – and in particular the off-balance funding – of public projects constitutes in practice the predominant motivation for the public sector to engage in a PPP. This is also the case for port investments in the Black Sea region.

PPP in ports in the five project countries

The legal assessment concluded that suitable PPP models for investments in port infrastructure are available in all five project countries.

In fact, in the last ten years the region has proven its ability to attract large amounts of private capital and funds from international financial institutions for investments in port infrastructure.

There are nevertheless areas of improvement. These have not proven so far to be an obstacle for investments. But addressing them will allow meeting future capital needs more easily and at more favourable conditions, and also managing ports investments more efficiently.

Main areas of improvement

- We have encountered a lack of familiarity with the principles and different forms of PPP, even in agencies that are responsible for tendering PPP contracts. This lack is for instance manifested in the restriction of the attention to a single PPP model (e.g. BOT concession or mixed public/private companies) without examining whether other models might not be more efficient for a particular project. The workshops in the second phase of the project were aimed at addressing this problem.

- Ports have substantial public interest aspects. They contribute to the prosperity and international competitiveness of a country. The availability of a nearby and efficient seaport increases the competitiveness of exporting firms and lowers the price paid for imported goods, benefiting both domestic firms that use imported inputs and domestic households. This public interest value of seaports is not always sufficiently taken into account when considering PPP options. There is a risk of a conflict between overall economic interests (low-cost ports in the service of economic development) and financial interests (maximisation of revenues for state or local treasuries through high concession fees).

- The last, but not least, area of improvement relates to the skills and incentives of the public contracting authority. Ultimately the trust by potential private partners in the competence and reliability of the public contracting authority is one of the most important enabling conditions for PPP. The main problem is a too large fragmentation of port policy and planning, resulting in a mismatch between authority, skills and financial responsibility. A public agency procuring a port investment project must have a clear authority to do so (so that the private partner has legal certainty that the public contracting agency has the authority to enforce and comply with the contract), must possess the skills to manage the tender process (i.e. it must know the port business, so that feasible and well-prepared projects are put on the market) and must be financially responsible (so that the agency has the required resources and the financial incentive to manage the PPP projects as efficiently as possible). If the contracting authority does not combine these three requirements (skills, authority and financial autonomy) it can not be a fully competent and reliable public partner in a PPP.

In the Annex, the complete report PPP is included.

3.3 Staff Input and Incidental Expenditure

Herewith follows an overview of the resources used over the period 1 November 2008 – 15 April 2009.

	Total Budget	Used	Percentage used
Team Leader	420 person-days	420 person-days	100 %
Key Experts	600 person-days	600 person-days	100 %
International Non-Key Experts	415 person-days	415 person-days	100 %
Local Non-Key Experts	498 person-days	498 person-days	100 %
Total staff input	1,933 person-days	1,933 person-days	100 %
Total fees staff	€ 1,680,100	€ 1,664,400	100 %
Incidental Expenditure	€ 554,500		
Expenditure Verification	€ 15,000		
Total Project Budget	€ 2,249,600	€ 498,000	63 %

Incidental Expenditure used, includes:

- Travel to and in the region (except for travel between Sofia and home country)
- Daily subsistence allowance (except for Sofia, after 1 September 2007)
- Rent and operating costs Regional Project Office Sofia
- Workshops and seminars
- Study Tour The Netherlands and Belgium

3.4 Lessons Learned

3.4.1 Cooperation with TRACECA Organisation

For an optimal execution of the project, tuning with the TRACECA National Secretaries is essential. Via the TRACECA organisation, all other contacts in the project country are materialized.

During the execution of the project, the project team was in contact with the local TRACECA National Secretaries on a regular basis.

The assistance of TRACECA N.S. was two-fold:

1. assessing the relevance of the project results, and;
2. identifying local target groups for the project results.

With the TRACECA National Secretaries the activities and progress of the project were discussed and they assisted to prepare the list of potential participants of the workshops, seminars and study tour. Moreover, they invited relevant persons/organisations for the workshops, seminars and study tour.

In order to benefit from the TRACECA organisations and increase the efficiency of TRACECA projects it is therefore essential that the TRACECA National Secretaries are manned with professional staff (preferably English speaking) with good knowledge of the transport sector and local network of persons/organisations. It was noted that in some countries the staff of the TRACECA National Secretaties was changed and replaced during the course of the project. It took quite some efforts to identify and contact the new National Secretary and/or counterpart staff in the local TRACECA organisation.

As in several countries the TRACECA National Secretary is also a high Ministry of Transport official (with related duties), the continuity and professionalism in transport matters of the TRACECA N.S. staff is very important. During the execution of our project, we were confronted with key staff changes at TRACECA N.S. Bulgaria, Georgia and the Ukraine which resulted in a short disruption of coordination of project matters.

The cooperation with the TRACECA IGC was minimal during the execution of the project. TRACECA IGC was regularly informed about progress and reports were sent to them. However, the TRACECA website was not updated with the information and reports supplied by the project team. Additionally, we were supposed to use the transport database of TRACECA IGC for the determination of the future cargo flows in the TRACECA region, but this database was not available (Autumn/WInter 2007).

3.4.2 Preparing Terms of Reference

It was noticed during the Inception Phase of the project that several project results (Safety & Security and rail ferry terminal Samsun) were already further in their development then anticipated in the Terms of Reference. The ISPS Code was implemented in all project countries and the designated authorities marked all the ports to be compliant to the ISPS Code. The rail ferry terminal feasibility study was done and the reconstruction works were already started.

In order to avoid unnecessary project activities, it is advised that the lead time from project identification (by TRACECA or EU) till the actual project execution to be reduced, and/or that the TRACECA National Secretaries monitor internal developments in their countries more thoroughly, and keep the relevant EU project manager(s) informed about local developments.

3.4.3 Coordination EU-TRACECA projects

The EU and TRACECA own several transport related projects in the TRACECA region. It is advised to coordinate different transport related TRACECA projects funded by the EU, throughout regular meetings (once half a year) of the team leaders of those projects. The agenda for such meetings should include the progress of the TRACECA projects, the cooperation with TRACECA N.S. and IGC and

3.5 Prospects for the Maritime Links in the Black Sea Region

The market research showed the potential of the Black Sea region with regard to future cargo handling. Despite the present economic crises, the forecast is still valid, though the increases in cargo turnover will be somewhat delayed.

Overall, an Increasing demand for port handling capacity in the whole region is expected and where the cargo goes in the future (which ports), depends on available terminal capacity and overall customer service.

Although not investigated thoroughly within the project, it seems that the Black Sea region, in the not so distant future, might develop into a cruise destination. The potential is there: summertime period in the Black Sea region is from April till October, different potential interesting cruise destinations are available, distances between ports are suitable and a growing cruise market in Europe. However, in order to be able to develop this niche maritime market, the cruise, tourism and port industry should jointly cooperate and take the required actions.

It was noticed that the rail ferry concept is being promoted extensively throughout the TRACECA region. The background of this concept was formed in the Soviet period, when the transport modes were brought in line with the requirements of the Soviet military-industrial complex. The main mode of transport was rail and therefore also the rail ferry services have been developed. However, due to the

difference in railway gauge between Europe and the former Soviet Union countries, this concept is not very economic feasible (extra shifting of goods/wagons, low cargo carrying capacity of the rail ferries).

It is expected that on the Caspian Sea the rail ferry concept might work efficiently, however, in the Black Sea the potential is more formed by ro-ro (road) connections.

4 Training Workshops Safety & Security

4.1 Introduction

During the first phase of the project, it was identified that the recipient TRACECA countries would benefit the most from a combined workshop in which training and the introduction of a common integrated management system for safety and security (Black Sea SASEMAS) would be dealt with.

The consortium has developed an integrated 3-day workshop that was given in all the five project countries.

The participants for the workshops were identified together with the TRACECA National Secretaries of the beneficiary countries.

Schedule of safety & security training workshops

	Place	Date
S&S Training workshop Bulgaria	Burgas	4 - 6 Nov. 2008
S&S Training workshop Turkey	Istanbul	25 - 27 Nov. 2008
S&S Training workshop Ukraine	Odessa	16 - 18 Dec. 2008
S&S Training workshop Georgia	Batumi	3 - 5 Feb. 2009
S&S Training workshop Romania	Constantza	17 - 19 Feb. 2009

The final report of the project result Safety and Security is included in the Annex.

4.2 Programme

Day 1		
13.00 - 13.30	Registration	
13.30 - 13.45	Opening Introduction	TRACECA National Secretary Edwin Lock, Team Leader
13.45 - 14.00	Introduction: • summary of project results Safety & Security for phase 1 of the project	Capt. Bertrand Apperry Safety & security expert
14.00 - 15.30	Presentation of an Integrated Safety and Security Management System (SASEMAS): • structure of the system, referential, organization, requirements and implementation, verification structure, improvement process	Capt. Bertrand Apperry
15.30 - 16.00	Coffee break	
16.00 - 17.00	Safety of shipping in SASEMAS: • International and EU requirements, link with MOUs, verification of conformity	Capt. Bertrand Apperry
Day 2		
09.00 – 10.15	Safety of Port Operations in SASEMAS, part 1: • study of ILO guidelines, definition of requirements	Capt. Bertrand Apperry
10.15 - 10.30	Coffee break	

10.30 – 11.30	Safety of Port Operations in SASEMAS , part 2: • definition of referential, verification of conformity	Capt. Bertrand Apperry
11.30 – 12.15	Round table & questions on management of safety in shipping and ports, including how to conduct the verifications (internal audits)	Capt. Bertrand Apperry
12.15- 13.30	Lunch	
13.30-14.45	Security of Shipping in SASEMAS: • referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	Capt. Bertrand Apperry
14.45- 15.00	Coffee break	
15.00 – 16.00	Security of Port Facilities: • referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	Capt. Bertrand Apperry
16.00-16.15	Break	
16.15- 17.00	Port Security in SASEMAS • EU regulations, PSA & PSP, relationship between Port Facilities and Ports	Capt. Bertrand Apperry
Day 3		
09.00-10.15	Round table & questions on management of maritime and port security, including how to conduct the verifications (internal audits)	Capt. Bertrand Apperry
10.15-10.30	Coffee break	
10.30- 11.45	Implementation of SASEMAS: • functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards or other name?)	Capt. Bertrand Apperry
11.45- 12.30	Round table & questions on the functional aspects of the proposed SASEMAS, including operational tools	Capt. Bertrand Apperry
12.30	Closure of the workshop	Edwin Lock, Team Leader

4.3 Bulgaria

4.3.1 List of Participants

Name participant	Organisation	4/11/08	5/11/08	6/11/08
Mr. A. Pashov	Bulgarian Maritime Administration	☐	☐	☐
Mr. G. Tzonev	Port Administration Varna	☐	☐	☐
Mr. Z. Valkov	Maritime Administration Burgas	☐	☐	☐
Mr. Z. Zhelev	Port of Burgas	☐	☐	☐
Mr. M. Ionov	Naval Academy	☐	☐	
Mr. P. Dereliev	Naval Academy	☐	☐	☐
Mr. T. Shivachev	Port Authority Burgas		☐	
Mr. G. Lozanov	Port Administration Burgas			☐

4.3.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation SASEMAS: structure of the system, referential, organization, requirements and implementation, verification structure, improvement process	5	1			6
Safety of shipping: International and EU requirements, link with MOUs, verification of conformity	4	2			6
Safety of Port Operations, part 1: study of ILO guidelines, definition of requirements	4	2			6
Safety of Port Operations , part 2: definition of referential, verification of conformity	4	2			6
Security of Shipping: referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	6				6
Security of Port Facilities: referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	4	2			6
Port Security: EU regulations, PSA & PSP, relationship between Port Facilities and Ports	5				5
Implementation of SASEMAS: functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards)	4				4
Total workshop contents	4				4

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	6				6
Hotel accommodation	5	1			6
Catering by hotel	5	1			6

4.4 Georgia

4.4.1 List of Participants

Name participant	Organisation	3/2/09	4/2/09	5/2/09
Capt. M. Talakvaze	Port of Batumi	□	□	□
Mr. R. Devadze	Port of Batumi	□	□	□
Capt. M. Devadze	Port of Batumi	□	□	□
Mr. V. Tavberidze	Port of Poti	□	□	□
Mr. D. Chochua	Port of Poti	□		
Mr. V. Chikhradze	Port of Poti	□	□	
Mr. G. Talabadze	Port of Poti	□	□	□
Mr. V. Khardin	Port of Kulevi	□	□	□
Lt. G. Fedochin	Port of Kulevi	□		
Mr. D. Baramidze	MTD, Tbilisi	□	□	□

Capt. V. Imnaishvili	MTD, Tbilisi	☐	☐	☐
Capt. S. Surmanidze	MTD, Tbilisi	☐	☐	☐
Mr. R. Beridze	MTD, Tbilisi	☐	☐	

4.4.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation SASEMAS: structure of the system, referential, organization, requirements and implementation, verification structure, improvement process	6	3			9
Safety of shipping: International and EU requirements, link with MOUs, verification of conformity	6	3			9
Safety of Port Operations, part 1: study of ILO guidelines, definition of requirements	2	7			9
Safety of Port Operations , part 2: definition of referential, verification of conformity	3	6			9
Security of Shipping: referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	5	4			9
Security of Port Facilities: referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	4	5			9
Port Security: EU regulations, PSA & PSP, relationship between Port Facilities and Ports	5	4			9
Implementation of SASEMAS: functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards)	6	3			9
Total workshop contents	4	5			9

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	9				9
Hotel accommodation	8				8
Catering by hotel	6	1			7

4.5 Romania

4.5.1 List of Participants

Name participant	Organisation	17/2/09	18/2/09	19/2/09
Valentin Nita	C.N Administratia Porturilor Dunarii Maritime S.A. Galati	☐	☐	☐
Emil Luca	Romanian Maritime Training Centre	☐	☐	☐
Popa Horia	RADIONAV	☐		
Bus Camelia	Directia Generala de Transport Naval	☐	☐	☐
Tiberiu Soptereanu	National Administration of the Maritime Ports	☐	☐	☐

Vladimir Gica	National Administration of the Maritime Ports	☐	☐	☐
Adrian Ionescu	National Administration of the Maritime Ports	☐	☐	☐
Raluca Moldoveanu	National Administration of the Maritime Ports	☐	☐	☐
Andreea Masu	National Administration of the Maritime Ports	☐	☐	☐
Caligas Dan Liviu	Autoritatea Navala Romana	☐	☐	☐
Babenco Claudiu Cristian	Organizatia Patronala “Operatorul Portuar”	☐	☐	☐
Daniel Slav	Organizatia Patronala “Operatorul Portuar”	☐	☐	☐
Dragan Ion	COREMAR Compania de Remorcaj Maritim Constanta	☐	☐	☐
Ocheana Nicolae	Inspectoratul Judetean al Politiei de Frontiera Constanta	☐	☐	

4.5.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation SASEMAS: structure of the system, referential, organization, requirements and implementation, verification structure, improvement process	12	1			13
Safety of shipping: International and EU requirements, link with MOUs, verification of conformity	12	1			13
Safety of Port Operations, part 1: study of ILO guidelines, definition of requirements	12	1			13
Safety of Port Operations , part 2: definition of referential, verification of conformity	12	1			13
Security of Shipping: referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	11	2			13
Security of Port Facilities: referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	11	2			13
Port Security: EU regulations, PSA & PSP, relationship between Port Facilities and Ports	12	1			13
Implementation of SASEMAS: functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards)	12	1			13
Total workshop contents	12	1			13

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	12	1			13
Hotel accommodation	6	3			9
Catering by hotel	9	4			13

4.6 Turkey

4.6.1 List of Participants

Name participant	Organisation	25/11/08	26/11/08	27/11/08
Emre DİNÇER	Undersecretariat for Maritime Affairs	☐	☐	☐
Osman Fatih GİRAZ	Undersecretariat for Maritime Affairs	☐	☐	☐
Levent PİRCİ	TCDD	☐	☐	☐
Hakan ERDOĞAN	TCDD	☐	☐	☐
Tugrul KAYALI	Port of Derince	☐	☐	☐
Birol BAFRA	Port of Samsun	☐	☐	☐
Capt. M. Azman	Harbourmaster Port of Istanbul	☐	☐	☐
Ahmet PORSUK	Port of İzmit	☐	☐	☐
Sertaç YILDIZ	Chamber of ShippingIstanbul	☐	☐	☐
Mustafa YAVUZYILMAZ	Chamber of Shipping Istanbul	☐		
İrfan BİLGİN	TURKLİM İstanbul	☐		

4.6.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation SASEMAS: structure of the system, referential, organization, requirements and implementation, verification structure, improvement process	2	7			9
Safety of shipping: International and EU requirements, link with MOUs, verification of conformity	2	6	1		9
Safety of Port Operations, part 1: study of ILO guidelines, definition of requirements	2	7			9
Safety of Port Operations , part 2: definition of referential, verification of conformity	2	7			9
Security of Shipping: referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	1	7	1		9
Security of Port Facilities: referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	2	6	1		9
Port Security: EU regulations, PSA & PSP, relationship between Port Facilities and Ports	2	6	1		9
Implementation of SASEMAS: functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards)	1	6	2		9
Total workshop contents	1	8			9

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	3	5		1	9
Hotel accommodation	2	4		2	8
Catering by hotel		5	2	2	9

4.7 Ukraine

4.7.1 List of Participants

Name participant	Organisation	16/12/08	17/12/08	18/12/08
Mr. Y. Smurygin	Sea and River Transport Informational and Analytical Center	☐	☐	
Mr. V. Lavrinenko	Department of Sea and River Transport Informational and Analytical Center	☐	☐	
Mr. O. Okarsky	Specialist of Ukrservice, Ministry of Transport and Communications of Ukraine	☐	☐	
Mr. M. Matlakov	Head of General Security Department, Sector Safety and Security Department, Ministry of T&C of the Ukraine	☐	☐	☐
Mr. Y. Yakovyshchenko	Head on Safety and Ecology, Port of Illiychevsk	☐	☐	☐
Mr. O. Gerasymenko	Deputy Head on safety and regulations, Port of Illiychevsk	☐		
Mr. V. Poberezhnyk	Chief Mechanical, Port of Illiychevsk	☐	☐	☐
Mr. I. Nikulin	Head of hydro engineering and engineering facilities, Port of Illiychevsk port	☐	☐	☐
Mr. O. Ivanov	Head of Safety Service, Port of Illiychevsk	☐		
Mr. O. Zakharov	Head of Maritime Safety department, Port of Yuzhny	☐	☐	☐
Mr. V. Yushchenko	Head of Port Security Department, Odessa Sea Trade Port	☐	☐	☐
Mr. B. Shevchenko	Deputy Head of Maritime Safety, Odessa Sea Trade Port	☐	☐	☐
Mr. M. Tomashevsky	Head of Technical Facilities Sector of Maritime Security Service, Odessa Sea Trade Port	☐		
Mr. A. Snytko	Head of Control Service for Maritime Security, Odessa Sea Trade Port	☐	☐	☐
Mr. I. Dodenov	Dep. Manager Maritime Security Service, Port of Odessa		☐	☐

4.7.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation SASEMAS: structure of the system, referential, organization, requirements and implementation, verification structure,	5	5			10

improvement process					
Safety of shipping: International and EU requirements, link with MOUs, verification of conformity	5		5		10
Safety of Port Operations, part 1: study of ILO guidelines, definition of requirements	5	2	3		10
Safety of Port Operations , part 2: definition of referential, verification of conformity	5	5			10
Security of Shipping: referential (ISPS and EU regulations and directives), necessity of harmonisation of SSA and SSP	5	5			10
Security of Port Facilities: referential (ISPS, EU regulations) necessity of harmonisation of PFSA and PFSP	5	5			10
Port Security: EU regulations, PSA & PSP, relationship between Port Facilities and Ports	6	2	2		10
Implementation of SASEMAS: functional aspects of the SASEMAS, including necessary training of persons in charge, future prospects (Black Sea Coast Guards)	5	5			10
Total workshop contents	5	5			10

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	5	5			10
Hotel accommodation	3	1			4
Catering by hotel	7	3			10

4.8 Feedback from Participants

In principle, all participants of the workshops were enthusiastic about SASEMAS and could see the benefits for maritime safety and security in the Black Sea region when SASEMAS would be implemented.

During the workshops, the following feedback was given by the participants.

1- Is the system proposed for the first time?

Answer: Yes, as far as we know this kind of internal common management system between countries having the same interest of improvement of safety and security of shipping and port operations in their region is unique. If we can demonstrate the efficiency of this system it might be introduced in other countries/regions with a similar situation (Caspian Sea, Baltic Sea, North Sea, Red Sea, Persian Gulf, etc.)

2- One of the main benefits of this system will be to speed up the calls of ships in ports by ensuring best practices in port operations.

3- The BS SASEMAS will work in parallel with the existing system or regional cooperation systems as: SAR, Pollution, flag state controls including PSC (MOUs).

4- Verification of conformity of shipping companies and ships will be technically easy but the flag state Administration will have to help the DPs in their assignments.

5- The DP will be normally recruited and … paid by his own country (however, other funding sources might be possible).

6- In fact, this kind of common management system is a European Commission idea …. It should be normal to ask for a contribution from the budget. If yes, the EC will ensure the supervision of the system. But, this is our personal feeling only!

7- Why Europe has not implemented yet such a system around other part of the Union?

Answer: This is a new idea and the priority of today seems to be the transport network from EU towards ASIA.

8- To control safety and security of shipping in and around the BLACK SEA a BS Coast Guards organization may be the solution? If yes, why the European Coast Guards do not exist yet?

Answer: the answer is not easy. Each country has its own Coast Guards. Which can have different tasks (for example, in France the Navy on one side and the Customs on the other side, claim to be called the effective French Coast-Guards). The aim is gathering means of control and interception. After a first attempt, the subject is delayed … until sometime! In fact , Europe is not ready many conditions have to be equalized first like intervention in economic or territorial waters, same command unit, same language etc… But, in our opinion, the ECG will exist for sure!

9- The BS SASEMAS must be accepted by the 5 countries, this acceptation/agreement can take some time… maybe we can start with two countries.

Answer: if the agreement of all countries takes some time, it could be a solution to start with the first signing countries. This will be a good test for the others.

10- The involvement of IMO in this project could be searched.

Answer: IMO is an international organization where only members can propose participation. So the EC or any participating country can issue a proposition of IMO participation (TCP- technical Cooperation Program for example).

11- The BS SASEMAS will have to be presented to Shipping companies and Port operators.

Answer: of course yes. But in our project we were verifying the feasibility and seeking the State agreement first. Secondly, we believe the private sector will be interested by this new cheap tool aiming at helping them to reach the conformity level and to improve their safety culture. Audits and advices performed by the DPs will cover the entire sector during a 5 years program for example.

12- What will be the time table for this project?

Answer: When the project is accepted by the countries and funding is made available, the schedule could be:

a) Set up of the system by a consultant
b) Designate steering committee members from the different Maritime and Port Administrations of participating countries
c) Recruitment of DPs and substitutes in the participating countries by the steering committee acting as an employer
d) Train DPs in maritime and port safety and security/ training centers must be carefully selected in order to ensure the DPs' KUP corresponding to our project
e) Start the first Safety and Security audits (conformity and operation) in companies/ships and facilities/ports by a couple of DPs (two DPs minimum, two countries) on a basis of one audit/report per week per country
f) Start the national reviews after one year of audits (prepared by the national DPs for his country) and analyzed by the steering committee.
g) Organize (seminar) first "BS SASEMAS review" and propose corrective and preventive actions decided by the committee.

13- DPs agreements should be clearly defined by the participating governments; the DPs must have the possibility to consult all documents (manuals, plans, recordings) on safety and security even those classified "SECURITY CONFIDENTIAL" like some parts of Ships, facilities or ports security plans. NB: Agreement must be limited to "RESTRICTED" and "SECURITY CONFIDENTIAL';" CONFIDENTIAL DEFENSE" is excluded.

14- Communication of results will be a sensible thing if we expect some efficiency (politically correct is not our target). Conditions of internal communication will be carefully defined except when the results are used as a marketing tool.

15- After some years, when the BS SASEMAS has proved its efficiency, the ships from the participating flags will be excluded from the local MOU for PSC. So the MOU should be amended to authorize this exclusion.

16- Results from SASEMAS will be strong recommendations which will be discussed and finally approved in a common manner. Approved corrective or preventive actions will become requirements with an actions plan /deadlines mutually accepted.

17- Safety and security audits could be performed at the same time and Audit Reports could be on the same document: this is an integrated management system. If necessary, national regulation should allow that.

18- Guidelines for harmonization of safety and security management systems in shipping companies, facilities and ports will be issued. They concern also contents and format of corresponding documents.

19- The BS SASEMAS activities will not interfere with Administrations or RO/RSO activities. It is a supplementary tool mainly to help companies and port to comply first and to improve the S&S culture after. In fact the quality of the works done by Administrations and RO/RSO will be practically analyzed and assessed…. This assessment will be one of the most important results

of the BS SASEMAS. Without this permanent assessment, the system will stay as another non efficient tool!

20- No fines or other threats will, exist except the internal publication of results in a confidential manner inside the group of responsible persons!

21- Any internal management system in facilities or ports can be connected to the Port Community System. The BS SASEMAS in a common management system and could be operated via a very simple software to reduce paper stuff burden.

In summary, the principal projected benefits of the implementation of BS SASEMAS are:

A. Continuous improvement of and creating a level playing field for all Black Sea ports with regard to maritime safety and security.
B. Reducing casualties and accidents in the Black Sea port sector (cost benefit).
C. Reducing illegal import of goods (increase of tax income) and persons (reducing immigration costs).

	Bulgaria		Georgia		Romania		Turkey		Ukraine	
	MoT	Other	MoT	Other	MoT	Other	MoT	Other	MoT	Other
First to study implementation of such a system in the EU	√									
Acceptance principle SASEMAS		√	√	√	√	√	√	√	√	√
Ready to start implementation of SASEMAS				√						
Requires more information on practical implementation					√					
Requires CBA of SASEMAS							√		√	

Note: By MoT is meant the central government's position, while under Other all other consulted stakeholders are meant (regional authorities, private sector).

4.9 Road Map for the Implementation of BS SASEMAS

How to come to the eventual implementation of SASEMAS in the Black Sea region?

1. General acceptance of Black Sea SASEMAS

   The principal subject is that all the five countries see the benefits of SASEMAS and have the wish to implement this common integrated management system in their countries in order to improve the safety and security standards in the maritime sector.

   The key bottleneck for the acceptance of SASEMAS by the five countries will most probably be the finance of the project. So if funding is identified and secured, the actual implementation can start off.

   The five countries have, in principle, embraced the idea of SASEMAS and see the benefits of the system.

2. Official endorsement of SASEMAS

   The five Black Sea countries should officially endorse Black Sea SASEMAS and commit themselves to the Road Map for implementation of SASEMAS.

3. Funding

   Finance should be secured for the next phase: preparation of the implementation of SASEMAS.

4. SASEMAS Working Group

   A SASEMAS working group should be established. This working group is to prepare the implementation of SASEMAS.

   The members of this Working Group should have enough authority to make binding decisions.

5. Workshops

   In all countries additional SASEMAS workshops should be organized, in order to increase the understanding of the system and the benefits of it, and to create support in the complete maritime sector (public and private) for the eventual implementation of SASEMAS.

   These workshops should also be used for point 7 (detailed SASEMAS).

6. Cost-benefit analysis SASEMAS

   The Working Group is to prepare a CBA of SASEMAS.

   Based on the results of the CBA, the Working Group is to decide on whether to implement SASEMAS or to stop the project.

At the same time:

7. Black Sea SASEMAS: detailed

   The SASEMAS Working Group should evaluate the herewith proposed framework for SASEMAS, adjust the framework when found necessary, develop a detailed SASMEAS and prepare an action plan with timeframe.

If the decision is taken to implement SASEMAS:

8. Start the implementation of SASEMAS

9. Monitor the implementation of SASEMAS

Note:
Basically, the BS SASEMAS could be implemented in every country individually (though this undermines the principle of the creation of a level playing field regarding safety and security of the 5 Black Sea countries), or it could as a start be implemented in 2 countries (e.g. EU members Romania and Bulgaria), where the other 3 countries could follow later on.

5 Country Workshops PCS-PPP

5.1 Introduction

During the last half year of the project, PCS-PPP workshops were organised in all the five project countries.

5.2 Programme

Day 1	Topic	By
09:30 – 10:00	Registration	
10:00 - 10.15	Welcome & opening Introduction & presentation of participants	TRCAECA National Secretariat Edwin Lock, Project manager
10:15 – 10:30	1. Introduction: what are the "real" bottlenecks for PCS and PPP?	Peter Verwaerde Johan Gauderis
10:30 – 11:00	2. Port actors and communication flows 2a. Maritime communications -> standards 2b. Supply/Logistics chain – Phys/digital flows 2c. Physical carriers 2d. Port community actors 3. What is a PCS? 3a. What is a PCS? 3b. Physical document vs. EDIFACT, Mapping 3c. Different systems	Peter Verwaerde
11:00 – 11:30	Coffee break	
11:30 – 12:30	4. Technical approaches PCS 4a. Conceptual/technical approach 4b. Antwerp, Rotterdam model 4c. Author's impression log-in screens 4d. Live demo (Harbour Masters' Msgs)	Peter Verwaerde
12:30 – 14:00	Lunch	
14:00 – 15:45	5. Group discussion: What are the costs and benefits of a PCS for your port or organisation?	Peter Verwaerde & Johan Gauderis
15:45 – 16:15	Coffee break	
16:15 – 16:45	6.What is required to develop PCS? 6a. Some thoughts on how to start 6b. Requirements	Peter Verwaerde
16:45 – 17.00	7. Final questions and closure of day 1	Peter Verwaerde & Johan Gauderis
Day 2		
09.00 – 09.30	1. Aside: Port management models	Johan Gauderis
09:30 – 10:00	2. Financial & organisational models for PCS	Johan Gauderis
10:00 – 10:30	3. Financial& organisational models for PPP	Johan Gauderis
10:30 – 11:00	Coffee break	
11:00 – 11:10	4. Feasibility of PPP	Johan Gauderis
11:10 – 11:30	5. Desirability of PPP	Johan Gauderis
11:30 – 12:30	6. Group discussion: What is the best PCS-PPP model for your port? What are the bottlenecks to implement a PCS-PPP in your port? How can these bottlenecks be removed?	Peter Verwaerde & Johan Gauderis

12:30 – 14:00	Lunch	
14:00 – 15.00	7. Best practices in selecting and implementing PPP	Peter Verwaerde & Johan Gauderis
15:00 – 15.15	8. Final questions 9. Closure of workshop	Peter Verwaerde & Johan Gauderis Edwin Lock

5.3 Bulgaria

5.3.1 List of Participants

Name	Company	13/1/09	14/1/09
A. Zaburtov	National Port Infrastructure Company, Sofia	✓	✓
V. Kalpakchiev	National Port Infrastructure Company, Varna	✓	
Z. Kuzmanov	National Port Infrastructure Company, Varna	✓	✓
K. Krasteva	National Port Infrastructure Company, Varna	✓	✓
V. Dimitrov	National Port Infrastructure Company, Varna	✓	
S. Georgiev	National Port Infrastructure Company, Burgas	✓	
E. Mavrodiev	National Port Infrastructure Company, Burgas	✓	
S. Voinov	Concession Directorate, MoT	✓	✓
V. Uteva	Concession Directorate, MoT	✓	✓
A. Pashov	Maritime Administration Executive Agency, Sofia	✓	✓
V. Markov	Maritime Administration Executive Agency, Varna	✓	
S. Rashev	Varna Regional Directorate, National police	✓	✓
S. Kalcheva	Burgas Regional Directorate, Customs Agency	✓	✓
A. Stankov	Port of Varna EAD(operator)	✓	
S. Dimov	Port of Burgas EAD(operator)	✓	✓
Kuzmov	Port of Burgas EAD(operator)	✓	
S. Lazarov	Lessport AD (terminal concessionaire)	✓	✓
B. Savov	Lessport AD (terminal concessionaire)	✓	✓
Petrov	Power Plant Terminal (operator)	✓	
M. Evtimova	Port Fleet 99, Varna	✓	✓
D. Pendzurov	Burgas Tug Fleet	✓	✓
V. Karov	Bulgarian Association of Ship Brokers & Agent	✓	✓
I. Demirov	Bulgarian Association of Ship Brokers & Agent	✓	✓
A. Evtimov	Bulgarian Chamber of Shipping	✓	
R. Nestorov	Bulgarian Chamber of Shipping	✓	
I. Stoinov	Bulgarian Union for Customs and Foreign Trade Services, Sofia	✓	✓
S. Micheva	Bulgarian Union for Customs and Foreign Trade Services, Sofia	✓	✓
E. Zakeosian	Bulgarian Union for Customs and Foreign Trade Services, Varna	✓	
B. Kostadinov	Bulgarian Union for Customs and Foreign Trade Services, Varna	✓	
D. Todorov	Bulgarian Union for Customs and Foreign Trade Services, Varna	✓	
I. Tabakov	Varna Chamber of Commerce & Industry	✓	✓
N. Hristov	Bulgarian Association of Ship Brokers & Agents	✓	✓
S. Tsvetkov	Marine Cluster Bulgaria, Varna	✓	
I. Atanasova	Marine Cluster Bulgaria, Varna	✓	
A. Marinov	Marine Cluster Bulgaria, Varna	✓	✓
Manolov	Navigation Maritime Bulgare		✓
B. Doichinov	Polaris Consultants	✓	
K. Lefterov		✓	
T. Ruseva	National Port Infrastructure Company, Sofia	✓	✓

5.3.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Bottlenecks & relation between PCS-PPP	7	3	1		11
• What is & who are the actors of a 'Port Community'? • What is a PCS?	7	4			11
PCS: functional approach & presentation software demo (notification of: ship's arrival, shift, departure, dang. goods, crew-pass. lists, manifest, waste, etc.)	6	4	1		11
What is required to develop and operate a PCS?	1	9	1		11
• Bottlenecks: recapitulation • Port management models and implications for PCS & PPP • Financial and organisational models for PSC/PPP	9	1	1		11
PCS in ports (best practice)	5	5	1		11
Total workshop contents					

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	7	4			11
Hotel accommodation	5	2			7
Catering by hotel	4	6	1		11

5.4 Georgia

5.4.1 List of Participants

Name participant	Organisation	10/2/09	11/2/09
Mr. David Baramidze	Head of Maritime Transport Department	✓	✓
Capt. Valerian Imnaishvili	Maritime Transport Department - Head Ship State Register & Flag State Control	✓	✓
Mr. Sergo Surmanidze	Head of Maritime Navigation Safety & Security Service	✓	✓
Mr. Vakhtang Tavberidze	Head of Poti Port Sate Control Division		✓
Ms. Asmat Abesadze	Transport Department of United Transport Administration	✓	✓
Ms. Manana Lataria	Transport Department of United Transport Administration	✓	✓
Mr. Tengiz Varshanidze	Port of Batumi - Operational Manager	✓	✓
Mr. Gocha Leselidze	Port of Batumi - Senior Dispatching Manager	✓	✓
Mr. Resan Kontselidze	Port of Batumi - Dispatching/ & Communications Engineer	✓	✓
Mr. Frank Carter	Batumi Port Container Terminal		✓

Mr. Edward Machavariani	Poti Port Commercial and Investment Director	✓	✓
Mr. David Chikovani	Deputy Financial Director of Poti Port	✓	✓
Mr. Djani Katamadze	Kulevi Port Manager	✓	✓
Mr. Adem Ibrahimov	Kulevi Port - Manager of Business Development	✓	✓
Mr. Michel Kortava	Kulevi Port - Supervisor of Port Operational Systems Office	✓	✓
Mr. Shalva Bendeliani	Senior Specialist of Customs Control Department of the State Revenue Service	✓	✓
Mr. Mindia Grdzelidze	Senior Specialist of Customs Control Department of the State Revenue Service	✓	✓
Mr. Merab Gogolishvili	State Border Police Department of the Ministry of Internal Affairs	✓	✓
Mr. Zaza Lashkhi	FIATA Association	✓	✓
Mr. Tariel Dolidze	"Geomar" Ltd. - Director	✓	✓
Mr. S. Kvachantiradze	"Batumi Pilot" Ltd. - Director	✓	✓
Mr. Boris Lomadze	"Poti Pilot " Ltd. - Director	✓	✓
Mr. J. Chkartishvili	Ministry of Finance, Revenue Service	✓	✓
Mr. T. Tsagareishvili	State Revenue Service, Customs Department	✓	✓
Mr. R. Niero	BICT		✓

5.4.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Bottlenecks & relation between PCS-PPP	9	9	1		19
• What is & who are the actors of a 'Port Community'? • What is a PCS?	7	10	2		19
PCS: functional approach & presentation software demo (notification of: ship's arrival, shift, departure, dang. goods, crew-pass. lists, manifest, waste, etc.)	8	11			19
What is required to develop and operate a PCS?	3	13	1		17
• Bottlenecks: recapitulation • Port management models and implications for PCS & PPP • Financial and organisational models for PSC/PPP	9	11	1		21
PCS in ports (best practice)	9	9	3		21
Total workshop contents	45	63	8		116

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	13	7	1		21
Hotel accommodation	6	8			13
Catering by hotel	8	10			18

5.5 Romania

5.5.1 List of Participants

Name participant	Organisation	20/1/09	21/1/09
Dezideriu Iordache	TRACECA National Secretary Romania	✓	✓
Silviu Meternă	C.N Administratia Porturilor Dunarii Maritime S.A. Galati	✓	✓
Popa Dorel	Centrul Transporturi Navale Constanta	✓	
Gabriela Neagu	Agentia Romana de salvare a Vietii Omenesti pe Mare	✓	✓
Monica Patrichi	Directia Generala de Transport Naval	✓	
Daniel Serban	Directia Generala de Transport Naval	✓	
Iulian Ichim	Autoritatea Navala Romana	✓	
Dumitru Bucuresteanu	Autoritatea Navala Romana	✓	
Simona Vasile	Autoritatea Navala Romana	✓	✓
Maria Mergiu	Compania Nationala Administratia Porturilor Maritime	✓	✓
Claudiu Stratulat	Compania Nationala Administratia Porturilor Maritime	✓	
Andreea Nistor	Compania Nationala Administratia Porturilor Maritime	✓	✓
Florentin Cinatti	Compania Nationala Administratia Porturilor Maritime	✓	✓
Iliescu Viorel	Nationala Administratia Porturilor Dunarii Fluviale S.A.	✓	✓
Liviu Socoliuc	Administratia Canalelor Navigabile	✓	✓
Victor Dumitrescu	IPTANA	✓	✓
Vlad Preda	IPTANA	✓	✓
Marcel Balaci	Josef Mobius Ban AG	✓	
Cadir Kamuran	MAMAIA IMPEX	✓	
Anastasie Severin		✓	✓
Hurduc Eustaseta			✓

5.5.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Day 1:					
1. Introduction: what are the "real" bottlenecks for PCS and PPP?	10	1			11
2. Port actors and communication flows	11				11
3. What is a PCS?	9	2			11
4. Technical approaches PCS	10	1			11
5. Group discussions	7	4			11
6. What is required to develop PCS?	9	2			11
Day 2:					
1. Aside: Port management models	11				11
2. Financial & organisational models for PCS	11				11
3. Financial & organisational models for PPP	11				11
4. Feasibility of PPP	11				11
5. Desirability of PPP	11				11
6. Group discussions	6	5			11
7. Best practices in selecting and implementing PPP	9	2			11
Total workshop contents	11				11

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organization	9	1			10
Hotel accommodation	5	2			7
Catering by hotel	8	2			

5.6 Turkey

5.6.1 List of Participants

Name participant	Organisation	11/11/08	12/11/08
Seçil ÖZYANIK	TRACECA	✓	✓
Emre DİNÇER	Undersecretariat for Maritime Affairs	✓	✓
Osman Fatih GİRAZ	Undersecretariat for Maritime Affairs	✓	
Bengi YILDIRIM	Undersecretariat for Maritime Affairs	✓	
Nazan AYVARDI	Undersecretariat for Maritime Affairs	✓	
Barış NALÇACI	Undersecretariat for Maritime Affairs	✓	✓
Mustafa TEKIN	Security General Director	✓	✓
Celalettin KAVLAK	Security General Director	✓	✓
Mehmet BOZDOĞAN	General Directorate of Road Transport		✓
Simten ÖZDEN	DLH	✓	✓
Özkan AYAZ	DLH	✓	
Hakan ERDOĞAN	TCDD	✓	✓
Ergun BAYAR	TCDD	✓	✓
Halil Atolay	RODER	✓	✓
Oğuz TÜMİŞ	MARPORT	✓	✓
H. Muzaffer ERMİŞ	TRABZON PORT	✓	✓
Cavit UĞUR	UTIKAD	✓	✓
Yahya ARSLANDAĞ	SAMSUN Port	✓	✓
Serdar GÖRÜR	DERİNCE Port	✓	✓
İsmet CANBAZ	İZMİR Port	✓	✓
John PHILIPS	MIP Mersin	✓	✓
Çağlayan AKSU	BANDIRMA Port	✓	✓
Nurhan TÜFEKÇİOĞLU	General Directorate of Road Transport	✓	
Sertaç YILDIZ	Chamber of Shipping	✓	✓

5.6.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Bottlenecks & relation between PCS-PPP	5	5	5		15
• What is & who are the actors of a 'Port Community'? • What is a PCS?	8	4	3		15
PCS: functional approach & presentation software demo (notification of: ship's arrival, shift, departure, dang. goods, crew-pass. lists, manifest, waste, etc.)	5	6	4		15
What is required to develop and operate a PCS?	7	5	3		15
• Bottlenecks: recapitulation • Port management models and implications for	8	4	3		15

PCS & PPP • Financial and organisational models for PSC/PPP					
PCS in ports (best practice)	6	4	5		15
Total workshop contents	7	5	3		15

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organisation	8	6	1		15
Hotel accommodation	7	3	2	1	13
Catering by hotel	8	3	2	1	14

5.7 Ukraine

5.7.1 List of Participants

Name participant	Organisation	25/11/08	26/11/08
Evgeniy Smurygin	Sea and River Transport Informational and Analytical Center, Kiev	✓	✓
Dmytro Shelest	State department of sea and river transport, Kiev	✓	✓
Anna Mojsa	State Department of Sea and River Transport, Odessa	✓	✓
Anatoly Luki	Deputy Head Development & Foreign Relations Department of Illiychevsk port	✓	✓
Georgiy Tokman	Head of Development and Investment Department, Illiychevsk port	✓	✓
Anatoly Lutsenko	Deputy Head of Development and Investment Department, Illiychevsk port	✓	✓
Oleksandr Kravtsov	Head of Contract and Legal Service of Illiychevsk port	✓	
Dmytro Kryzhanovsky	Head of Department for Control of Port Property, Illiychevsk port	✓	✓
Mr. S. Obukhov	Head of Development and Investment Department of Yuzhny port	✓	
Olexander Kovalev	Deputy Commercial Director, Director of IBT forwarding Center, Odessa	✓	
Vyacheslav Kotlubay	Head of Maritime Transport Development Perspectives, UkrNDIMF	✓	✓
Mikhail Shaposhnikov	Head of Development and Foreign Relations Department, Odessa port	✓	✓
Olga Pulenko	Head of Contracts Department, Odessa port	✓	✓
Yuriy Ivanov	Head of Financial Department, Odessa port	✓	✓
Kateryna Khatkova	Head of Financial and Investment Department, Odessa port	✓	✓
Antonina Kuzmenko	Department for transport systems development and coordination, MoT&C	✓	✓
Svetlana Lipinska	Department for transport systems development and coordination, MoT&C	✓	✓
Mr. E. Novikov	UKRZOVNISHTRANS		✓
Olena Alieva	Commercial Director of Brooklin-Kiev LLC	✓	

5.7.2 Evaluation by Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Day 1:					
1. Introduction: the "real" bottlenecks for PCS&PPP?	1	4	6		11
2. Port actors and communication flows	1	7	3		11
3. What is a PCS?	4	2	5		11
4. Technical approaches PCS	1	5	5		11
5. Group discussions	1	4	6		11
6. What is required to develop PCS?	2	4	5		11
Day 2:					
1. Aside: Port management models	5	3	3		11
2. Financial & organisational models for PCS	5	5	1		11
3. Financial & organisational models for PPP	6	2	3		11
4. Feasibility of PPP	4	6	1		11
5. Desirability of PPP	4	6	1		11
6. Group discussions	3	7	1		11
Total workshop contents	1	9	1		

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organization	6	5			11
Hotel accommodation	5	5			10
Catering by hotel	6	5			11

5.8 Results of the Workshops

Turkey

- Very good organised (e.g. National Traceca secretariat)
- 'Ports and operators' very well represented
- Turks believe that 'Privatisation' seems to be 'the' soul-saving (sanctifying) solution
- Are very satisfied with the results of the project
- Business minded and very clear awareness (and know how) of the necessity and added value of PCS
- "Let's get started" (and leave the discussions (e.g. who = leading partner) for those who like this)
- Unambiguous statements:
  - Procedural bottlenecks should be (urgently) solved
  - results/remarks/advices/recommendations of the workshops -> higher level -> Minister
  - If the 'law' is a real bottleneck than the law should be changed/adapted towards the (functional/operational) commercial needs (allowing better benefits)
- Only the future will tell if this new/modern approach resulted in improvements

Ukraine

- For PCS-workshop: completely wrong audience
- Strange organisations and interpretation of 'definitions/procedures' (e.g.: privatisation, lease/hire/rent/….). Resulting in ambiguous discussions about needs, added value, leading party, etc.
- Far too much negative heritage:
  - Unilateral-, selfish approach; public service representatives still too 'centralistic' oriented
  - Ukrainian legislation is not adjusted to implement PPP in ports
- Common idea = resolve first the legal bottlenecks, which may also be seen/interpreted as 'slow down everything'

- Big difference in mentality between the organizations: Public vs. private sector, administrative vs. operational (port) users, central level vs. local level, etc.
- Floor too often/much used to comment on:
    - The centralistic Kiev-approach
    - Argue for more (port) autonomy

Bulgaria

- Rather good representation during the first hours; but decreasing over the hours
- No port operators, (few) maritime administration, no national customs
- Although an EU-member: strange & selfish approach
    - Lack of transparency
    - Strange statements towards the EU-approach (eg. “Brussels is far away”)
- Very strong influence of ‘Port Infrastructure Cy’
- Not all noses in the same direction
- Ambiguous (internal) discussions (= between the workshop participants)
- Very strong differences:
    - Or (almost) everything is ‘perfect’ and no need for PCS nor PPP; nor external consultancy
    - Or interested but only accordingly own procedures/organisations = not open for changes
    - Or fully interested and every ‘transfer of experience/know-how’ welcome

Romania - 1st workshop

- Only public services (and MPAC) present but
    - No customs
    - 2nd workshop necessary for private sector
- Big delegation of Danube River ports & Canal authorities
- Good representation during the first hours; decreasing, but all with very great interest and
    - very cooperative
    - but poor understanding of the organisation of a port community, port models & port services and automation within that port community
- unaware of the (necessary) differences between automating a public service and a private enterprise
- (rather) strong aversion towards ‘private’ sector
- mostly a result of wrong/misunderstandings
- Due to strange financial management
    - Incapability of some organisations/departments (mainly River ports, canal authorities,…) to work properly
    - Poorly informed about ‘other’ funding possibilities
- Far too much political influence; resulting in rigid organisations

Romania - 2nd workshop

- Only private services (and MPAC) present but
    - Almost whole workshop dedicated to own presentations (naval administration, customs, UTI (software house MPAC), DP-world,..)
    - Romanian was the common language during the whole workshop. Translations were done by MPAC
    - Consequently this report only reflects what was well understood.

- Fierce discussions between private sector and UTI
    - UTI presenting themselves as ‘the dedicated MPAC-software house’
    - Ship’s agents and forwarders cannot agree that a private Cy describes the working procedures without any consent of the private sector; their point of view was/is that their counterpart should be (must be) the Port Authority and not a private Cy.

- Private sector's opinion that too much attention is given to the 'nautical service providers' (pilots, etc…); they feel that, if e.g. the pilot/tugs/mooring gangs services are in need of information, they should be treated as other service providers.

Georgia

- A PPP-workshop for completely privatised ports is rather odd, but nevertheless great interest was shown
- Too much discussions were done in Georgian
- Frustrated public services (harbour master's dept.)
- Lack of interest out of Tbilisi
- Ambiguous organisations (Transport/Ports now depending from Min. of Economic Development)
- As a result of the privatisation of the ports, public organisations are running behind
- Within the privatisation-contracts/concessions, the conditions/procedures for further co-operation with the public sector was/is not described
- Private Cies cannot wait and go ahead; Resulting in a dominant attitude of these private Cies vs. public services:
    - 'you may connect on our conditions, accordingly to our procedures'
- Without further 'transfer of expertise' and without going 'up' with the results/conclusions, the workshops will have been useless

6 Stakeholders Workshop Ro-Ro Terminal Samsun

6.1 Introduction

The purpose of the stakeholders' workshop for the feasibility study of the ro-ro terminal in Samsun was to present the results of the research activities and to agree on the final report with the recipient organisations.

The research for the feasibility study was executed in the period December 2008 – February 2009 and the stakeholders' workshop was organised in Ankara on the 26th of February 2009.

The final report was finalised in April 2009 and distributed to the relevant recipient organisations and the EU.

6.2 Programme of the Workshop

Time	Topic	By
10:00 – 10:10	Opening	Mr. B. Tozar, TRACECA National Secretary Mr. E. Lock, Project manager
10:10 – 10:30	Planning Criteria	Mr. A. Merrien, Egis BCEOM
10:30 – 11:00	Market Study and Traffic Forecast	Mr. K. Westerkamp, NEA
11:00 – 11:30	Terminal Planning (3 options)	Mr. A. Merrien, Egis BCEOM & Mr. E. van der Reijden, Royal Haskoning
11:30 – 11:45	Preliminary Cost Estimates	Mr. A. Merrien, Egis BCEOM
11:45 – 12:05	Environmental Study	Ms. G. Ertürer, Golder
12:05 – 12:20	Basis for Financial Analysis	Mr. E. Lock, Royal Haskoning
12:20 – 13:00	Round table discussion	

6.3 List of Participants

Institution	Participant name - position	26/2/09
TRACECA Turkey	Barış TOZAR - TRACECA National Secretary	☐
TRACECA Turkey	Seçil ÖZYANIK - TRACECA Expert	☐
Undersecretariat for Maritime Affairs	Fikret GAGLAR- Engineer	☐
DLHI	Simter OZDEN	☐
General Directorate of Road Transport	Hakan ÖZDEMİR - Chief of the Section	☐
General Directorate of Road Transport	Bülent SÜLOĞLU - Expert	☐
TCDD	Hakan Erdoğan - Chief of the Section	☐
TCDD	Ergun BAYAR - Chief of the Section	☐
TCDD	Levent PİRCİ – Engineer	☐
RODER	Ali GÜLKANAT	☐
CEYNAK	Nevzat ÖZKENEL	☐
CEYNAK	Atilla ÖZKUŞAKSIZ	☐
SAMSUN Port	Çağlayan AKSU Deputy General Director	☐
SAMSUN Port	Soner SÖNMEZ	☐
SAMSUN Port	Hakan KURT	☐

7 Study Tour The Netherlands and Belgium

7.1 Introduction

In March 2009, the consortium organised a practical study tour to The Netherlands and Belgium. The themes of the study tour were Port Community Systems (PCS) and Port Development.

7.2 Programme Study Tour

Monday 9 March: arrival of the participants at Amsterdam airport and transfer to Rotterdam.

Tuesday 10 March: Rotterdam
09:30-10:00: Meeting with all participants
10:00-11:30: Presentation PCS Rotterdam by InfoLink
11:30-12:00: Transport to lunch location (Euromast)
12:00-13:30: Lunch at Euromast
13:30-14:00: Transport back to Hotel New York
14:00-15:00: Rotterdam port expansion: Maasvlakte 2 presentation
15:30-16:00: Coffee/tea
16:00-17:00: Presentation by HITT about VTMS systems
- Transfer to Antwerp by bus

Wednesday 11 March: Antwerp
- 09:30 - 12:00: Port House Antwerp

09:30-10:00: Coffee
10:00-10:30: Introduction about the port of Antwerp
10:30-11:00: APICS, the Antwerp PCS-model
11:00-11:30: the “mailbox system” by Seagha/Porthus
11:30-12:00: operational utilization by TINC, Phaeros
12:00-12:30: walk to a tour vessel near Londenbrug
12:30-13:30: Boat trip -> Zandvliet/Berendrechtsluizen complex
13:30-15:00: Visit to Coordination, Vessel Guiding System, Lock planning
15:00-15:30: Embarking at the Zandvliet/Berendrecht locks
15:30-17:00: Exit via one of the locks towards the Deurgankdok to have a view from the water side
- Transfer to hotel in Amsterdam by bus

Thursday 12 March: Amsterdam
09:30-10:00: Coffee
10:00-11:00: Presentation PCS Amsterdam
11:00-11:45: Visit to Ceres Container Terminal (special design)
11:45-12.30: Visit to Waterlandse Havenbedrijven (all-weather terminal)
12:30-13:30: Lunch
- Afternoon: evaluation of study tour with participants

Friday 13 March/Saturday 14 March: departure from Airport Amsterdam
- To Schiphol (by Train/Bus)

7.3 List of Participants

Bulgaria

Ms. V. Gospodinova	Deputy Minister of Transport, TRACECA National Secretary of Bulgaria
Mr. D. Savov	Ministry of Transport of Bulgaria, Head of National Transport Policy Directorate

Mr. M. Apostolov	Ministry of Transport of Bulgaria, Director Maritime Administration
Mr. P. Seferov	Director General of Bulgarian Ports Infrastructure Company
Mr. A. Zaburtov	Ministry of Transport of Bulgaria, Deputy Director Port Infrastructure Company
Mr. Z. Kuzmanov	Director of VTMIS-RIS Directorate, Bulgarian Ports Infrastructure Company – Varna
Mr. A. Stankov	Director of Operational Exploitation, Port of Varna Plc.

Georgia

Mr. D. Baramidze	Head of Maritime Transport Department
Mr. P. Tsagareishvili	Deputy Head of Transport Department, Ministry of Economic Development of Georgia, Deputy of National Secretary of TRACECA
Mr. M. Akhalaia	Chief programmer of IT Department of Poti Sea Port Corporation
Mr. Z. Chkhartishvili	Head of Marketing Department of Poti Sea Port Corporation

Romania

Mr. I. Iordache	TRACECA National Secretary of Romania
Mr. O. Viorel	Deputy Director Maritime Directorate, MTI
Mr. G. Catalin	MTI
Mr. G. Alin	CNANDR, General Director of Juridical Department
Ms. L. Niculae	Expert Marketing Unit, APMC Constantza

Turkey

Mr. B. Tozar	TRACECA National Secretary of Turkey
Ms. S. Ozyanik	Expert of TRACECA National Secretariat of Turkey
Mr. F. Caglar	Undersecretariat for Maritime Affairs, Engineer
Mr. E. Dincer	Undersecretariat for Maritime Affairs, TRACECA coordinator for maritime affairs
Mr. M. Yilmaz	Turkish Railways TCDD, Deputy Head of the Department
Mr. H. Erdogan	Turkish Railways TCDD, Chief of the Section in Port Department
Mr. R. Kaplan	Turkish Railways TCDD, Expert in Foreign Relations Department
Mr. Y. Arslandag	Deputy General Director Port of Samsun

Ukraine

Mrs. Kuzmenko	Ministry of Transport of the Ukraine, Deputy Head of Department for Development & Coordination of Transport Systems
Mr. S. Syechkin	Ministry of Transport of the Ukraine, Head of Coordination Department of State Department of Sea and River Transport
Mr. Sakhautdinov	Chief Dispatcher of Odessa Sea Trade Port, Head of Exploitation Service
Mr. Gramatyk	Deputy Head of Transit Freight Terminal of Odessa Sea Trade Port
Ms. Bartoshyk	Assistant of the Head on General Issues of Illiychevsk Sea Trade Port
Mr. Lutsenko	Deputy Head of Department for Development & Investments, Illiychevsk Port

IGC TRACECA, Baku

Mr. Mamedov	TRACECA Permanent Secretariat, Maritime expert

7.4 Evaluation by the Participants

Study Tour Contents

Topic	Excellent	Good	Neutral	Bad	Total
Presentation PCS Rotterdam by InfoLink	6	4			10
Maasvlakte II presentation	10				10
Presentation HITT, VTMS systems	5	3	2		10
PCS approach in the Port of Antwerp	6	3	1		10
ICT within Port of Antwerp, Amaris	5	3	2		10
Presentation Harbourview by Phaeros	6	2	2		10
Presentation Flexlock by Tinc	5	2	3		10

Site visit to locks and Coordination centre	9		1		10
Port of Amsterdam: port strategy presentation	9	1			10
Site visit to CERES terminal and all weather terminal	9		1		10
Total study tour contents	7	3			10

Study Tour Organisation

	Excellent	**Good**	**Neutral**	**Bad**	**Total**
Overall organization	7	3			10
Hotel accommodation	7	3			10
Catering by hotel	7	3			10

(only 10 evaluation forms were returned to the Study Tour organizers)

8 Completion Seminar

8.1 Introduction

The Completion Seminar was organised in Sofia, Bulgaria, on the 26th of March 2009 and was the final activity of the project.

The main objectives of the seminar were to show the results of the 2-year project, the Black Sea SASEMAS was explained and the Ministries of Transport / TRACECA National Secretaries of the 5 project countries were asked to give their view on SASEMAS.

8.2 Programme Completion Seminar

Time	Topic	By
09:00 – 09:30	Registration	
09:30 – 09.40	Opening	Mr. R. Hoenders, Programme Manager Transport, DG EuropeAid
09:40 – 09:50	Welcome	Mr. P. Kirov, Director Maritime Administration Executive Agency Bulgaria
09:50 – 10:00	Introduction project team and programme of the day	Mr. Edwin Lock, Project manager, Royal Haskoning
10:00 – 10:20	Market maritime transport Black Sea region: Prospects and opportunities for future development	Mr. K. Westerkamp, NEA
10.20 – 10.40	How to apply PPP options for the development of the Black Sea maritime sector?	Mr. J. Gauderis, Royal Haskoning
10:40 – 11:00	Group discussion	
11:00 – 11:30	Coffee Break	
11:30 – 11:50	Feasibility Study Samsun Ro-ro Terminal and Pre-Feasibility Study Port of Filyos	Mr. A. Merrien, Egis BCEOM Mr. E. v.d. Reijden, Royal Haskoning
11:50 – 12:10	Port Community Systems in the Black Sea – How to proceed?	Mr. P. Verwaerde, Royal Haskoning
12:10 – 12.30	Group discussion	
12:30 – 14:00	Lunch	
14:00 – 14:30	Introduction of SASEMAS, a common integrated safety and security management system for the Black Sea region	Capt. B. Apperry, Egis BCEOM
14:30 – 14:45	EC Policy on Maritime Safety & Security (for the Back Sea region)	Mr. A. Boschen, European Commission, DG-TREN
14:45 – 15:00	View of the Ministry of Transport of Bulgaria on the implementation of SASEMAS	Mr. P. Kirov, Deputy Executive Director of Maritime Administration Executive Agency
15:00 – 15:15	View of the Maritime Transport Department of Georgia on the implementation of SASEMAS	Capt. V. Imnaishvili, Head of Ship State Register and Flag State Control, Division of the Maritime Transport Department
15:15 – 16:00	Coffee Break	

16:00 – 16:15	View of Ministry of Transport of Romania on the implementation of SASEMAS	Ms. S. Vasile, Naval Authority of Romania
16:15 – 16:30	View of Ministry of Transport of Turkey on the implementation of SASEMAS	Mr. E. Dinçer, Undersecretariat for Maritime Affairs of Turkey
16:30 – 16:45	View of Ministry of Transport and Communications of the Ukraine on the implementation of SASEMAS	Mr. M. Matlakhov, Head of General Security Department of Sector Safety and Security Department, Ministry of Transport and Communications of Ukraine
16:45 – 17:00	View of IGC TRACECA on the implementation of SASEMAS	Mr. R. Valchev, IGC TRACECA, Team leader PS experts
17:00 – 17:10	Conclusions on how to proceed with SASEMAS in the Black Sea region	Capt. B. Apperry, Egis BCEOM
17:10 – 17:25	Group discussion	
17:25 – 17:30	Closing of the Seminar	Mr. Edwin Lock, Project manager

8.3 List of Participants

Name participant	Organisation	26/3/09
Mrs. I. Georgieva	Ministry of Transport of Bulgaria	
Mrs. H. Yanakieva	Ministry of Transport of Bulgaria	
Mrs. G. Doncheva	Ministry of Transport of Bulgaria	
Mr. P. Kirov	Maritime Administration Executive Agency Bulgaria	
Mrs. S. Bakardzieva	Maritime Administration Executive Agency Bulgaria	
Mr. A. Pashov	Maritime Administration Executive Agency Bulgaria	
Mr. A. Zaburtov	Bulgarian Port Infrastructure Company	
Mr. A. Stankov	Port of Varna Plc.	
Mr. K. Donev	Port of Varna Plc.	
Mr. A. Angelov	Port of Burgas Plc.	
Mr. V. Kvaratskhelia	Poti Sea Port Corporation	
Mr. Z. Chkhartishvili	Poti Sea Port Corporation	
Capt. V. Imnaishvili	Maritime Transport Department of Georgia	
Mr. Z. Topuria	Kulevi Port	
Mr. I. Iordache	TRACECA National Secretary of Romania	
Ms. L. Niculae	APMC Constantza	
Ms. S. Vasile	Romanian Naval Authority	
Mr. I. Topaca	Ministry of Transport of Turkey	
Ms. S. Özyanik	TRACECA National Secretary	
Mr. U. Arslan	General Directorate of Construction of Railways, Harbors and Airports	
Mr. E. Dinçer	Undersecretariat for Maritime Affairs	
Mr. H. Özcan	Turkish Railways	
Mr. A. Görgülü	Ministry of Transport of Turkey	
Ms. K. Golubykh	Ministry of Transport and Communications of Ukraine	
Mr. M. Matlakhov	Ministry of Transport and Communications of Ukraine	
Mr. A. Lutsenko	"Sea Commercial Port of Illiychevsk"	
Ms. O. Zhulavska	"Sea Commercial Port of Illiychevsk"	
Mr. B. Shevchenko	Odessa Sea Trade Port	
Mr. I. Dodonov	Odessa Sea Trade Port	

Mr. R. Valchev	TRACECA Permanent Secretariat, Baku	
Mr. A. Boschen	European Commission, DG TREN, G1 Maritime Transport Policy	
Mr. R. Hoenders	European Commission, EuropeAid Co-operation Office	
Mr. Y. Goulin	EgisBCEOM – Motorways of the Sea Black & Caspian Sea project	

8.4 Evaluation by the Participants

Workshop Contents

Topic	Excellent	Good	Neutral	Bad	Total
Market maritime transport Black Sea region: Prospects and opportunities for future development	11	11	1		23
How to apply PPP options for the development of the Black Sea maritime sector?	12	10	1		23
Feasibility Study Samsun Ro-ro Terminal and Pre-Feasibility Study Port of Filyos	10	8	5		23
Port Community Systems in the Black Sea – How to proceed?	13	8	2		23
Introduction of SASEMAS, a common integrated safety and security management system for the Black Sea region	10	10	3		23
Conclusions on how to proceed with SASEMAS in the Black Sea region	8	11	4		23
Group discussion	6	12	4	1	23
Total workshop contents	11	11	1		23

Workshop Organisation

	Excellent	Good	Neutral	Bad	Total
Overall organization	19	3			22
Hotel accommodation	20	1			21
Catering by hotel	17	6			23

8.5 Feedback during Seminar

At the Completion Seminar of the project in Sofia, Bulgaria on the 26th of March 2009, the Black Sea SASEMAS was explained and the Ministries of Transport / TRACECA National Secretaries of the 5 project countries were asked to give their view on SASEMAS.

REPORT of the COMPLETION SEMINAR partly performed on the proposed BS SASEMAS

Introduction:

After having proposed a summary of the BS SASEMAS to the 5 country representatives, an introduction to the philosophy of the BS SASEMAS was presented to the completion seminar participants.

All participants presented their method to ensure the required level of safety and security of shipping and port operations in their country and expressed rapidly their understanding of the BS SASEMAS.

Results of comments from national representatives (Some comments were in their presentations, other comments were made during discussions):

Not any country is against a common management system to operate and improve this industry.

One country is strongly in favor because it sees the occasion to allow the participating countries to improve their implementation of the international conventions and, at the same time, to ensure a continuous improvement of the safety culture of the region thanks to a common helpful tool.

Another country is in favor but needs more information on the practical side of the BS SASEMAS

Two countries propose to seek elements to prove the cost-benefit of the BS SASEMAS which is in addition of all existing tools.

The fifth country proposes to study the results of such a system in European countries and economic interferences before accepting them for the Black Sea group.

Analysis

1. The BS SASEMAS is a new concept of management as defined in the Terms of Reference of the project. This concept can be seen as very ambitious but seems quite natural in the scope of the European TRACECA project.

   But, unfortunately, as far as we know, not any comparable management tool exists, all over the world; so, the European experience is definitely not available on this subject while the concept can be also implemented in comparable regions involving the EC (Mediterranean or North Seas).

   In the objective to improve the industry, the basic idea to harmonize the conditions of sea and port trade is quite evident and seems the most modern solution.

2. To ensure conformity with international standards, the already existing national or international monitoring tools have, unfortunately, proved their limits. They are mainly based on external verification tools (EC, VIMAS, and PSC). Not any sovereign country in the world likes to be assessed and fined by another one or even by a special body of a union of countries! This is a normal human attitude. Maybe it is the time to try another one which should be in addition of the others!

   The modern way of operation management is based on an internal verification system to assess conformity to referential and simultaneously to propose correction and improvement. The assessment of state of conformity and the objectives are based on internal decisions which have more chance to be performed than any other coming from an external body!

   In our industry, this modern way is represented by the famous ISM code (International Safety Management code) required by the SOLAS convention. Although the implementation of the ISM code is still needing some improvement (see the BS MOU last report), this ***internal management*** system has proved its efficiency.

   The BS SASEMAS is based on an ***internal*** verification system aiming at ensuring compliance and improvement. Accepting the BS SASEMAS, some of our countries have automatically agreed to be continuously assessed by the group where they are part of. This system is one of the best chances to link the Shipping industry and Port Administrations or operators of the participating countries in a common and trustful way to improve their industry in the common area.

TRACECA and TENs corridors improvement is an EC project conducted by a team of experts. In that scope another European body, the EMSA (European Maritime Safety Agency) could help the five countries to create and implement the BS SASEMAS.

3. The budget is not defined: Effectively, not any budget has been studied for the BS SASEMAS (it should be done during another phase of the project). But as everybody can see the system is very light and employs only a few personnel: DPs and suppliants (2 or 3 persons in each country). The running costs are not very important and are based on temporary assignments in the other countries.

   Moreover a complementary study could be planned to have a more accurate outline of the budget.

   This study could be funded by EC, the participating countries could ask for a complement to the project.

4. Many explanations on the BS SASEMAS have been provided during the workshops while elements of harmonization have been proposed as examples. As the common management system called BS SASEMAS is quite a new concept, a regional seminar could be organized for presenting it again to the future participants. Such regional seminar could be funded as a complement of the present project.

   Note: The country representatives will have to represent the entire industry (like the representatives of shipping companies for example).

The following comments were given during the seminar on the proposed Black Sea SASEMAS.

Bulgaria

- BS SASEMAS concept and the current BS maritime S&S framework: why introduce “an integrated S&S management system”, aka SASEMAS?
- Concept justification (as per Summary / Outline):
  * stated: facilitate & improve shipping and port industry in and around Black Sea through:
    (1) harmonization of S&S conditions, and
    (2) continuous improvement of these conditions
  * implied (arguably):
    (3) better way to manage S&S requirements,
    (4) ensured verification of conformity and operation, and
    (5) better governance (government assistance to industry to help it comply).

- BS SASEMAS Concept Downside:
  * harmonization of S&S conditions – partial, doesn’t include a major player in the region (Russia);
  * harmonization of S&S conditions and their continuous improvement – depends on national political will that:
  - is framed differently due to the multidimensionality of and variance in potential member states;
  - the proposed group is not an independent body with no teeth and no clear potential to go beyond IMO- / ILO- initiated improved S&S requirements, so:

  (1) improvement is to occur only in the implementation of international agreements, and
  (2) improvement will have to pass through the usual mechanisms of national legislation and regulations;

  - for some of the 5 countries, at least, SASEMAS doesn’t introduce a new & significantly better management system, improvement in comparison with existing national maritime S&S management system can be identified only in the introduction of manuals, referentials where still

not extant, focused reports, pre-audits of new companies, regular assessments of ship and port operators;
- the introduction of SASEMAS involves significant costs related to new structures, review of existing national legislation and drafting and passing of changes in national laws and regulations and internal rules of procedure, development and approval of manuals, referentials, new procedures, etc.

SASEMAS Concept Introduction Prerequisites
- DETAILED Outline of SASEMAS (incl. full list of SASEMAS documents to be developed, SC and DP job descriptions, detailed operation chart that refers to DP interactions, documentation flowchart and preliminary budget estimates).
- Cost-benefit Analyses by country of the introduction of SASEMAS based on the Detailed Outline.
- Review of National Legislation by country based on the Detailed Outline and co-ordination on national level of necessary changes.
- HIGH-LEVEL MEETING of representatives of interested countries to review a draft agreement / operational arrangement
- SIGNING and COMPLETION OF INTERNAL PROCEDURES for entry into force of the agreement

Georgia

The Georgia United Transport Administration fully supports this project as it believes that safety of navigation and security of sea going vessels and ports can be achieved only by joint efforts with consideration of advanced experience and traditions of “good seagoing practice”.

Legal aspects:
- It is necessary to consider that our States are signatory parts of the major UN and IMO Conventions, and a certain system has been developed and this is confirmed by numerous IMO and other international experts’ reports.
- However, while working at this project we will encounter a lot of issues conditioned by the traditions and law systems already existed in our States, and we will have to determine which issues do not comply with the safety and security purposes, and where there are differences between our systems and EC system

Our proposal – In EC expert group’s reports there are references to some EC directives, and we find it useful to get the texts of these Directives at our disposal in order to use them in our work.

IMO aspect:
- Voluntary IMO Member State Assessment audit scheme (in accordance with IMO Scheme) has been mentioned in the project, however this document, in our opinion, directly concerns the fleet and indirectly, almost insignificantly concerns shore infrastructure.
- At the same time we would make clear that in principle, when starting the project realization, we actually deal with two major components: (a) – shipping infrastructure (shipping companies, crewing, maritime institutions, classification societies, vessels); and (b) shore infrastructure (ports, terminals, ships agents, customs office, immigration authorities and other private companies), therefore IMO audit scheme does not fully cover this section.

Our proposal - it would be useful to develop a similar scheme for shore infrastructure,

Industry aspect:
- It goes without saying that ISM and ISPS Codes are excellent documents and their obligatory application is unquestionable. However, we believe that they are not enough, some other regulations are necessary – SIGTTO guidelines and ISGOTT – they would be useful, although a problem may occur regarding their recognition as standards by the industry.

Our proposal – it would be expedient to confirm in our recommendations the mandatory character of these instruments.

Satellite project:

- In 2008 we were concerned with two projects - regional VTOPIS and regional SAR Operation Coordination Centre - which the Russian Federation tried to take under their control, using different regional organizations and conferences for this, and we have taken a strict negative position regarding these issues and would like to clarify our position. We have no objections towards the projects as they are, however we cannot agree that Russian Federation tries to implement these project under their aegis and control.

Our proposal - We believe that VTOPIS would be an excellent supplement to maritime safety and marine environment protection, if it is included in BS SASEMAS system.

Human resources:

- In our opinion availability of the appropriate recourses – and in particular human resources - is vital, we have certain doubts that a wide range of matters subject to implementation by Maritime Administrations of our States can be implemented having 5-7 persons in the staff. Support in specification and improvement of a network of the establishments, engaged in sea affairs, with accurate definition of duties is required to some countries-beneficiaries.

Our proposal – therefore the estimation should be concentrated to operative sectors of administrations, i.e. on the organization, structure, the personnel and procedures, there should be imperative conditions in the project recommendations regarding increasing of the staff and their qualification.

Administrative aspect:

- This system (BS SASEMAS) will be headed in a common manner by a Steering Committee made of representatives from the governments of the 5 participating countries while the operational aspects will be ensured by **D**esignated **P**ersons (DPs) coming from the 5 countries also.

Our proposal – It is expedient to develop procedure of work of the given committee and to fix obligatory character of recommendations; otherwise the work will be senseless.

Additionally:

- Safety of navigation cannot be provided, if some questions connected with the organization of navigation are not solved- for example, car and passenger RO-RO ferries work on a line between ports Trabzon and Sochi, these ferries passing through the Georgian SAR region, do not submit official reports in accordance with "GeoRep" systems as it is demanded by the SOLAS convention and till now have no SAR coordinated plan with us, we tried to solve this question by means of our colleagues in Turkey but while the result is not present.
- Responsibility of Captains of ports is not defined and in general is not clear that occurs to ports - refuges on Black sea, whether their status is established???
- Maintenance with exact weather forecast, in east part of Black sea today we consider as the most reliable - the Turkish weather forecast, it gives the forecast in the integrated large scale, but it is necessary to have the exact local forecast, and it is a serious problem

Romania

The Romanian Naval Authority is very interested by the concept BS SASEMAS. So, in addition to the workshops and seminar, they ask whether if it could possible to provide more information about the new concept in order to study it and decide which are the first measures that should be taken.

Turkey

No specific comments on SASEMAS were given during the seminar by the Turkish delegation.

Ukraine

For the implementation in Ukraine of the Common Integrated Black Sea Safety and Security Management System (SASEMAS), on the basis of an information available us, it is necessary to study in details the European experience, to make an analysis of this activity, economic calculations, and only after that to make the decision on expediency of introduction of the system in the ports of the Ukraine.

The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

TACIS 117107

IMPROVEMENT OF MARITIME LINKS BETWEEN TRACECA AND TENS CORRIDORS

A Market Analysis

July 2008, final report

This project is funded
by the European Union

A project executed by
Royal Haskoning
NEA Transport research and training
BCEOM

This Project is funded
by the European Union

1 Report cover page

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors	
Project Number:	TACIS 117107	
Country:	Ukraine, Romania, Bulgaria, Turkey, Georgia	
	Client	**Contractor**
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Reporting period: 2007-2008

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This Project is funded
by the European Union

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2 Project synopsis

Project Title:	IMPROVEMENT OF MARITIME LINKS BETWEEN TRACECA AND TENS CORRIDORS
Project Number:	TACIS 117107
Country:	Bulgaria, Georgia, Romania, Turkey and Ukraine

Project activities:

Phase 0 (April – June 2007):
Inception

Phase 1A (June 2007 – April 2008):
Preparation of the Market Study

Phase 1B (June 2007 – April 2008):
Preparation of the Action Plan
Development of Port PPP Framework

Phase 2 (May 2008 – April 2009):
Preparation of the Feasibility Study for Samsun Port Ferry Links and the preparation of the pre-feasibility study for Filyos
Implementation of maritime safety and security improvements
Development of a Port Community Pilot Scheme
Assessment of the PPP potential of port investment needs/projects in the region and selection of Bankable Projects.

Project starting date:	16 April 2007
Project duration:	24 months
Project implemented by: consortium partners:	Royal Haskoning (The Netherlands) and NEA Transport Research and Training (The Netherlands) BCEOM (France)

3 Introduction

Main objective of the market research on maritime transport in the Black Sea area is to support the ports, shipping lines and other actors involved in maritime links in the Black Sea in their development as important elements in current and future logistics chains along the TRACECA corridors. The main element for this support is a forecast of transport flows in the Black Sea area for the year 2020. By presenting a forecast for transport flows for the year 2020 ports, shipping lines and related organisations will be able to focus their development plans in line with market demands. In this respect especially the forecasted number of containers is essential, given the increasing containerisation, the developments in the trade Europe – Asia and the current lack of capacity of container terminals in the Black Sea ports. On the basis of the results of the market analysis an action plan will be determined for the activities for the second year of the project.

The analysis in this report is focused on the following Black Sea ports: Illichevsk, Odessa, Constantza, Varna, Bourgas, Derince, Haydarpasa, Samsun, Hopa, Poti and Batumi.

Chapter 4 first focuses on a description of current trade and transport patterns in the region, in chapter 5 forecast scenarios are described.
Chapter 6 – 10 presents an assessment of Black Sea ports, focusing on current capacities, main constraints and bottlenecks, productivity and investment plans.
In chapter 11 the results of the forecasts are presented, including a confrontation of the forecasted volumes and the ports current and estimated future capacities. Priority investments are indicated where necessary.

Some remarks on forecasting
On the basis of comments received on the draft report below are some remarks to explain the forecasting methodology and the use of forecasting in more detail.
The trade forecasting depends on two components; a global trade model forecasting trade between country pairs in dollar-value and a trend model forecasting detailed country to country flows for each product sector. Both components are based on time series data for the period 1995 – 2006. The global trade model is country specific and each country has its own variables and behavior based on the time series data. It should be noted that the model is in our view just as much a model for transition, developing or developed countries as it is based on historical data of the countries itself.

The use of historical time series (1995-2006) to adjust the model for a countries trade behavior on quantitative historical data and to establish the trend model in volumes (and values) for detailed product segments between countries makes the model not suitable for back casting exercises. The suggested time for testing the model and period on which the model bases its behavior would be overlapping.

Further it should be noted that both the trade forecasting modules as well as the assignment module are long term forecasting instruments, which differ in nature from short term forecasting instruments.

Long term forecasting instruments include factors such as trade deficits or catching up effects in the rate of containerization of which it is certain that these factors will influence freight flows and its appearance in the long run. However the exact timing of these events depend on specific local conditions, for example, opening of a new container terminal facility in 2009 in a certain port is likely to boost fast changes in the rate of containerization in period directly after. A delay in the opening of such facility will also affect the timing of a change in level of containerization, however in the long run in both cases the rate of containerized transport has changed substantial. For the instruments used 2020 is therefore an appropriate forecasting year, which is in line with standard practice in the EU for transport forecasting.

The forecast of the volumes of the eleven ports in relation to other ports in the countries studied is as follows. New port developments or new railways lines or new highways are likely to result in a redirection of flows. The transport forecast should therefore be treated as a market potential for the region rather than the growth potential of one individual port as port management, investment and specialization will determine the final assignment of the flows.

4 Current situation – freight flows

The demand for a port's services depends largely upon two things; the relative competitiveness of the port in question, and the scale of the cargo flows for which it is competing. In turn, the level of these cargo flows depends upon the nature of economic growth in the hinterland, the distribution of trade between hinterland regions and overseas countries, the type of goods being traded, and the economic sustainability of these patterns. The underlying determining factors for traffic growth may therefore be related to the hinterland or global influences.

This study focuses on the fifteen countries neighbouring the Black Sea region, and their trade flows with the rest of the world. The approach is "top-down" looking initially at the trade flows in financial terms, then in physical volumes, and then in detail by region.

4.1 Total Trade Growth

The "core" region consists of fifteen countries: Bulgaria, Hungary, Romania, Serbia, Slovak Republic, Turkey, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, Turkmenistan and Ukraine. Trade affecting this region has grown in the region of 320-340% between 1996 and 2006 (WTO Trade Statistics, 2007). At the same time, the region has increased its share of total Europe/CIS trade from around 7% in 1996 to 12%.

***Figure 4.1**: Trade within the Black Sea Region, 2000, Annual US$ (mn)*

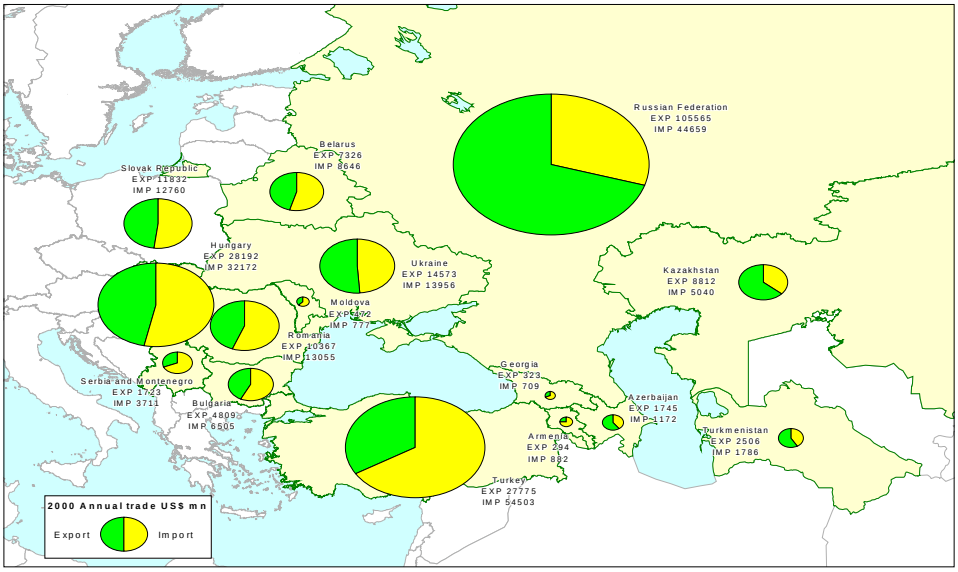
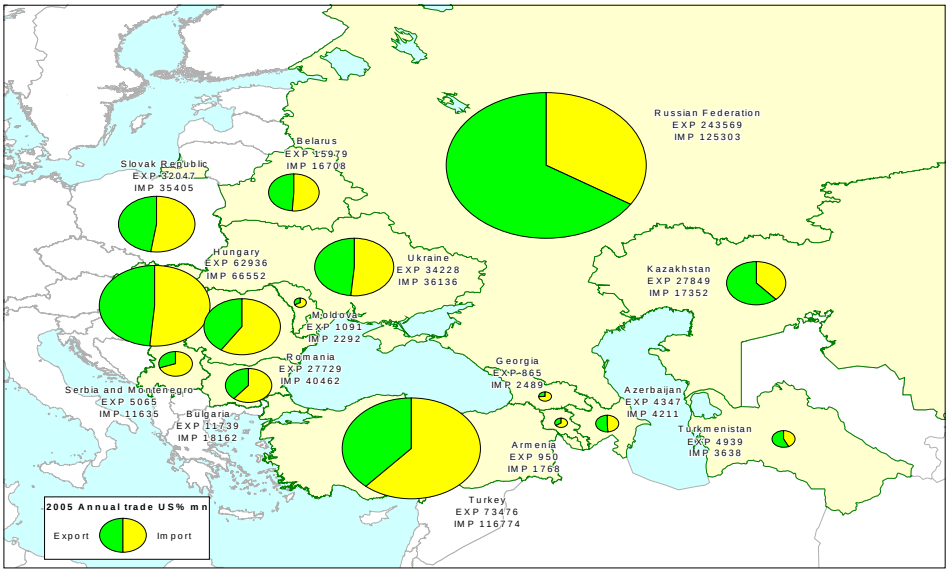


***Figure 4.2**: Trade within the Black Sea Region, 2005, Annual US$ (mn)*



Figures 4.1 and 4.2 quantify the total volume of international trade within the fifteen countries surrounding the Black Sea. They show:

- High levels of growth: for example Ukraine's total exports have risen from US$ 14,573 million in 2000 to US$ 34,228 million.
- Higher concentrations of traffic within the Western half of the region.
- Tendencies for import bias in the South and West, and export bias in the North and East.

4.2 Trade Growth by World Regions

The following tables show the changes taking place in the geographical patterns of trade between 1995, 2000 and 2005.

Trade flows have been identified between the core Black Sea region, consisting of the fifteen countries, and the rest of the world divided into blocs:

- The Black Sea region includes: Bulgaria, Hungary, Romania, Serbia, Slovak Republic, Turkey, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, Turkmenistan and Ukraine.
- C E Europe (Central and Eastern Europe) includes the European countries directly north of the Black Sea region including Poland and the Baltic countries.
- The Mediterranean region consists of the European and African countries bordering the Mediterranean, but excluding the Middle East and France.
- Mid East contains the Middle Eastern countries, including the Gulf countries, and extending Eastwards as far as Iran.

- NW Europe consists of the remaining North Sea European countries including Germany, the UK, France and the Nordic region.
- Other Asia contains the majority of Asian destinations, including China, ASEAN and India.
- The Rest of the World category includes sub-Saharan Africa, the Americas and Australasia.

The following tables show exports and imports from the Black Sea region, by value and by weight.

***Table 4.1**: Exports from Black Sea Region: Annual US$ bn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Black Sea	27	22%	49	22%	106	22%
C. E. Europe	6	5%	14	6%	35	7%
Mediterranean	17	14%	30	14%	74	16%
Mid East	3	3%	6	3%	18	4%
N. W. Europe	43	36%	80	37%	168	35%
Other Asia	15	13%	21	10%	43	9%
Rest of World	8	7%	18	8%	32	7%
TOTAL	120	100%	220	100%	476	100%

Source: WTO Trade Statistics,2007

***Table 4.2**: Exports from Black Sea Region: Annual Tonnes mn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Black Sea	144	35%	309	38%	341	30%
C. E. Europe	34	8%	76	9%	97	8%
Mediterranean	58	14%	106	13%	183	16%
Mid East	10	2%	19	2%	36	3%
N. W. Europe	105	25%	176	22%	290	25%
Other Asia	50	12%	85	11%	145	13%
Rest of World	15	4%	35	4%	58	5%
TOTAL	416	100%	805	100%	1,150	100%

Source: WTO Trade Statistics,2007

***Table 4.3**: Imports from Black Sea Region: Annual US$ bn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Black Sea	27	23%	49	26%	106	24%
C. E. Europe	5	4%	7	4%	28	6%
Mediterranean	14	12%	23	12%	49	11%
Mid East	3	3%	4	2%	6	1%
N. W. Europe	47	40%	70	37%	167	38%
Other Asia	12	10%	20	10%	62	14%
Rest of World	10	9%	14	7%	23	5%
TOTAL	117	100%	187	100	442	100%

Source: WTO Trade Statistics,2007

***Table 4.4:** Imports from Black Sea Region: Annual Tonnes mn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Black Sea	144	56%	309	69%	341	62%
C. E. Europe	14	6%	15	3%	26	5%
Mediterranean	18	7%	26	6%	32	6%
Mid East	17	7%	13	3%	13	2%
N. W. Europe	24	9%	33	7%	50	9%
Other Asia	10	4%	14	3%	34	6%
Rest of World	29	11%	38	8%	51	9%
TOTAL	257	100%	448	100%	546	100%

Source: WTO Trade Statistics,2007

Several important patterns can be derived from these tables:

Export dollars are growing quickly, with nearly 400% growth over ten years. The majority of this trade is with North West Europe (35% in 2005), and the shares of trade by region are relatively static, implying strong, and even growth in all geographical sectors.

Export tonnes are growing less rapidly than export dollars, with 276% growth between 1995 and 2005. The largest geographical sectors are intra-Black Sea (30%) and North West Europe (25%). Deep Sea markets in East Asia and towards the Atlantic are relatively small, but gaining share slowly. All markets are growing in absolute terms, but the relative shares are fairly constant, with a slight shift away from the intra-regional flows.

Import dollars are growing at virtually the same rate as export dollars, and at similar absolute volumes, so there has not been a systematic change in the balance of payments for the region as a whole. As with exports, all markets are growing in absolute terms, but the relative market sizes are more static, the main exception

being the growth of imports from Eastern Asia, for which the relative share has risen from 10% to 14% of total imports, mainly at the expense of the N.W Europe and Rest of the World markets.

Import tonnes have shown the lowest rate of growth, with 212% over ten years. So although trade flows are financially balanced, there is a tonnage gap in favour of exports, which has grown from a ratio of 1.62 (exports to imports) to 2.11. Over 60% of imported tonnages come from within the Black Sea region, with relatively little coming from deep sea origins. However, the East Asian market is growing strongly.

4.3 Trade Growth by Cargo Handling Sector

The following tables show the evolution of traffic between 1995 and 2005, according to product sectors, grouped into categories to indicate their likely handling characteristics.
Dry bulk mainly consists of solid fuel (e.g. coal), ores, and crude minerals (e.g. construction materials). Liquid bulk is largely petroleum products. The food and manufactures category contains the higher value commodities which are most likely to be carried by container or by road trailer. However it will also include some bulk food products such as grain. The "Other" category contains metals, fertilizers and chemicals which could either be carried in container vessels or in conventional ships.

***Table 4.5**: Exports from Black Sea Region: Annual US$ bn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Dry Bulk	7	6%	11	5%	25	5%
Liquid Bulk	23	19%	58	26%	135	28%
Food&Manufactures	58	48%	103	47%	222	47%
Other Cargo	32	27%	48	22%	94	20%
TOTAL	120	100%	220	100%	476	100%

Source: WTO Trade Statistics,2007

***Table 4.6**: Exports from Black Sea Region: Annual Tonnes mn.*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Dry Bulk	92	22%	191	24%	290	25%
Liquid Bulk	175	42%	361	45%	491	43%
Food&Manufactures	71	17%	126	16%	190	17%
Other Cargo	79	19%	128	16%	180	16%
TOTAL	416	100%	805	100%	1150	100%

Source: WTO Trade Statistics,2007

***Table 4.7**: Imports from Black Sea Region: Annual US$ bn..*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Dry Bulk	5	4%	6	3%	15	3%
Liquid Bulk	12	10%	21	11%	36	8%
Food&Manufactures	81	69%	128	69%	313	71%
Other Cargo	19	16%	32	17%	78	18%
TOTAL	117	100%	187	100%	442	100%

Source: WTO Trade Statistics,2007

***Table 4.8**: Imports from Black Sea Region: Annual Tonnes mn..*

	1995	*1995 Share*	*2000*	*2000 Share*	*2005*	*2005 Share*
Dry Bulk	86	33%	139	31%	185	34%
Liquid Bulk	95	37%	173	39%	152	28%
Food&Manufactures	50	19%	90	20%	136	25%
Other Cargo	26	10%	46	10%	74	14%
TOTAL	257	100%	448	100%	546	100%

Source: WTO Trade Statistics,2007

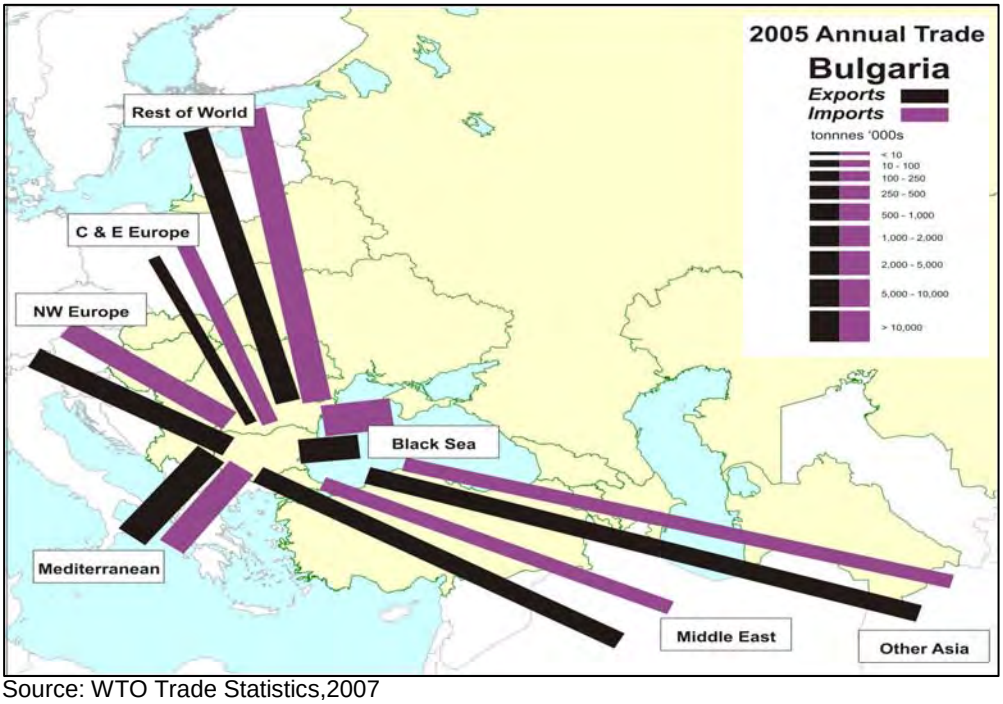
On the export side, (see and **Fout! Verwijzingsbron niet gevonden.**) nearly 70% of total tonnes are bulk commodities, principally liquid bulks. However, in value terms the reverse is true, with nearly 70% of the value of the exports in the food, manufactures, and other cargo sectors. The share of liquid bulks by value has risen sharply from 19% in 1995 to 28% in 2005, mainly at the expense of “other cargo” i.e. metals. Sector shares by weight are relatively constant.

Looking at imports, liquid bulks only contribute 28% by weight and 8% by value, whereas food and manufactures contribute 71% by value and 25% by weight. The shares of higher value cargoes are generally rising, with dry bulks relatively static and liquid bulks falling relative to other products.

4.4 National Markets – TRACECA Countries

4.4.1 Bulgaria

***Figure 4.3**: Bulgaria's Trade by World Region, 2005, Annual Tonnes ('000s)*



Source: WTO Trade Statistics,2007

Market Summary	Import Market	Export Market
Size in Tonnes, 2005	19.644 m Tonnes	14.335 m Tonnes
Growth: 2005/1995 yoy	7.4% per annum	6.5% per annum*
Shortsea/Nearsea/Deepsea[1]	11.5m, 3.9m, 4.1m	4.5m, 7.7m, 2.2m
Dry/Liquid/Manuf./Others	9m, 4m, 4m, 3m	3m, 1.7m, 4.9m, 4.8m

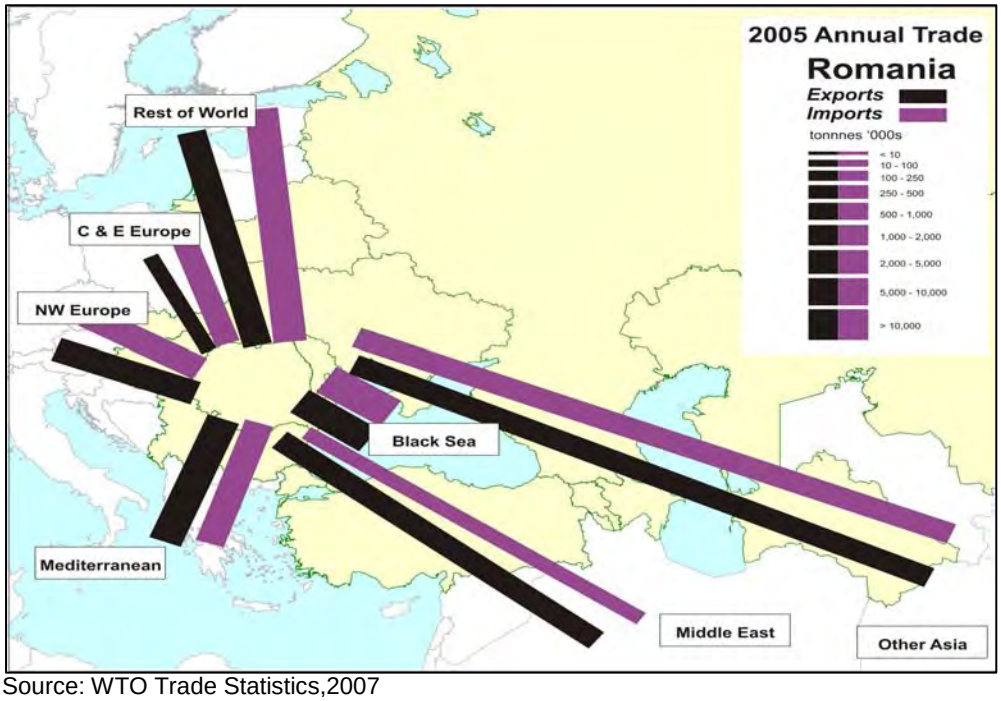
Calculated as 2005/2000 year on year (yoy) growth due to erratic data in 1995.

[1] The short sea market includes other Black Sea countries, Central and Eastern Europe. Near sea includes the Mediterranean, the Middle east and North West Europe. Deep sea includes the Far East, the Americas and sub-Sahara Africa.

Bulgaria's market appears strong. Trade growth appears to be strong up to 2005, and current figures show that 2006's performance also represented considerable gains. Following EU membership, further growth can be expected. There is an imbalance in favour of import tonnages, but these are primarily short sea bulks. Financially, Bulgaria has a visible trade deficit. Exports of manufactured goods to the Mediterranean and North Western Europe (also viable by road) are strong. The maritime unitised market appears to be approximately 3 million tonnes per annum per direction. This traffic may however be shared by Black Sea and Aegean ports.

4.4.2 Romania

***Figure 4.4**: Romania's Trade by World Region, 2005, Annual Tonnes ('000s)*



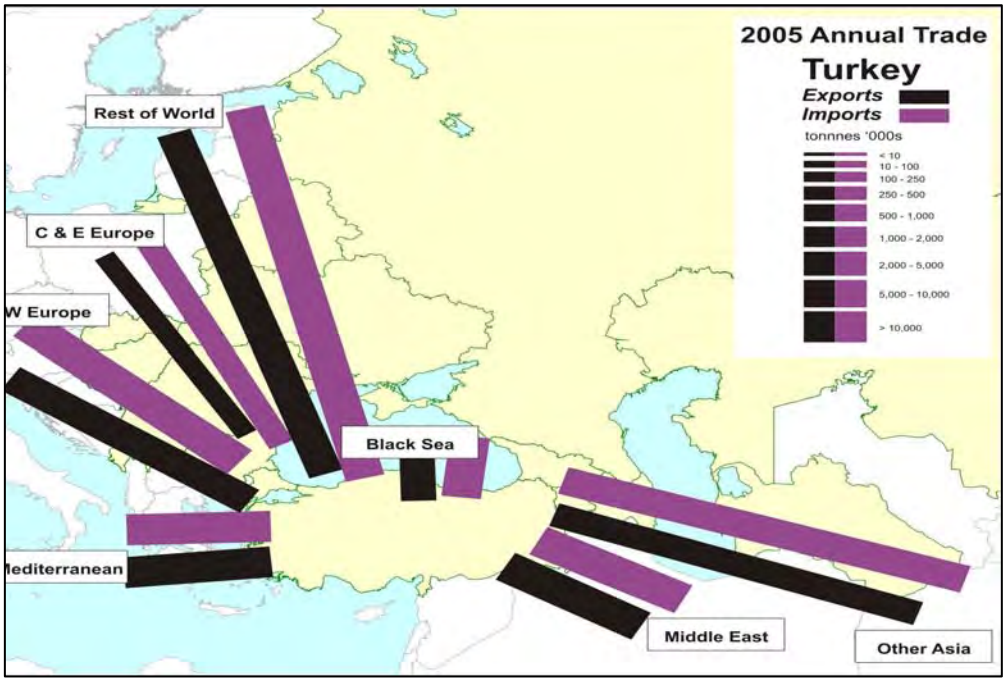
Source: WTO Trade Statistics,2007

Market Summary	Import Market	Export Market
Size in Tonnes, 2005	38.255m Tonnes	25.099m Tonnes
Growth: 2005/1995 yoy	5% per annum	5.9%
Shortsea/Nearsea/Deepsea[1]	21m, 7.2m, 10.5m	9.5m, 11.1m, 4.5m
Dry/Liquid/Manuf./Others	16.1m, 8.9m, 8.9m, 4.4m	4.4m, 4.7m, 7.3m, 8.7m

Romania's market has similar characteristics to Bulgaria, but with approximately twice the volumes. High levels of trade growth have been sustained into 2006. Imports exceed exports by a factor of 1.5, but again this imbalance is in the bulk sectors. In the non-bulk sectors, import and export flows are more equal. The maritime unitised market is approximately 5 million tonnes (2005) per direction. Most, if not all of this traffic is accessible for Black Sea ports.

4.4.3 Turkey

Figure 4.5: *Turkey's Trade by World Region, 2005, Annual Tonnes ('000s)*



Source: WTO Trade Statistics,2007

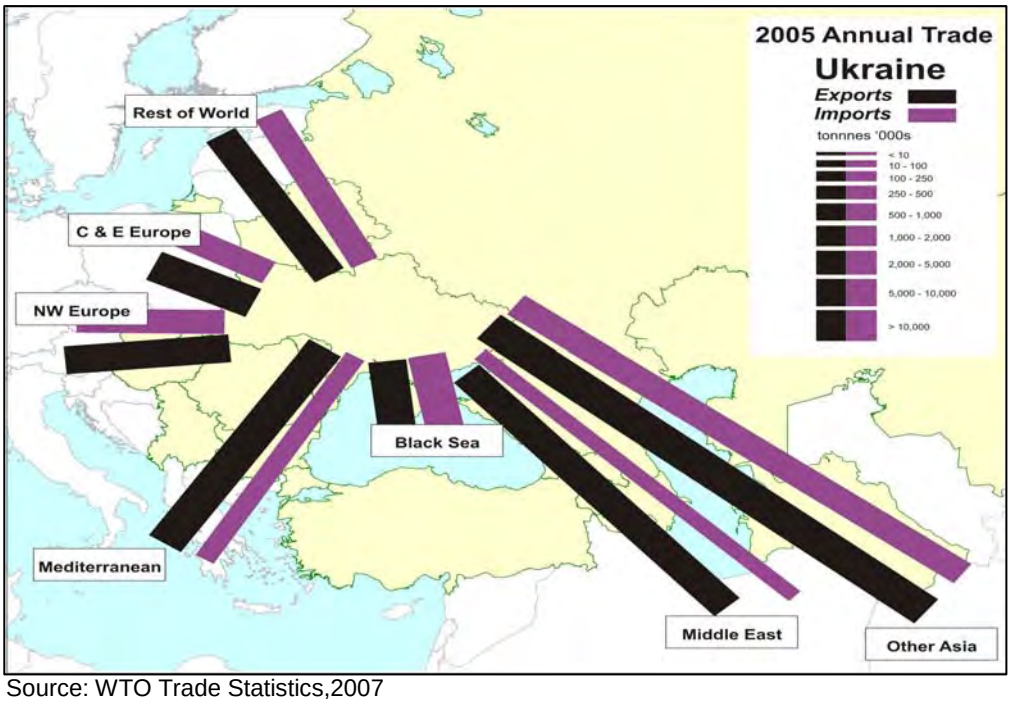
Market Summary	Import Market	Export Market
Size in Tonnes, 2005	118.102 m Tonnes	58.592m Tonnes
Growth: 2005/1995 yoy	6.3% per annum	8.9% per annum
Shortsea/Nearsea/Deepsea[1]	51m, 41m, 26.2m	6.3m, 41m, 11m
Dry/Liquid/Manuf./Others	39m, 32m, 23m, 25m	25m, 4m, 16m, 13m

Turkey is the largest of the TRACECA countries in terms of population and GDP. Its trade volumes are correspondingly higher. Development patterns are similar however, with a marked trade imbalance in favour of import tonnages, but unlike Romania for example, the imbalance exists in most geographical and product sectors, although it is most pronounced in short sea liquid bulks. The maritime unitised market is approximately 13 million tonnes in the import direction and 10 million in the export direction. However, a relatively minor part of this demand is available to the Black Sea ports, with competition from the Marmara, Aegean and

Mediterranean ports, which are generally more accessible from the primary shipping lanes.

4.4.4 Ukraine

Figure 4.6: Ukraine's Trade by World Region, 2005, Annual Tonnes ('000s)



Source: WTO Trade Statistics,2007

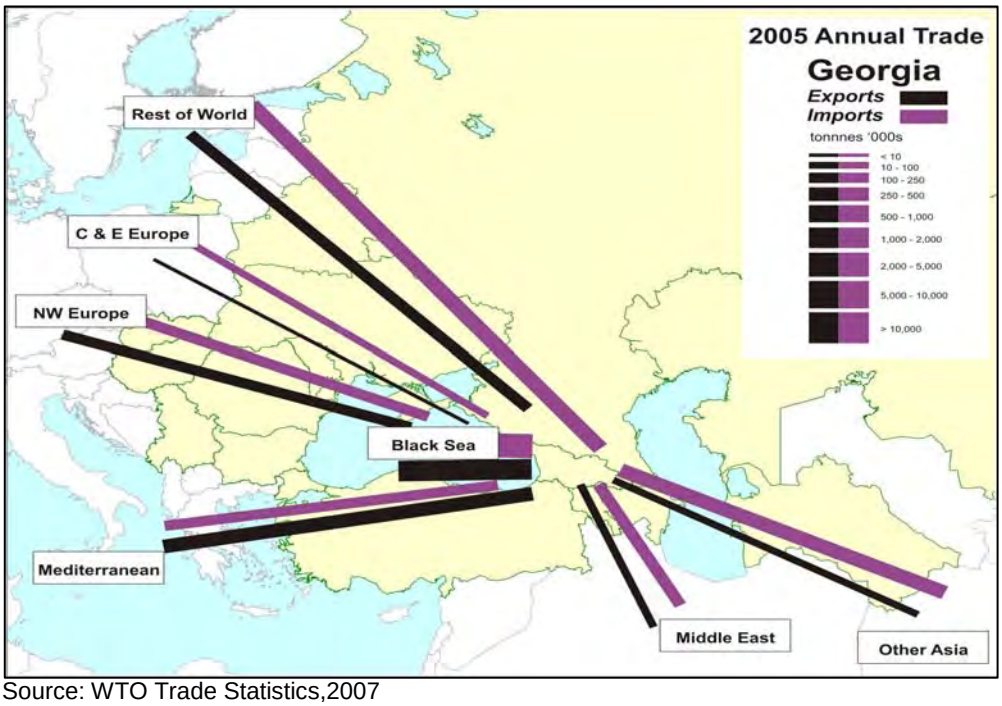
Market Summary	Import Market	Export Market
Size in Tonnes, 2005	73.367 m Tonnes	115.695 m Tonnes
Growth: 2005/1995 yoy	6.2% per annum	11.1% per annum
Shortsea/Nearsea/Deepsea[1]	61m, 3.4m, 8.9m	65m, 34m, 17m
Dry/Liquid/Manuf./Others	20m, 39m, 9m, 6m	51m, 6.5m 22m, 36m

Ukraine's economy produces the largest volume of export tonnes amongst the TRACECA countries, although financially it is closer in size to Romania. Unusually for the region, the export sector is relatively strong, and up to 2005, visible trade was in balance financially. A large quantity (61m import tonnes and 65m export tonnes) of trade is with short sea destinations (i.e. neighbouring countries, for which road and rail may also be a competitor). However, there are still sufficient quantities of manufactured goods moving to destinations that favour sea transport to support the

development of port services. Maritime unitised traffic amounts to approximately 11m tonnes of exports and 3m tonnes of imports.

4.4.5 Georgia

Figure 4.7: *Georgia's Trade by World Region, 2005, Annual Tonnes ('000s)*



Source: WTO Trade Statistics,2007

Market Summary	Import Market	Export Market
Size in Tonnes, 2005	4.499 m Tonnes	2.467 m Tonnes
Growth: 2005/1995 yoy	12.3% per annum	16.8% per annum
Shortsea/Nearsea/Deepsea[1]	3.3m, 0.5m, 0.7m	1.6m, 0.6m, 0.3m
Dry/Liquid/Manuf./Others	0.8m, 1.2m, 2m, 0.5m	1m, 0.5m, 0.6m, 0.3m

Georgia's economy is the smallest amongst the countries being considered in this study, with population and GDP approximately one tenth of Ukraine's for example. Trade growth has been very high since 2002, with sustained double digit growth in both directions. Georgia's own economy produces approximately 1m tonnes of maritime unitised cargo in the export direction and 0.5 million of import tonnes, but

the Georgian ports can also attract transit flows via Tblisi and Baku towards the Caspian Sea. In this way, the transport sector can benefit from growth within the larger states towards the East.

4.5 Black Sea Container Market

Container services provide vital trading connections between the Black Sea countries and the rest of the world for the higher value product sectors. Traditionally, the region has been served by feeder services linking to ocean-going services at Mediterranean hub ports such as Gioia Tauro in Italy and Marsaxlokk in Malta. Additionally, there have been regional (Mediterranean) connections at Piraeus in Greece and Port Said on the Suez Canal in Egypt.

However, within the last five years the traffic growth and port development within the region has attracted shipping lines to bring larger container vessels into the Black Sea, improving the accessibility of the area and increasing choice for shippers. Consequently there has been a virtuous circle in which economic growth, trade growth, infrastructure development and transport linkages have contributed to rapid expansion of containerisation. This is having a major impact upon port development in the region.

Table 4.9 shows how container ship deployment has changed between 2002 and 2007, based on the MDS-Transmodal Containership Databank. In 2002, 8,876 port calls were made in the selected countries (Note: Russia only includes Black Sea ports, but Turkey includes other coast lines). These calls amounted to a total of 6,680,614 TEUs of deployed capacity, implying a typical vessel size of 753 TEU.

Table 4.9: *Analysis of Container Services calling at Black Sea Ports, 2002-2007*

	2002			***2007***		
	Calls	***TEU***	***TEU/ Call***	***Calls***	***TEU***	***TEU/ Call***
Bulgaria	556	313,069	563	562	437,421	778
Romania	498	368,039	739	1,631	2,722,866	1,669
Ukraine	946	615,412	651	1,025	2,580,572	2,518
Russia	284	140,702	495	650	476,623	733
Georgia	232	81,382	351	405	291,152	719
Turkey	6,360	5,162,010	812	8,723	11,988,927	1,374
TOTAL	8,876	6,680,614	753	12,996	18,497,561	1,423

Source: MDS-Transmodal Containership Databank, 2008

By 2007, 12,996 calls were made in the same group of ports, an increase of 46%, but the total deployed capacity rose by 277% to 18.5 million TEU, with the average

ship size increasing to 1,423 TEU per ship call. Within a short timescale, this represents a considerable increase in connectivity within the region.
The increases were particularly noticeable within Romania and Ukraine, both of which have benefitted from a rapid expansion of new services bringing larger vessels. Turkey is still the market leader, but its share has diminished from some 77% in 2002 to 65% in 2007. The majority of the Turkish port calls are occurring in Marmara, Aegean and Mediterranean ports.

***Table 4.10**: Analysis of Container Services calling in Turkish Ports, 2002-2007*

	2002			2007		
	Calls	TEU	TEU /Call	Calls	TEU	TEU /Call
Turkey Black Sea	52	11,388	219	124	116,056	936
Turkey Marmara	3,360	2,744,952	817	5,077	7,509,406	1,479
Turkey Med.	2,948	2,405,670	816	3,522	4,363,465	1,239
TOTAL	6,360	5,162,010	812	8,723	11,988,927	1,374

Source: MDS-Transmodal Containership Databank, 2008

The Turkish Black Sea container market is represented here by the port of Trabzon. The Marmara group includes ports such Hydarapasa and Derince as well as other ports in the Istanbul area. The Med (Mediterranean) group is mainly Izmir and Mersin.
Tabel 4.11 therefore shows total connectivity at ports in the Black Sea region, including Bulgaria, Romania, Ukraine, the Russian Black Sea ports, Georgia, the Turkish Black Sea coast and the Sea of Marmara.

***Table 4.11:** Black Sea Region - Container Connectivity, 2002, 2007*

	2002			2007		
	Calls	TEU	TEU /Call	Calls	TEU	TEU /Call
Turkey	3,412	2,756,340	808	5,201	7,625,462	1,466
Rest - Black Sea	2,516	1,518,604	604	4,273	6,508,634	1,523
TOTAL	5,928	4,274,944	721	9,474	14,134,096	1,492

Source: MDS-Transmodal Containership Databank, 2008

On the supply side, between 2002 and 2007, the container sector is therefore showing:

- Growth in container ship calls from 5,928 per annum to 9,474 – implying a year on year compound annual growth rate of 9.83%.
- Growth in average vessel capacity from 721 TEU per ship arrival to 1,492 TEU.

- A resulting increase in total deployed capacity from 4.274 million TEU per annum to 14.134 million TEU – implying a year on year compound annual growth rate of 27.02%.

The specific patterns of change are shown below in. The container services calling at the Black Sea ports have been placed in three categories:

- Mar/Blk – Black Sea/Marmara Sea services – i.e. short sea services within the region.
- Eur/Med – Europe and Mediterranean services – i.e. near sea services connecting the Black Sea ports to other ports in Europe, North Africa and the Eastern Mediterranean.
- Ocean – Intercontinental or ocean-going services connecting the Black Sea ports to other continents, i.e. deep sea services on the Europe-Far East and Transatlantic trade lanes.

Table 4.12: *Analysis of Container Services by Type, 2002-2006*

		2002			2007		
Country	**Seaport**	**MAR /BLK**	**EUR /MED**	**OCEAN**	**MAR /BLK**	**EUR/MED**	**OCEAN**
BG	Bourgas	0	89,236	0	75,196	11,770	0
BG	Varna	0	223,833	0	142,804	207,650	0
RO	Constantza	0	368,039	0	521,738	405,333	1,795,795
UA	Ilichevsk	16,675	261,899	0	115,936	57,200	1,291,811
UA	Odessa	16,675	314,403	0	214,140	296,809	604,676
UA	Mariupol	0	5,760	0	0	0	0
RU	Novorossisk	0	140,702	0	209,638	249,246	0
RU	Taganrog	0	0	0	17,739	0	0
GE	Poti	0	81,382	0	145,508	145,644	0
TR-BLK	Trabzon	0	11,388	0	50,752	65,304	0
TR-MAR	Ambarli	0	593,499	0	35,532	981,586	586,815
TR-MAR	Derince	0	9,856	0	0	8,008	0
TR-MAR	Diliskelesi	0	0	0	0	21,684	0
TR-MAR	Evyap	0	0	0	0	101,955	0
TR-MAR	Gemlik	0	654,400	39,650	41,700	1,052,699	505,745
TR-MAR	Haydarpasa	0	276,833	0	0	870,165	589,696
TR-MAR	Istanbul	0	1,042,222	39,650	262,968	920,208	1,240,106
TR-MAR	Izmit Korfezi	0	0	0	0	118,404	0

TR-MAR	Yilport (Gebze)	0	88,842	0	0	172,135	0
	TOTAL	33,350	4,162,294	79,300	1,833,651	5,685,800	6,614,644

Source: MDS-Transmodal Containership Databank, 2008

Table 4.12 shows that the region has been transformed between 2002 and 2007, with the arrival of ocean-going vessels connecting the Black Sea ports directly to the main trade lanes. This expansion has been concentrated at the ports of Constantza, Ilichevsk and Odessa. Typically the deep sea services that cross the Bosphorus are calling at Constantza and Ilichevsk (e.g. Maersk Line) or they make three calls i.e. Constantza, Ilichevsk and Odessa (e.g. CSAV Norasia). These are 3000-4000 TEU vessels en-route to the Far East.

The largest ships deployed in the Black Sea are 250 - 300 metres long. It is understood that these are at the limit for navigation of the Bosphorus. Therefore, while the number of large container ships in the region may increase, it is unlikely that even larger ships will be deployed.

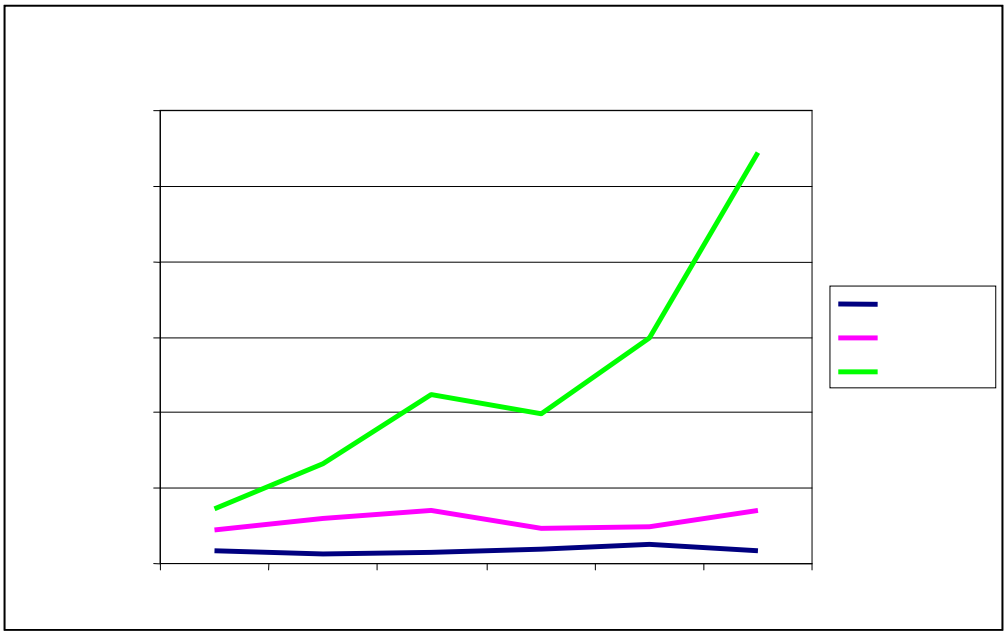
With the arrival of intercontinental services, the activity at the three main ports, Constantza, Ilichevsk and Odessa has increased rapidly. However, this growth has also been accompanied by growth in the "traditional" Mediterranean feeders, and by rapid expansion in the intra-Black Sea sector. The latter has had a marked impact on services into the Varna, Bourgas, Novorossisk, Poti and Trabzon.

Trends for the key container ports in the study area are shown below, grouped according to coastline. Note that these show deployed capacity (ship capacity multiplied by the number of port calls) and not the numbers of containers handled at the ports.

Container handling figures reported by Containerisation International (January 2007) showed:

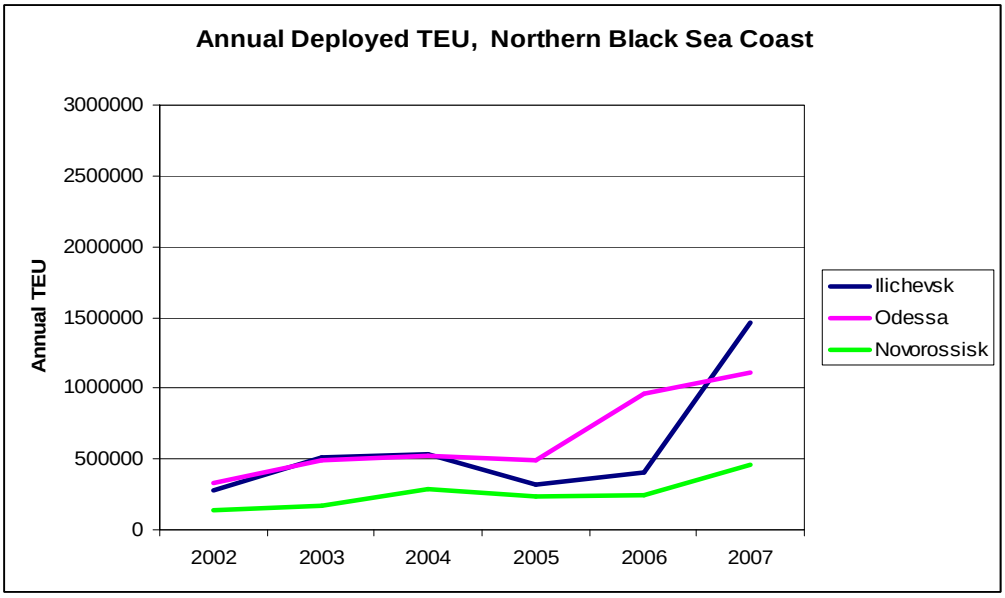
- Constantza grew over 30% to 1,037,077 TEU
- Odessa grew 37.1% to 395,564 TEU
- Illichevsk grew 14.4% to 324,036 TEU
- Novorossisk grew 38% to 220,000 TEU

***Figure 4.8**: Annual Deployed TEU, Western Black Sea Ports, 2002-2007*



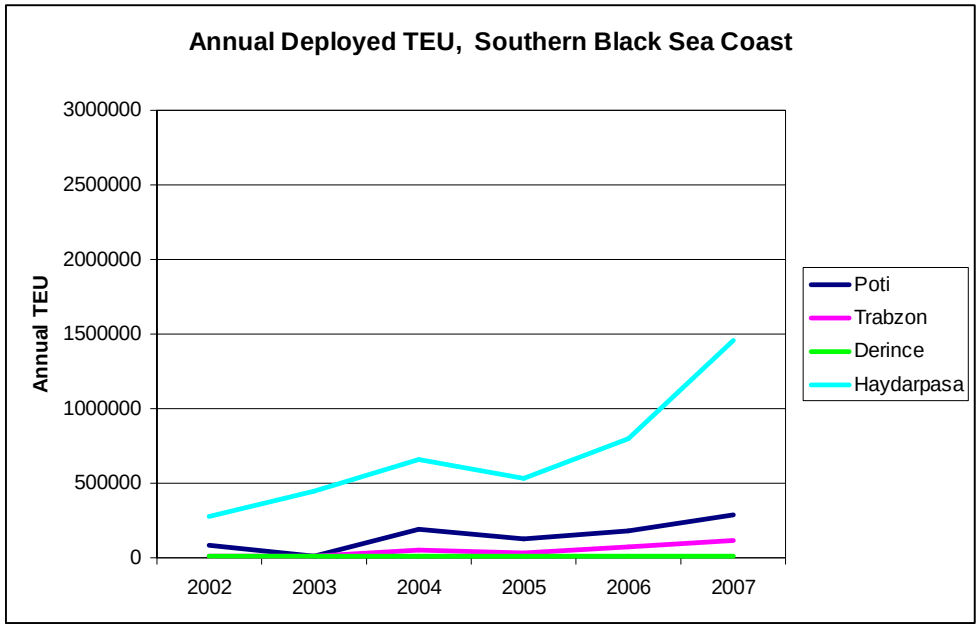
Source: MDS-Transmodal Containership Databank, 2008

***Figure 4.9:** Annual Deployed TEU, Northern Black Sea Coast, 2002-2007*



Source: MDS-Transmodal Containership Databank, 2008

Figure 3: *Annual Deployed TEU, Southern Black Sea Coast, 2002-2007*



Source: MDS-Transmodal Containership Databank, 2008

The figures for containership deployment demonstrate clearly, the radical changes in the Black Sea region within the maritime sector. Strong trade growth is underpinning the confidence shown by the container lines, and this has brought rapid development in the ports and shipping sectors. In turn this has led to improved accessibility within the Black Sea region, and with external trade links. In parallel, the rapid introduction of new cellular capacity in the global market has led to cascading effect, with shipping lines looking for expanding markets in which to deploy the previous generation of vessels. Altogether, these factors have introduced a virtuous circle of economic development, land-side investment and new services.

4.6 Black Sea Roro Market

The roll-on, roll-off (ferry) market has also experienced supply-side growth, but not by the magnitudes seen in the container market.

Table Tabel 4.13 shows the annual deployment of roll-on roll-off capacity, measured in lane metres per annum. The number of lane metres of a ship is the total number of metres available to park vehicles on that ship.

So a ship with for instance in total 1000 lane metres, calling twice a week (104 calls per year) offers 104,000 lane metres annually. A ship with 1000 lane metres can carry approximately 60-70 HGVs in a single voyage, assuming all the capacity is allocated to freight vehicles rather than cars.

Table 4.13 *Black Sea Ro-Ro Connectivity, Trends 2002-2007*

		Annual deployment (one way) – lane metres					
		2002	**2003**	**2004**	**2005**	**2006**	**2007**
BG	Bourgas	132,080	132,080	62,400	62,400	62,400	62,400
BG	Varna	171,600	170,352	170,352	170,352	170,352	170,352
RO	Constantza	123,760	125,814	125,814	85,254	85,254	85,254
UA	Yevpatoriya	39,000	83,616	132,080	132,080	92,352	92,352
UA	Skadovsk					86,320	168,220
UA	Odessa	10,400	10,400	10,400	10,400	17,368	34,320
UA	Ilichevsk	287,695	256,152	256,152	256,152	256,152	256,152
RU	Sochi	34,840	34,840	28,080	28,080	98,800	28,080
RU	Novorossisk	355,992	355,992	360,672	462,072	503,880	483,860
GE	Batumi	171,600	255,606	255,606	255,606	255,606	255,606
GE	Poti	273,680	302,432	232,752	232,752	232,752	232,752
TR	Eregli						251,472
TR	Zonguldak	39,000	83,616	132,080	132,080	178,672	512,044
TR	Samsun	431,423	403,182	383,526	484,926	526,734	506,714
TR	Trabzon	59,176	59,176	28,080	28,080	98,800	28,080
	TOTAL	**2,130,246**	**2,273,258**	**2,177,994**	**2,340,234**	**2,665,442**	**3,167,658**

Source: MDS-Transmodal Liner Databank, 2008

In 2007, the total Ro-Ro market offered 3.168 million lane metres, i.e. capacity for approximately 200,000 articulated HGVs, or approximately 400,000 TEU container equivalents. By contrast, the container sector is offering 14.1 million TEU, so in context, the Ro-Ro market is relatively small.

Between 2002 and 2004, the market was relatively static on the supply side, but new services and new vessels have been appearing in the last three years.

Many services operate from Turkish ports. The details are shown below:

Table 4.14 *Ferry Services operating in the Black Sea 2007*

Service	Route	Annual Frequency	Ships	Avg LM	Ann LM
CENK SHPP – RUS	RU/TR	104	1	1635	170040
CENK SHPP - UKR 1	TR/UA	104	1	888	92352
CENK SHPP - UKR 2	RU/TR/UA	52	1	1635	85020
ERDEMIR	TR COASTAL	312	1	806	251472
FERRY/SPED -UKRFERRY 1	BLK SEA	52	2	1650	85800

FERRY/SPED -UKRFERRY 2	BLK SEA	52	3	1626	84552
SOMAT – SILKLINK	BLK SEA	52	1	1200	62400
MARFA NAVE FERRYBOT	BLK SEA	52	2	1640	85254
RIZE IPEKYOLU SHPP	GE/TR	0	1	710	
SARI SHPP	RU/TR	104	1	270	28080
UKRFERRY – ODE	TR/UA	104	2	330	34320
ULUSOY SEALINES - RUS	RU/TR	104	1	1600	166400
ULUSOY SEALINES - UKR	TR/UA	52	1	1600	83200
YUZHFLOT	GE/RU	0	1		

Source: MDS-Transmodal Liner Databank, 2008

Table 4.15: *Ferry Services, Port Rotations*

Service	Port Rotation
CENK SHPP – RUS	NOV/SMS/NOV
CENK SHPP - UKR 1	ZGD/YEV/ZGD
CENK SHPP - UKR 2	NOV/SMS/ZGD/SKV/NOV
ERDEMIR	ZGD/ERG/ZGD
FERRY/SPED - UKRFERRY 1	ILC/BMI/POT/VAR/ILC/DER/ILC
FERRY/SPED - UKRFERRY 2	ILC/VAR/POT/BMI/ILC
SOMAT - SILKLINK	BOU/NOV/POT/BOU
MARFA NAVE FERRYBOT	CNZ/SMS/BMI/CNZ
SARI SHPP	SOC/TBZ/SOC
UKRFERRY - ODE	ODE/IST/ODE
ULUSOY SEALINES - RUS	NOV/SMS/NOV
ULUSOY SEALINES - UKR	ZGD/SKV/ZGD

Table 4.16: *Abbreviations for Port Names*

Abbrev.	Name	Abbrev.	Name
BMI	Batumi	POT	Poti
BOU	Bourgas	SKV	Skadovsk
CNZ	Constantza	SMS	Samsun
DER	Derince	SOC	Sochi
ERG	Eregli	TBZ	Trabzon
ILC	Ilichevsk	VAR	Varna
IST	Istanbul	YEV	Yevpatoriya
NOV	Novorossisk	ZGD	Zonguldak
ODE	Odessa		

Two recent developments include:

1) a service set up in 2007 deploying a new-build rail vehicle carrier (or 86 trucks) - SMAT - calling at Poti and Kavkaz on a twice a week frequency. The service was

set up by Reserve Capital Corporation but operated by Yuzhflot. Another ship is due to enter service early this year.
2) a Caspian service set up in 2006 deploying three new build rail vehicles carriers (52 wagons). The vessels were built in Croatia and are shallow draughted to negotiate the Volga/Don. The rotation includes Makhachkala, Baku and the port of Turmenbashi in the Caspian.

4.7 Conclusions

An overview of the market environment has been set out, detailing recent trends on both the demand and supply sides. The demand analysis has focused upon trade flows, and these have been segmented geographically and by the main product sectors.

The key trends on the demand side are:

- Substantial growth in international trade.
- Broad based growth affecting most geographical and product sectors.
- Visible trade deficits expanding in Bulgaria, Romania, and Turkey, and tonnages growing at 6-8% per annum.
- Higher trade growth in Ukraine (11% export tonnages), balanced financially between imports and exports.
- Higher growth still in Georgia (12-16% for tonnages), but growing trade deficit.

On the supply side in the container sector:

- The number of container ship arrivals in Black Sea ports grew by 60% between 2002 and 2007.
- The average ship calling at Black Sea ports grew from 721 TEU in 2002 to 1492 TEU in 2007.
- The resulting deployed TEU at Black Sea ports grew by 330% between 2002 and 2007, rising from 4.2 million to 14.1 million.
- Black Sea ports started attracting calls from deep sea services (Europe-Far East), bringing ships of up to 6000 TEU into the region, and creating direct links to the Far East.
- Significant growth has also occurred in the development of Black Sea/Maramara feeder services.
- Growth in the container sector has been focused upon Constantza, Illichevsk, Odessa and Novorossisk.

On the supply side in the Ro-Ro sector:

- Still a niche market, with relatively low frequency (e.g. weekly or twice weekly) and resulting deployed capacity.

- Geographically focused upon Turkish ports.
- Nevertheless, new services are appearing

5 Trade Forecast Scenarios

5.1 Main assumptions and definition of trade scenarios

In developing port forecasts, the study focuses upon the underlying trends in the freight flows from which the demand for Black Sea maritime links is derived. The market analysis points to a highly dynamic environment, on both the demand and supply sides, so it is necessary to consider how long such growth rates can be sustained.

The methodology is a “top-down” approach in which financial trade forecasts at a national level are converted into forecasts of tonnages by country and product sector. These, in turn, have been regionalised so that they can be more accurately assigned to the specific seaports in the study.

From this basis it is possible to estimate forecasts by commodity sector for each port, based on a static definition of each port’s hinterland and trading partners. The method is therefore a steady-state forecast and does not take into account competition between the ports under consideration. The more detailed aspects of competition are dealt with in the detailed assessments, when the economic analysis can be combined with information about the strategies and performances of the ports.

Two trade scenarios have been developed:

- The Central Forecast Scenario
- The Lower Growth Scenario.

The key difference between the two scenarios lies in the macro-economic assumptions, and the extent to which trade growth can proceed at historical levels given imbalances in trade and rapid change in the size of the international sector relative to domestic growth.

The lower growth scenario therefore includes tighter financial constraints which influence the rate at which trade volumes can grow.

Within this scenario, persistent trade deficits constrain trade growth for countries within the study region and amongst the trading partners.
Note that the trade model is a global model, involving trade between all countries, not limited to the study region. Therefore, instabilities caused, for example, by the developing imbalances between the USA and China are taken into consideration in both scenarios.
The key assumptions for the forecast are therefore applied at the top level. Other factors e.g. the distribution of industrial activity within a country and the reserves of raw materials are not assumed to change.

5.2 Trade Forecast Results

In table 5.1 the results of the trade model are shown. They apply to the fifteen countries in the "core" region: Bulgaria, Hungary, Romania, Serbia, Slovak Republic, Turkey, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, Turkmenistan and Ukraine.
The trading partner regions are also directly comparable with the tables in the previous chapter:

- The Black Sea region includes: Bulgaria, Hungary, Romania, Serbia, Slovak Republic, Turkey, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, Turkmenistan and Ukraine.
- C E Europe (Central and Eastern Europe) includes the European countries directly north of the Black Sea region including Poland and the Baltic countries.
- The Mediterranean region consists of the European and African countries bordering the Mediterranean, but excluding the Middle East and France.
- Mid East contains the Middle Eastern countries, including the Gulf countries, and extending Eastwards as far as Iran.
- N W Europe consists of the remaining North Sea European countries including Germany, the UK, France and the Nordic region.
- Other Asia contains the majority of Asian destinations, including China, ASEAN and India.
- The Rest of the World category includes sub-Saharan Africa, the Americas and Australasia.

Table 5.1: *Exports from Black Sea Region: Annual US$ bn. 2020 Forecast.*

	Base Year		Low Growth			Central Case		
	2005	2005 Share	2020	2020 Share	2020 /2005	2020	2020 Share	2020 /2005
Black Sea	106	22%	506	36%	10.9%	777	34%	14.2%
C. E. Europe	35	7%	93	7%	6.7%	183	8%	11.6%
Mediterranean	74	16%	149	11%	4.7%	261	11%	8.7%
Mid East	18	4%	48	3%	7.0%	88	4%	11.4%
N. W. Europe	168	35%	378	27%	5.6%	597	26%	8.8%
Other Asia	43	9%	155	11%	8.9%	265	12%	12.9%
Rest of World	32	7%	76	5%	6.0%	105	5%	8.3%
TOTAL	476	100%	1,405	100%	7.5%	2,275	100%	11.0%

Source: NEA

Table 5.2 *Exports from Black Sea Region: Annual Tonnes mn. 2020 Forecast.*

	Base Year		Low Growth			Central Case		
	2005	2005 Share	2020	2020 Share	2020 /2005	2020	2020 Share	2020 /2005
Black Sea	341	30%	1,931	54%	12.3%	2,085	42%	12.8%
C. E. Europe	97	8%	203	6%	5.0%	443	9%	10.6%
Mediterranean	183	16%	292	8%	3.2%	504	10%	7.0%
Mid East	36	3%	100	3%	7.0%	151	3%	10.0%
N. W. Europe	290	25%	482	13%	3.4%	922	18%	8.0%
Other Asia	145	13%	438	12%	7.7%	673	14%	10.8%
Rest of World	58	5%	131	4%	5.6%	205	4%	8.8%
TOTAL	1,150	100%	3,578	100%	7.9%	4,984	100%	10.3%

Source: NEA

Table 5.3*: Imports to Black Sea Region: Annual US$ bn. 2020 Forecast.*

	Base Year		Low Growth			Central Case		
	2005	2005 Share	2020	2020 Share	2020 /2005	2020	2020 Share	2020 /2005
Black Sea	106	24%	506	38%	10.9%	777	36%	14.2%
C. E. Europe	28	6%	76	6%	6.9%	165	8%	12.6%
Mediterranean	49	11%	120	9%	6.1%	193	9%	9.5%
Mid East	6	1%	14	1%	6.2%	28	1%	11.3%

N. W. Europe	167	38%	383	29%	5.7%	581	27%	8.7%
Other Asia	62	14%	162	12%	6.6%	310	14%	11.3%
Rest of World	23	5%	59	4%	6.4%	129	6%	12.0%
TOTAL	442	100%	1,320	100%	7.6%	2,183	100%	11.2%

Source: NEA

Table 5.4: *Imports to Black Sea Region: Annual Tonnes mn. 2020 Forecast.*

	Base Year		***Low Growth***			***Central Case***		
	2005	***2005 Share***	***2020***	***2020 Share***	***2020 /2005***	***2020***	***2020 Share***	***2020 /2005***
Black Sea	341	62%	1,931	79%	12.3%	2,085	75%	12.8%
C. E. Europe	26	5%	65	3%	6.2%	108	4%	9.9%
Mediterranean	32	6%	77	3%	6.0%	115	4%	8.9%
Mid East	13	2%	17	1%	2.1%	51	2%	9.7%
N. W. Europe	50	9%	125	5%	6.4%	147	5%	7.5%
Other Asia	34	6%	119	5%	8.7%	141	5%	9.9%
Rest of World	51	9%	112	5%	5.5%	131	5%	6.6%
TOTAL	546	100%	2,447	100%	10.5%	2,779	100%	11.5%

Source: NEA

Trade potential for the Black Sea region is therefore predicted to be within the range 7.5-11% for exports and 7.6-11.5% for imports, depending upon the scenario and the volume measurement. The growth rates are similar in each direction because a large part of the total volume is between countries in the Black Sea region, so the same traffic flows count as both imports and exports. The tendency for the model to balance trade in each country also leads towards this result.

The flows within the Black Sea region (trade from one Black Sea country to another) are relatively large in absolute volumes and expected to realise high growth rates.

Although part of this set will affect maritime services, it will also include a high proportion of over-land trips by road and rail for example.

Nevertheless, growth within the region reduces the dependency upon economic growth in other parts of the world e.g. Western Europe.

For the longer distance trade flows, higher growth rates are expected for Central and Eastern Europe, the Middle East and Other Asia, although the Middle East markets react more to the tighter financial constraints applied within the trade model.

For the key container markets, the Mediterranean, Middle East, Other Asia and the Rest of World, compound annual growth is expect to be 6-9% in each direction.

Increases in containerisation rates and transhipment within the region would lead to higher rates of container handling in the ports.
Historical and forecast growth rates are summarised below.

Table 5.5: *Export US$: Historical and Forecast Compound Annual Growth Rates*

	Historic	Low Growth	Central
	2005/1995	2020/2005	2020/2005
Black Sea	14.8%	10.9%	14.2%
C. E. Europe	19.2%	6.7%	11.6%
Mediterranean	16.1%	4.7%	8.7%
Mid East	18.0%	7.0%	11.4%
N. W. Europe	14.6%	5.6%	8.8%
Other Asia	10.8%	8.9%	12.9%
Rest of World	14.3%	6.0%	8.3%
TOTAL	14.8%	7.5%	11.0%

Source: NEA

Table 5.6*: Export Tonnes: Historical and Forecast Compound Annual Growth Rates*

	Historic	Low Growth	Central
	2005/1995	2020/2005	2020/2005
Black Sea	9.0%	12.3%	12.8%
C. E. Europe	11.0%	5.0%	10.6%
Mediterranean	12.2%	3.2%	7.0%
Mid East	13.7%	7.0%	10.0%
N. W. Europe	10.7%	3.4%	8.0%
Other Asia	11.2%	7.7%	10.8%
Rest of World	14.3%	5.6%	8.8%
TOTAL	10.7%	7.9%	10.3%

Source: NEA

Table 5.7*: Import US$: Historical and Forecast Compound Annual Growth Rates*

	Historic	Low Growth	Central
	2005/1995	2020/2005	2020/2005
Black Sea	14.8%	10.9%	14.2%
C. E. Europe	19.8%	6.9%	12.6%
Mediterranean	13.2%	6.1%	9.5%
Mid East	6.3%	6.2%	11.3%

N. W. Europe	13.6%	5.7%	8.7%
Other Asia	18.4%	6.6%	11.3%
Rest of World	8.3%	6.4%	12.0%
TOTAL	14.2%	7.6%	11.2%

Source: NEA

Table 5.8: *Import Tonnes: Historical and Forecast Compound Annual Growth Rates*

	Historic	***Low Growth***	***Central***
	2005/1995	***2020/2005***	***2020/2005***
Black Sea	9.0%	12.3%	12.8%
C. E. Europe	6.3%	6.2%	9.9%
Mediterranean	5.6%	6.0%	8.9%
Mid East	-2.9%	2.1%	9.7%
N. W. Europe	7.7%	6.4%	7.5%
Other Asia	13.2%	8.7%	9.9%
Rest of World	5.8%	5.5%	6.6%
TOTAL	7.8%	10.5%	11.5%

Source: NEA

On the export side, growth in trade values and tonnages are similar, and in the central case, the forecast growth rates (compound annual growth rates) for tonnages are similar to historic rates.

On the import side, trade value in dollars has historically risen much faster (14.2%) than trade tonnes (7.8%). To a lesser extent, this is also the case for exports, where values have risen by 14.8% and tonnages by 10.7%. This is partly the result of conversion to US dollars against a background of a depreciating dollar. The model is assuming constant dollar rates, so the forecasts generally do not continue this divergence. Although the model is predicting changes in the product mix, the gap between dollar growth and tonnage growth is smaller for the future period.

5.3 Conclusions

The trade forecasting model suggests that there is still underlying growth potential in the market. In the lower growth scenario, the total trade for the group of fifteen countries combined is expected to reach a level similar to that of Germany today. Bearing in mind that the set of countries includes several large and resource rich countries such as Russia, Ukraine and Turkey, this gives a rough idea of the potential.

To a large extent, the main volume increases will take place between neighbouring countries within the Black Sea region, so that these increases are insulated from global business cycle effects. Continued growth, from 7 to 11% per annum is expected in physical volumes (tonnages) as well as monetary units.

These trade flows may use non-maritime modes, and some may be diverted to Mediterranean or Aegean ports, so additional analysis has been applied to translate the trade forecasts into forecasts of maritime traffic.

Risks to growth include the tendency for trade deficits to develop, potentially undermining economic confidence and stability. These may occur within the region, or within trading partners. It remains to be seen how global trade imbalances will affect patterns of trade growth. The model suggests that the overall impact on the Black Sea region will be small e.g. 2% per annum lower growth. With a framework now established for monitoring the interaction between trade growth and traffic growth it is important to review these predictions periodically.

Accommodating these increases within the maritime networks remains as a challenge. It is therefore necessary to combine these trade forecasts with a more detailed assessment of port hinterlands, and the evolutions of capacity feasible within individual ports.

6 Assessment of Ukrainian ports

6.1 Illichevsk

6.1.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Illichevsk port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 6.1.1 *Current throughput Illichevsk, x 1000 tonnes and TEU*

Type of goods	2005	2006	2007
Dry bulk	5,278	5,667	5,328
Liquid bulk	1,245	1,103	1,785
General, excl containers	6,459	5,449	5,362
Containers, x 1000 tonnes	1,987	2,266	3,560
Containers, TEU	291,127	324,036	532,766
Total, x 1000 tonnes	14,969	14,842	16,034

Source: Commercial Sea Port of Illichevsk

Future capacity

The following table gives an insight in the capacity of Illichevsk port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port own estimates for 2015. The estimated capacity for dry and liquid bulk is based on throughput estimation.

Table 6.1.2 *Capacity/ throughput Illichevsk, x 1000 tonnes and TEU*

Type of goods	2007	2015
Dry bulk	5,328	9,000 – 10,000
Liquid bulk	1,785	4,800
General, excl containers	5,362	9,000 – 10,000
Containers, x 1000 tonnes	3,560	17,000
Containers, TEU	532,766	2.5 – 4.5 mio
Total, x 1000 tonnes	16,034	40,960

Source: Commercial Sea Port of Illichevsk
Note: Besides Illichevsk and Odessa another relevant port in UA is Yuzhny. There are plans to expand the container terminal there to a total capacity of 750,000 TEU and possibly 1.5 mio TEU.

Main constraints and prospects

- With the opening of the new container terminal and the more or less concrete plans to increase container handling capacity to 2.4 – 4.5 mio in 2015 it seems that the port infrastructure itself does not form a major bottleneck.
- Given the growing container market serious constraints are to be expected in the field of:
    - hinterland connections, both road and rail
    - border control procedures (Illichevsk needs service oriented Customs, apparently now 20% of containers are physically checked)
    - efficient handling procedures of containers, supported by ICT systems
    - The unbalance in container traffic leads to a high share of empty containers which negatively influences the competitiveness of Illichevsk (in 2006 43% empties). Figures for Ukraine in total for 2007 indicate 51% import laden, 8% export laden and 40% export empty.
- One of the main strong points of Illichevsk is the large area that is available for port activities, especially in comparison with other ports in the Black Sea region that are build near historic city centres.
- Illichevsk could develop further as a regional hub for UA, RUS, GEO and BY for containers especially from Asia. Transhipment is currently zero, while overland transit is less than 4%.
- Prospects to serve from Illichevsk EU markets seem low, also because of border crossing difficulties in comparison with EU ports in the Black Sea.
- An important factor that will positively influence container throughput is the relatively low rate of containerisation and the expected strong increase in this rate.

6.1.2 General information

Port management

The Commercial Sea Port of Illichevsk is the port authority. It is state owned and manages the port via the landlord model.

Summary of port facilities & capacity:

- Capacity up to 30.0 mio tons, since 2007 container capacity 850,000 to 1 mio TEU.

- Throughput 2007 was 16.0 mio: dry bulk (grain, ore, sulphur) 6 mio, liquid bulk (grease) 1.7 mio, general cargo excl. containers 5.3 mio, containers 532,766 TEU / 3.6 mio tons.RoRo terminal, in 2007 118,000 passenger cars handled.
- Territory 270ha.
- 6 terminals.
- 29 modern berths, total quay length 6,000 m.
- Open storage area -575,000 sq. m, warehouse area - 28,000 sq. m.
- Navigable depths: in outer roadstead - up to 21 m, in approach channel - 15 m, in port water area – 7.5 -13 m.
- Rail ferry terminal, Russian gauge.
- Extensive railway and road infrastructure with bottlenecks to corridors, in theory inland waterway connections via channel to the Danube and via Dnieper river but not used.

6.1.3 Current capacity and throughput

Containers

- Strong growth container handling in recent years.

Year	TEU	Growth rate %
2001	79,000	-
2002	103,000	30
2003	152,000	48
2004	197,000	30
2005	291,000	48
2006	324,000	11
2007	533,000	65

- Container terminal operated by Ukrtranscontainer, a subsidiary of the Russian container handling company NCC, in cooperation with the port.
- Capacity for containers transhipment as of November 2007 with the opening of the new terminal 850,000 TEU, end of the year 1.1 mio TEU.
- Storage capacity 6,000 TEU.
- Average container storage time on the terminal is 12-17 days.
- 95% of containers handled are to/from UA market, indicating that Illichevsk not (yet) serves as a hub for RUS, MD, BY etc.
- Capable of receiving 6,000 TEU vessels, in future possibly 8,000 TEU vessels.
- The New World Alliance (TNWA) - Mitsui O.S.K. Lines, Ltd. (MOL), APL, and Hyundai Merchant Marine, Co., Ltd. (HMM) - Hanjin Shipping Co., Ltd and United Arab Shipping Company (UASC) have a new direct Asia-East Mediterranean / Black Sea service, named "EBX" (East-Mediterranean / Black Sea Express).

From early November, 2007, the EBX service will deploy eight vessels ranging from 2,500-2,700 TEU on a weekly service operating on a 56-day rotation. Port

Rotation:
Shanghai (Sun / Mon) → Hong Kong (Wed / Wed) → Yantian (Wed / Thu) → Singapore (Sun / Mon)→ Damietta (Sat / Sun)→ Istanbul (Tue / Thu)→ Constantza (Fri /Sat) → Illichevsk (Sat / Mon) → Izmir (Thu / Fri) → Damietta (Sun / Sun) → Jeddah (Wed / Thu) → Singapore (Sun / Mon) → Shanghai.

Transit Times (days)

	Shanghai	Yantian	Singapore
Istanbul	22	19	15
Constantza	25	22	18
Illichevsk	26	23	19

Dry bulk / general cargo

- 6 mio tonnes dry bulk, of which 2 mio grain, 3 mio ores, 1 mio sulphur.
- 8 mio tonnes general cargo, of which 3 mio metal.

Liquid bulk

- 1.5 mio tonnes liquid cargo, of which 1 mio vegetable oil (capacity is 3.5 mio tonnes, 4 terminals).

RoRo

- UKRferry operates ferries (RoRo and rail) from Illichevsk/Odessa to Poti/Batumi (GEO), Istanbul/Derince (TR) and Varna (BG).
- Illichevsk develops as a hub for the automotive sector.
- Passenger cars transported via RoRo to Illichevsk for Ukraine, Russia and Belarus.
- In 2006 43,000, in 2007 118,000 cars handled, 2008 estimate is 230,000 cars.

Rail ferry

- Russian gauge.
- Facilities to handle two rail ferry vessels at the same time.
- UKRferry has opened in October 2007 a new rail ferry terminal in Kerch, but the facilities in Illichevsk will continue to be used.
- Destinations Poti/Batumi, Derince, sporadic Varna (apparently only in 1 out of 5 loops between UA and GEO the port of Varna is included).
- 1.5 mio tonnes via rail ferry (decreasing).

- Because of more complex border control procedures the rail ferry concept has advantages compared to the EU.

6.1.4 Port performance

Containers

- Since May 2007 the port is capable of receiving vessels over 5,000 TEU at its new 336 meter container terminal (berth 5 and 6). The capacity of this terminal is 450,000 TEU per year.
- The terminal at berth 5 and 6 has shown an outstanding performance of 1,370 TEU/y/m (TEU/year/berth metre). World average (2005) for modern Terminals goes up to about 1,700 TEU/y/m.
- Berths 1 and 2 are converted into container berths. Berth 1 has recently been reconstructed. The current capacity of the operational container terminals is estimated to be about 850,000 TEU. The storage yards can store up to 12,250 TEU and provide 400 reefer slots.

General Cargo

- The port capacity for handling General cargoes is about 8 million tons. It nevertheless dropped from 6,459,000 tonnes in 2005 to 5,362,000 tonnes in 2007.
- Steel related throughput has fallen steeply over the last few years. Other ports in the region, like for instance Odessa, have better hinterland connections with steel factories.
- Performance figures of 4,500 tonnes/year/berth metre (t/y/m) are close to the benchmark of 5,000 t/y/m. However 2004 performance was 7,300 t/y/m, this indicates that efficient general cargo operations are feasible in the port of Illichevsk.

Dry Bulk

- Performance of 4,000 t/y/m is amongst the highest of Black Sea ports but still considerable below benchmark figure of 7,000 t/y/m. This is probably due to low berth occupancy rates.

Liquid Bulk

- The facility appears to be well organized.
- 2007 throughput was 1.785 million tones. This is 55% of the capacity of 3.23 million tons.
- 2007 performance was about 5,000 t/y/m. When operated at capacity it will be 11,000 t/y/m which is almost equal to the benchmark of 12,000 t/y/m.

6.1.5 Hinterland connections

- Connects Pan-European Corridor N9 with TRACECA corridor.
- Main mode hinterland connection is road transport with 90% market share (85% in 2004), followed by rail, also river ports are used to distribute cargo in the region.
- Main problem for international rail corridors to the West is the gauge change needed.
- Rail transport conditions unfavorable because of:
  - Long and unpredictable transport times
  - Insufficient information
  - Inadequate equipment (containers, wagons)
  - Complex freight documentation
  - Poor equipment and services at port and inland terminals
  - Monopoly position UA state railways

6.1.6 Development plans and capacity

Overall

- Illichevsk has the ambition to be a regional hub for UA, RUS, GEO, PL, and BY, especially for containers.
- Main efforts and plans for the future are focused on containers and liquids.

Containers

- NCC, the Russian national container company, through its subsidiary UKRtranscontainer, works together with Sea Commercial Port of Illichevsk on expanding capacity.
- In 2008 capacity will reach 1.1 mio TEU, In 2015 capacity will reach 2.4 mio TEU, and may go up to 3.5 or even 4.5 mio tonnes. The first phase of co-operation was celebrated with the opening of the new terminal in November 2007.
- Berth 2 is expected to become operational in two years; future draft will be 15m, allowing for 8,000 TEU container vessels.
- Expansion plans are in place for berth 1-2, at berth 22 and on 5 (multimodal terminal).

Dry bulk

- A new silo complex with 38 silos for cereals has recently been built recently by Estron Corporation (Cyprus). It is currently the largest in Ukraine with the capacity of 6.5 M tons per year. It can load simultaneously two Panamax type vessels. The grain terminal is operated by TransBulk Terminal Company.
- Refurbishment of the current facility at berth 10 is planned for the import of manganese and nickel.
- A new finger pier between berth 10 and 11 is planned to handle bulk ore and clinker imports.

Other

- There are plans to build a passenger car terminal to be able to better handle the growing number of cars coming through the port.
- A second plant for vegetable oil will be opened at the end of this year
- A new grain berth will be constructed at the location of the ship repair yard

Hinterland connections

- Road connections between UA highways and the port should be upgraded to handle the increase in number of containers. It is unclear whether there are currently concrete plans to improve access to road corridors. Also the highway connecting Odessa with other parts needs upgrading to be able to facilitate the growing traffic.
- Also rail connections and rail operations should be improved. Again, it is unclear whether concrete plans exists.

6.1.7 Assessment of major constraints and prospects

Constraints

- With the opening of the new container terminal and the more or less concrete plans to increase container handling capacity to 2.4 – 4.5 mio TEU in 2015 it seems that the port infrastructure itself does not form a major bottleneck.
- Given the growing container market serious constraints are to be expected in the field of:
  - hinterland connections, both road and rail
  - border control procedures (requiring service oriented Customs, apparently now 20% of containers are physically checked)
  - efficient handling procedures of containers, supported by ICT systems.

- The rail ferry concept is considered only economically viable if the same gauge is applied at origin and destination, and only for specific types of cargo (bulk).
- Current destinations of rail ferries are ports (Derince, Batumi, Poti) which haven been taken over by private parties, or will be taken over soon. It is unclear whether these private parties will be interested to keep rail ferry facilities.
- The unbalance in container traffic leading to a high share of empty containers (in 2006 43%) to be handled negatively influences the competitiveness of Illichevsk.

Prospects

- One of the main strong points of Illichevsk is the large area that is available for port activities, especially in comparison with ports that are build near historic city centres.
- Illichevsk could develop further as a regional hub for UA, RUS, GEO and BY for containers especially from Asia.

UKRtranscontainer estimates the following transit times:

Transit time (days)

From Egyptian Port Said	To St Petersburg/Illichevsk	To Moscow	To Samara	To Yekaterinburg	To Central Asia
Via St Petersburg	17-21	23-26	42-45	50+	50+
Via Illichevsk	4-5	8-10	14-15	18-20	21-25

Even if these transit times are calculated on the basis of ideal but yet unrealistic conditions regarding efficient port operations and hinterland connections, the table clearly shows that at least in theory there is potential.

- Prospects to serve EU markets from Illichevsk EU seem low, also because of border crossing difficulties in comparison with EU ports in the Black Sea.
- An important factor that will positively influence container throughput is the relatively low rate of containerisation and the expected strong increase in this rate.
- To actually fully realise the potential, the port needs efficient handling procedures including customs supported by modern ICT systems, and efficient hinterland connections.

6.2 Odessa

6.2.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Odessa port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 6.2.1 *Current throughput Odessa, x 1000 tonnes and TEU*

Type of goods	2005	2006	2007
Dry bulk	4,635	4,325	5,070
Liquid bulk	12,822	12,914	15,469
General, excl containers	6,539	7,082	6,356
Containers, x 1000 tonnes	2,850	3,689	4,474
Containers, TEU	288,348	395,562	523,881
Total, x 1000 tonnes	26,846	28,010	31,369

Source: Odessa Commercial Sea Port, own estimate

Future capacity

The following table gives an insight in the capacity of Odessa port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port own estimates for 2015.

Table 6.2.2 *Capacity Odessa, x 1000 tonnes and TEU*

Type of goods	2007	2015
Dry bulk	16,000	30,000
Liquid bulk	24,000	24,000
General, excl containers		
Containers, x 1000 tonnes	4,475	12,750
Containers, TEU	525,000	2,000,000
Total, x 1000 tonnes	44,475	66,750

Source: Odessa Commercial Sea Port

Note: Besides Illichevsk and Odessa another relevant port in UA is Yuzhny. There are plans to expand the container terminal there to a total capacity of 750,000 TEU and possibly 1.5 mio TEU.

Main constraints and prospects

- The current lack of capacity leads to an average waiting time for container vessels of 38.5 hours (10 months 2007)
- Given the growing container market serious constraints are to be expected in the field of:
  - hinterland connections, both road and rail
  - border control procedures (requiring service oriented Customs, apparently now 20% of containers are physically checked)
  - efficient handling procedures of containers, supported by ICT systems (which seems to be lacking completely)
- The unbalance in container traffic leading to a high share of empty containers to be handled negatively influences the competitiveness of Ukrainian ports. Figures for Odessa in total for 2007 indicate 52% import laden, 0,2% import empty, 8% export laden and 40% export empty.
- One of the main bottlenecks of Odessa is the location in the city centre limiting growth potentials.
- Odessa could develop further as a regional hub for UA, RUS, GEO and BY for containers especially from Asia. However, transhipment is currently zero, while overland transit is less than 6%.
- Prospects to serve from Odessa EU markets seem low, also because of border crossing difficulties in comparison with EU ports in the Black Sea.
- An important factor that will positively influence container throughput is the relatively low rate of containerisation and the expected strong increase in this rate.

6.2.2 General information

Port management

Odessa Sea Commercial Port is the port authority. It is state owned and manages the port via the landlord model. The port is located in the centre of the city.

Summary of port facilities

- Total current capacity of the port is some 40 mio tonnes, current container capacity is around 500,000 TEU, the grain terminal has a capacity of 3 mio tonnes.
- Throughput in 2006 was 28 mio tons, of which 15 mio dry cargo and 13 mio liquid bulk (mainly oil and oil products). Oil products are handled as well as LPG.
  In 2006 container throughput was 395,564 TEU; in 2007 it was 523,881 TEU.
- The biggest container vessel, which calls regularly, is of the PANAMAX type, with container capacity 4,500 TEU (length 286 m).

- There is a small Ro-Ro ferry terminal, and a RoRo passenger shipping line links Odessa with Istanbul (3 calls per week).
- Currently about 6,000 people work in the port, of which 3,000 for the Port Authority and 3,000 for private operators.
- Because of its location in the city centre, extension of the port is difficult though the creation of a dry port will solve this problem partly.

6.2.3 Current capacity and throughput

Containers

- Strong growth container handling in recent years

Year	TEU	Growth rate %
2005	288,348	
2006	395,562	37
2007	523,881	32

- Since 2001 Hamburg Port Consultants (HPC) operates the container terminal.
- The capacity in 2007 is around 450,000 TEU, indicating the terminal is working far over its maximum capacity in 2007.
- The current lack of capacity leads to an average waiting time for container vessels of 38.5 hours (10 months 2007)
- Storage capacity is around 13,500 TEU / 145,000 sq meters
- The average container storage time on terminal is from 10 up to 13 days.
- About 60 % of the containers are physically controlled by Customs.
- About 94% of the containers are to or from the Ukrainian market, about 6% is transit. About 84 % of the outbound containers from Odessa are empty.

Dry bulk / general cargo

Grain terminal has a capacity of 5.5 mio tonnes.

Liquid bulk

Oil and oil products are handled, as is LPG.

RoRo

There is a small Ro-Ro ferry terminal, and a RoRo passenger shipping line links Odessa with Istanbul (3 calls per week).

Rail ferry

There are no rail ferry facilities.

Passengers

- Odessa Passenger Terminal can simultaneously accommodate 5 vessels at 7 piers with common length of 1,370 m.
- Annual throughput of the Passenger Complex is 4 mio people per year.

6.2.4 Port performance

Containers

- Performance was about 640 TEU/berth metre/year in 2007 for the container facilities. This is below the benchmark of 900 TEU/m/y.
- The HPC terminal is gravely congested, the new dry port should relieve some of the pressure in terms of stacking area. The dry port has an available area of 50ha and provides storage capacity for 16,000 TEU. The bridge link connecting the port with the dry port is expected to be completed in 2008.
- The terminal area could be restructured to optimise the stacking yard. The following was noted during the site visit;
  - Curved railway cuts through the stack yard;
  - Dry bulk Domes in the middle of the yard;
  - Stacks are not uniform;
- Terminal equipment could be replaced to obtain a better performance figure;
  - Reach stackers are used in combination with deep block stacks. These could be replaced by straddle carriers after restructuring of the yard area.
  - Berth 3 is fitted with two old portal cranes, these could also be replaced by new gantry cranes.
- During the visit it was noted that parking area for trucks at the entrance to the port was heaving, this indicates that entrance procedures could be further optimised.
- The intention of the Port of Odessa is to extend the container terminal at the rear side of the current terminal as operated by HPC, to create an additional berth length of 600m. Total area to be reclaimed is 19ha, future draught is 14m. The terminal requires also a new breakwater to be constructed in deep water.
- It might be opportune to first start with the development of a new container terminal north of the oil terminal. This location could offer a quay of some 1,250 m with a yard depth of 550 m. This would suffice to run a terminal with a capacity of 2 million TEU at modern standards.

General Cargo

- Performance was below 3,000 t/y/m in 2007. This is below the benchmark of 5,000 t/y/m. Given the fact that mainly steel related products are handled the throughput per meter quay could be enhanced.
- The yard areas are limited in size. This is one of the reasons that performance figures are low, but it is not unlikely that dwell times are also high. Efforts to reduce the dwell times could result in a more efficient usage of the yard area.
- Cargo handling is performed with older portal cranes. It could be investigated whether the efficiency of the operations would increase if new quay equipment will be installed.

Dry Bulk

- Majority of bulks related to cereals and sugar. It was observed that modern facilities are in place for the handling of cereals.
- There are two berths for the unloading of ore products. If this facility is unable to meet its throughput requirements refurbishment could be an option.
- The performance is close to 2,500 t/y/m which is below the benchmark figure of 7,000 t/y/m. Most likely there is excess capacity that has not yet been fully utilised.

Liquid Bulk

- The performance of the handling of oil products is some 13,300 t/y/m at berths 3, 4 and 5, which is just above to the benchmark figure of 12,000 t/y/m. Nevertheless this is a benchmark for normal/average performance and especially for larger vessels a much higher performance is not uncommon.
- Crude oil and oil products are handled at berths 1, 2, 5, 6 of Oil Harbor, LPG is handled at berth 5 of Oil Harbor. Throughput capacity of the oil and gas terminal allows handling up to 24 million tons annually.
- Technical oils are handled at own berth 5 of port. Terminal has a capacity of 180 thousand tones per year.
- Vegetable oils and fit are handled at berth 4 of Shipyard “Ukraina”. Terminal has a capacity of 300 thousand tones per year.

6.2.5 Hinterland connections

- Connects Pan-European Corridor N9 with TRACECA corridor.
- Port located in the centre of Odessa
- Main mode hinterland connection is road transport with 90% market share (85% in 2004), followed by rail, also river ports are used to distribute cargo in the region.
- The rail connection Odessa-Kiev takes one full train about one day, while small quantity cargo may take 5 days via rail. Road transport takes one day. Rail connection to Russian border is 3 a 5 days.
- The rail connection Odessa-Ukraine/Russian border takes 3 à 5 days.
- Main problem for international rail corridors to the West is the gauge change needed.
- Rail transport conditions unfavorable (see Illichevsk)

6.2.6 Development plans and capacity

Overall

- The Port of Odessa has a development program and feasibility studies for up to 2015, which includes a container terminal extension, and construction of a Dry port outside of the city, including a road from the Dry port to the public road network and the Estacada, which links the existing Estacada with the Dry port, thus avoiding crossing the city by heavy transport (lorries), which go to and from the port. The total investment plan is about 220 mio EUR.

Containers

- Lack of storage facilities for containers will be solved by building a new dry port/terminal (50 ha) a few kilometres away from the port to be connected via an extension of the current bridge leading to the Customs area (2 km).
- New container terminal being developed by Privat Group on the territory of Odessilmash (USD 500 mio), planned capacity in 2010 is 2,000,000 TEU
- HPC has plans to increase capacity to 1,000,000 TEU
- New container terminal at berth 29 being developed by Brooklyn-Kyiv with a capacity of 250,000 TEU.
- Other investment plans include the rehabilitation of the ship (repair) yard(s), capacity 350,000 TEU, and berth nr 7 by MetalsUkraine, capacity 80,000 TEU.
- The total capacity of container handling if all investment plans are realised is estimated between 2.6 mio TEU and 3.6 mio TEU.

Other

- The development of the passenger terminal

6.2.7 Assessment of major constraints and prospects

Constraints

- The main bottleneck for Odessa Port is its location in the city centre and the resulting limited possibilities to expand, and the limited possibilities to transfer cargo through the city.
- With the construction of the dry port and the bridge to it the problem will be solved partially.
- Furthermore, the vicinity of the city limits the amount of dangerous or environmental harmful cargo that can be handled.
- Railway axes to Odessa port are utilized more than 100 % and need upgrading.
- About 30% of operational time is lost due to inefficiencies in procedures linked to handling ships and cargo (customs, border police, pilot services and clearing services).

Prospects

- Odessa could, like Illichevsk, develop further as a regional hub for UA, RUS, GEO and BY for containers especially from Asia. See for transit times the Illichevsk part. However, possibilities to expand capacities are limited.
- Prospects to serve from Odessa EU markets seem low, also because of border crossing difficulties in comparison with EU ports in the Black Sea.
- An important factor that will positively influence container throughput is the relatively low rate of containerisation and the expected strong increase in this rate.
- To actually fully realise the potential, the port needs efficient handling procedures including customs supported by modern ICT systems, and efficient hinterland connections.
- The passenger terminal could possibly develop even further, depending on the increase of tourism, and the competitive position in comparison with low budget airlines.

6.3 Ukrainian Port Dues

Tariff Setting

Deviating from international standards

- The "Port Dues Regulations" are approved by Resolution of the Cabinet of Ministers of Ukraine
- Tariffs for services to ships are also set centrally in the "Duties and Payments for Services given to Ships in Sea Trade Ports of Ukraine" approved by the Order of the Ministry of Transport

Port Dues are often determined by the Port Authority in order to make policy and to facilitate independent budgetary decision making. Since the level of concentration in the Ukrainian ports is considered high, tariff setting by the central government is suitable to prevent negative monopolistic behaviour in the ports.

Tariff Collection

In conformity with national setting, not in conformity with international standards

- All port tariffs are paid by ship agency companies directly to the ports. Ice duty is an exception to this: this is paid by the consignor or freight forwarder.
- The port dues shall be paid prior to ship's departure

In a landlord system, handling rates are paid directly to the operator and the port dues are paid to the port authority. Since in the Ukraine one entity has both roles, the financial flow is structured according to the national setting.

Tariff Structure

In In conformity withity with international standards: clear separation of relevant items

a) Port Dues
   (1). Tonnage Dues
   (2). Canal Dues
   (3). Lighthouse Dues
   (4). Berth Dues
   (5). Anchorage Dues
   (6). Administration Dues
   (7). Sanitary Dues

b) Port Charges
   (1). Pilotage Dues
   (2). Mooring Dues
   (3). Dues for Service of Ship Vessel Control Service (VTMS)
   (4). Payment for tugboats during mooring operations
   (5). Payment for making use of floating craft
   (6). Lighters
   (7). Agency Fee
   (8). Supervision
   (9). Other Services

Tariff Coverage

Deviating from international standards

- Incomes from these Port Tariffs are assigned through the Ports to the State Budget

This limits the Port Authority's ability to bear its own budget responsibility and act as an independent Port Authority.

Tariff Availability

Deviating from international standards

- The Ukrainian Ministry of Transport and UkrPort (the Association of Ukrainian Ports) cannot be considered suitable resources for international (English) information regarding Port Tariffs. This lack of central availability is compensated through numerous websites on a lower level that do provide these tariffs.
- The Ministry of Transport does publish all relevant information in Ukrainian. This entails also all amendments to the resolution on port duties

Port Dues should be available in the English language through easy to find web-portals; preferably the Ports and the Ministry of Transport.

Efficiency Focus

Deviating from international standards

- No structure or discounts that stimulate the efficient use of port facilities are identified

It is common to incorporate a time-dependent and/or productivity-dependent factor in the port dues structure. In a centralistic setting it is however often not the priority of the authority to stimulate and manage this.

Fairness

In conformity with international standards

- Charging units: Port dues and charges are based on the ship's conditional volume in cubic meters (length x width x heigth of a ship board) specified in the Tonnage Certificate (main dimensions) or other document substituting it.
- Flexibility: Although the dues, charges and general discounts are set centrally, flexibility in levying dues and charges is provided through specific discounts and specific levels for individual ports
- Discounts: no discrimination occurs; especially since the 'favored and non-favored flags' system was abolished in 2003

Level

- Projected total costs for hypothetical vessel: Odessa € 6,300 & Illyichevsk € 6,500
- Relatively high level in region, however most services included (e.g. pilotage & towage)
- With only "landlord-related" items (tonnage, quay/berth, lighthouse/VTMS, and channel/access dues) costs are € 3,700 (Odessa) and € 4,100 (Illyichevsk), which is considered relatively high in the region, but lower than a Western benchmark port as Rotterdam (€ 6,000)

7 Assessment of Romanian ports

7.1 Constantza

7.1.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Constantza port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 7.1.1 *Current throughput Constantza, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	26,100	26,107	26,114
Liquid bulk	11,360	13,020	14,680
General, excl containers	9,100	7,814	6,528
Containers, x 1000 tonnes	3,878	6,930	9,816
Containers, TEU	386,282	776,594	1,037,068
Total, x 1000 tonnes	50,438	53,871	57,138

Source: Constantza Port, 2005 adapted by consultant

Future capacity

The following table gives an insight in the capacity of Constanta port containers (in tonnes and TEU) based on the port own estimates, based on an annual growth for containers of 20%, for 2015. The estimated capacities for dry and liquid bulk are not available.

Table 7.1.2 *Capacity/ throughput Constanta, x 1000 tonnes and TEU*

Type of goods	2006	2015
Dry bulk	26,114	Na
Liquid bulk	14,680	Na
General, excl containers	6,528	Na
Containers, x 1000 tonnes	9,816	50,647
Containers, TEU	1,037,068	5,351,043
Total, x 1000 tonnes	57,138	294,819

Source: DP World

Main constraints and prospects

- Given the growing container market serious constraints are to be expected in the field of:
  - hinterland connections, both road and rail
  - border control procedures (requiring service oriented Customs, apparently now 65% of containers are physically checked)
  - efficient handling procedures of containers, supported by ICT systems (the present ICT systems, used by the different actors in the port, are not compatible)
- The unbalance in container traffic leading to a high share of empty containers (in 2006 34%) to be handled negatively influences the competitiveness of Constanta.
- The rise of Illichevsk as a major container hub in the region will have a negative impact on the transhipment of containers in Constantza, but the strong increase in traffic flows will more than compensate for this.

Prospects

- One of the main advantages of Constanta is its geographical location within the Black Sea, making it an ideal port for transhipment.
- Another advantage of Constanta is the access to the Black Sea Channel which is important for the distribution of cargo from the port to Eastern and Central Europe. Due to the amount of locks within the Black Sea Channel and the road conditions, Constanta is still far away from becoming a competitor for ports in North-Western Europe for freight originating from Asia,
- RORO traffic could be a developing market for the port of Constanta. At the present, Constanta is a hub for trucks to Turkey, Iran, Iraq and the rest of South Arabia,
- An annual growth rate of 20% for container traffic is expected by the port of Constanta for the coming years. This growth is mainly caused by the development of the Asian markets. From these containers 30%-45% will find their final destination within Romania.

7.1.2 General information

Port management

The National Company, Maritime Ports Administration SA Constanta, is a state-owned company working according to the landlord principle, e.g. no own port operations but managing the use and functioning of the port, including strategy and infrastructure development, marketing and customer contracts.

Summary of port facilities & capacity

The port complex consists of the old part to the north and the new part to the south. The North Part is entirely operational and consists of:

- 12 basins, water depth between 7.0 and 13.5 meters,
- 15.5 km of quay and 82 berths.

The South Part is partly operational and consists of:

- 13 km of quays and 30 operational berths,
- The South Port encompasses the entrance to the Black Sea Channel,
- 80% of the cargo handled in the South Port is bulk cargo.

7.1.3 Current capacity and throughput

Containers

- Strong growth container handling in recent years.

Year	TEU	Growth rate %
2001	1,085,500	-
2002	1,321,300	22
2003	1,899,500	44
2004	3,878,300	104
2005	6,930,100	79
2006	9,815,800	42

- 4 Container terminals operated by DP World, SOCEP, UMEX and APM Terminal,
- Container terminal on Pier II South is operated by DP World, more than 850,000 TEU's handled in 2006 (approximately 85% of the total container traffic),
- Current capacity 1,000,000 TEU a year. CSTC Terminal estimates 1,500,000 TEU for 2008.

- Containers are also transported by barges to the hinterland, as an example the COLD project concerns a container service line between Constanta and Krems (Austria) on the Danube.
- 85% of container traffic in Constanta is bound to markets in the Black Sea region: Russia, Ukraine, Bulgaria, Georgia and Moldova.
- Functioning as a container hub, Constanta Port has direct calls form MSC, CMA CGM, Norasia, ZIM, China Shipping, MAERSK, Grand Alliance and ABX.

Transit time of total supply chain (export from Austria)

In days	Krems-Shanghai (via Hamburg)	Krems-Shanghai (via Constanta)
Hinterland transport	3(rail)	8(IWT)
Lay days in Seaport	2	2
Deep Sea Passage	27	23
Total	32	33

Dry bulk / general cargo

- 25 mio tonnes dry bulk, of which 7 mio tonnes cereals, 9 mio tonnes ores,
- 8.8 mio tonnes general cargo, of which 2.8 mio tonnes metal,
- 6 mio tonnes of dry bulk are transported to the West via the Danube.

Liquid bulk

- 14 mio tonnes liquid cargo, of which 13 mio oil products,
- Oil products became more important for the port of Constanta, therefore the Port Authority is in negotiation with DP World for an oil terminal to develop the energy sector within Romania.

RoRo

- RORO traffic could be a developing market for the port of Constanta. At the present, Constanta is a hub for trucks to Turkey, Iran, Iraq and the rest of South Arabia.
- The Port of Constanta has two Ro - Ro terminals equipped to handle any type of vehicle and Ro-Ro cargo. Exports of Romanian vehicles to Brazil, Columbia, China and Turkey are operated at two specialized link-span berths.

Rail ferry

- The rail ferry terminal is currently operated by CFRI which is a private company 100% state owned. It is expected that the terminal will soon be completely privatised.

- European gauge.
- CFR Marfa has two ferryboats with a capacity of 12000 DWT each.. The Lines covered by these boats are: Constanta→ Derince and Constanta→Turkey. From 1999 to 2004 there was a transport link between Constanta and the ports of Georgia. Since 2005 they closed down this line because of economic inefficiency. Nowadays they are still interested in reopening this service. The economic inefficiency is caused by the high payments and the lack of transport volume. In 2001 they have done a feasibility study for these lines to Batumi and Poti:

  - boats which where run by CFR Marfa on these Lines where inefficient.
  - Marfa had some staff problems. On the boats they worked with professional maritime staff, but on management level they used ferry specialized staff. This is a big difference in expertise!
  - Other problems where caused by the EC. They send a lot of money to the port of Batumi to invest in rail and rail ferry materials. Georgia bought material but they didn't want to implement it in the port. The line may be profitable in the future because of the requests from Iran, Iraq, and Kazakhstan for different goods on this line.

In short, there might be a chance for an economically viable line between Constantza and Georgia when at the Georgian side the problem of the different gauge is solved.

- The terminal has five rail tracks for vessel boarding and the wagons are operated using ship's gear.
- The ferry line between Constantza and Batumi is currently suspended. It should be noted that the Constantza rail ferry terminal does not have a bogey exchange station. The Director of the ferry terminal indicated that when before the line between Constantza and Batumi was operational the bogeys were changed on board after the vessel's arrival in Batumi using the vessel's elevator.
- The Consultants had verified the above while visiting the ferry vessel 'Mangalia', no Russian gauge was found on board hence it is questionable whether bogeys can be changed on board of the vessel.
- The rail ferry service between Constantza and Derince operates currently 3 times a week.

Passengers

- A new Passenger/Cruise Terminal is located in the North of the Port of Constanta, on the North Breakwater, at the passengers berth. The berth has a length of 293 m and a depth of 13.5 m.

- Currently Maritime Ports Administration Constantza SA operates the new passenger terminal, it is intended that this terminal will also be handed over to a private operator in the near future.

7.1.4 Port performance

General

- Downtime of the port due to weather conditions is quoted to be no more than 10 days per year

Containers

- The overall performance of the container terminals was almost 800 TEU/year/berth metre (TEU/y/m) which is close to the benchmark of 900 TEU/y/m.
- The new southern container terminal comprises berths 121 to 123 and is operated by DPW. Expected capacity when all equipment is in place is just over 1,000,000 TEU. The stack is operated with RTGs.
- There are two older terminals (berth 44 and berth 51 – 52) with a quay length of respectively 220m and 467m. Handling operations at berth 44 are performed with conventional portal cranes; at berths 51 – 52 gantry cranes are used.
- When operated at world average the capacity of these terminals will be about 600,000 TEU. To reach this it might be necessary invest in cranes and probably also to shift from reach stacker to straddle carrier operations.
- The Master plan as prepared by JICA allows for additional container terminals and a start has been made with the construction of the basic infrastructure.

General Cargo

- The performance of the general cargo berths is about 620 t/y/m. This is a very low compared with the benchmark and the Ports of Odessa and Illichevsk.
- The low performance value is indicating that this type of cargo is using too much quay length. Consolidation of the berths is required to guarantee efficient operations and enhance investments in modern facilities.

Shipyard

- The shipyard is still operational for both repair and construction of vessels.
- The two docks seem well equipped for refurbishing/ construction of Panamax vessels.

Dry Bulk

<u>General Performance</u>

- The performance for dry bulk in 2007 is 3,500 t/y/m. This is low compared with the benchmark of 7,000 t/y/m.
- The low performance is most likely related to a decrease in the market which has been observed over the entire region.
- Secondly the performance is low due to the fact that the barge terminal is also included in the calculations. This terminal seems to have little equipment.
- Scrap iron is handled on a 650m long pier just north of the passenger terminal. Old general cargo cranes are used which most likely have a low productivity. This also reduces the overall handling rates considerable.

Iron Ore, Bauxite, Coal and Coke

- There are two specialized terminals that operate iron ore, bauxite, coal and coke. They have 13 berths with depths up to 19 meters.
- 250,000 tons bulk carriers and larger can be accommodated. The draught allows handling of about 200,000 dwt to be unloaded at full capacity without lightering.
- Vessels can be unloaded with a rate of 45,000 t/day. Barges can be unloaded at a rate of 2,000 t/h. The facility allows for storage of 4.7 million tones.
- Capacity of the terminal has been stated to be 27 million tones per year.
- When it is assumed that 80% of the capacity is handled over the main deep-sea quays the performance at full capacity is about 11,000 t/y/m.
- This is above the benchmark which indicates the facility is conform world standards.

Agribulk

- There are many facilities for the operation and storage of dry cereals in the Port of Constanta, which are served by 14 specialized berths, with depths between 7 and 13 m.
- The storage facilities include silos and warehouses and have a total storage capacity of 350,000 tons simultaneously.
- Both river and Panamax maritime vessels can be operated. Seagoing vessels can be unloaded at fixed berths or with floating pneumatic equipment directly into barges. Large maritime vessels are operated at sea-buoy at 16 m depth by direct transhipment from/into river vessels.

Chemical Products and Fertilizers

- There is a specialized terminal where: fertilizers, phosphate, urea, apatite and other chemical products are operated.
- The terminal has 10 berths with depths up to 13.5 m where they operate dry bulk and general cargoes.

- The terminal has a storage capacity of 100,000 tons and the operation capacity is 4.2 million t/y.
- Vessels up to 30,000 dwt can be accommodated. The total operation capacity of phosphates is 30,000 tons.

Bulk Cement and Construction Materials

- There are two specialized terminals in the Port of Constanta that operate bulk cement and cement in bags.
- The dry cement terminals have covered warehouses equipped with facilities for bagging and operating 24 hours/day.
- Dry bulk can be transhipped directly from barges in maritime vessels with floating pneumatic equipments.

Liquid bulk

- The main liquid bulk cargoes are represented by crude oil and oil products.
- The performance of the liquid bulk terminal is some 5,100 tonnes/year/berth metre (t/y/m), this is far below the benchmark of 12,000 t/y/m
- The Oil Terminal can operate tankers with capacities up to 165,000 dwt.

7.1.5 Hinterland connections

- Direct access to Central and Eastern Europe through Danube-The 7th Pan-European Corridor,
- Direct liaison with TRACECA Corridor and with Pan European Corridor IV & IX,
- Main mode hinterland connection is road transport with 70% market share, followed by rail; also river ports are used to distribute cargo in the region and Eastern Europe.
- Rail transport conditions unfavorable because of:
  - Inadequate (aged) equipment (containers, wagons)
  - Complex freight documentation
  - Poor equipment and services at port and inland terminals

7.1.6 Development plans and capacity

Overall

- The port of Constanta presents itself as the (container) hub for the Black Sea Area and Eastern and Central Europe,
- Main efforts and plans for the future are focused on containers and oil products.

Containers

- Investment in container terminal II to create overcapacity to become the container hun for Central Europe,
- Investment of € 80 mio in new Pier III and new container terminal.

Other

- The Port Authority is in negotiation with DP World for an oil terminal to develop the energy sector within Romania.
- The improvement of the conditions for navigation on the Danube. A common project with Bulgaria subsidized by the EU. Works will be completed between 2010-2013.
- A second plant for vegetable oil will be opened at the end of this year
- Wind power plant in Constanta Port
- Pier IV S infrastructure
- Construction of Pier III South
- Consolidation, stabilization and arrangement of Constanta Port's shore.
- It was understood that the basin north of the passenger terminal will be developed into a marina. The land which will become available could be used for waterfront development.

Hinterland connections

- Road connections between Bucharest and the port should be upgraded to handle the increase in number of containers. It is unclear whether there are currently concrete plans to improve access to road corridors.
- Also rail connections and rail operations should be improved. One of the investments planned is the development of the railway capacity in the south part of the port, connecting the existing terminal on pier II South with the existing operators in the area.
- Extension of the railway system in the river-maritime area of Constanta Port.
- Road bridge over the Danube-Black SEA Channel.

7.1.7 Assessment of major constraints and prospects

Constraints

- With the construction of the new container terminals it seems that the port infrastructure itself does not form a major bottleneck.

- Given the growing container market serious constraints are to be expected in the field of:

  - hinterland connections, both road and rail,
  - border control procedures (requiring service oriented customs, apparently now 65% of containers are physically checked),
  - efficient handling procedures of containers, supported by ICT systems (the present ICT systems, used by the different actors in the port, are not compatible),

- The unbalance in container traffic leading to a high share of empty containers (in 2006 34%) to be handled negatively influences the competitiveness of Constanta.

Prospects

- One of the main advantages of Constanta is its geographical location within the Black Sea. Another advantage of Constanta is the access to the Black Sea Channel which is important for the distribution of cargo from the port to Eastern and Central Europe.
  Due to the amount of locks within the Black Sea Channel and the road conditions, Constanta will not be able to be a competitor for North-West European ports for freight originating from Asia.
- The rise of Illichevsk as a major container hub in the region will have a negative impact on the transhipment of containers in Constantza, but the strong increase in traffic flows will more than compensate for this.
- To actually fully realise the potential, the port needs efficient handling procedures including customs supported by modern and compatible ICT systems, extra container terminal capacity and efficient and modernized hinterland connections.

7.2 Romanian Port Dues

Tariff Setting

In conformity with international standards

- Tariffs relating to the use of Port Infrastructure are set by the MPAC (Constanta Maritime Port Administration). This MPAC is also known as NC MPA SA Constantza.
- The tariffs relating to the provision of safe navigation conditions are set by Romanian Naval Authority (RNA).

Tariff Collection

In conformity with international standards

- Both entities collect their own tariffs in the Port of Constantza. Tariffs are determined in Euros and are free of VAT. Payment is due before the vessel departs from port and the ship agent is to guarantee the payment thereof on departure of the vessel.

Tariff Structure

In conformity with international standards: clear separation of relevant items

1) Basic Port Tariffs
    a. Basic Tariffs
        i. Port Access Tariff
        ii. Quay Tariff
        iii. Basin Tariff
    b. Special Tariffs for certain vessels
    c. Special Tariffs for certain activities
    d. Tariffs for Specific Port Utilities and Services
        i. Water Supply
        ii. Power Supply
        iii. Pollution Due
        iv. Residue Collection
2) Mooring/Unmooring *
3) Pilotage
4) Towage *

* Mooring/Unmooring and Towage Tariffs are set by and negotiable with SC COREMAR SA Constanta - Towage Company.

Tariff Coverage

In conformity with international standards

- Income generated through Port Dues an Charges are part of the budget of the MPAC

Tariff Availability

In conformity with international standards

- The Tariffs collected by the MPAC are available in English through the web portal of the Port of Constantza and considered up-to-date and complete.
- The tariffs of the Romanian Naval Authority can be found only in Romanian language on the web-site of the RNA. Since they only relate to Romanian crews and vessels, they are considered not applicable.

Efficiency Focus

In conformity with international standards, with reservations

- Quay tariffs are levied per day. This gives a limited incentive for efficient use of the port facilities.

A 'per diem' structure does not give an optimal incentive for efficient berth utilization

Fairness

In conformity with international standards

- Charging units: port dues and charges are mainly based on the vessel's GT (and GT-class) and LOA; these items are clearly documented in the vessels' official registration documents.
- Flexibility: since the Port sets its own dues and charges, maximum flexibility is offered.
- Discounts: no discrimination occurs. The RNA dues only apply to Romanian vessels, but this is not considered to be a discriminating practise.

Level

- Projected total costs for hypothetical vessel: Constantza € 6,800
- Relatively high in region, however high number of services included (e.g. pilotage & towage)
- With only "landlord-related" items (tonnage, quay/berth, lighthouse/VTMS, and channel/access dues) costs are € 3,500, which is considered average in the region, and lower than a Western benchmark port as Rotterdam (€ 6,000)
- Quay & Basin (Access) dues relatively high, however no tonnage and lighthouse/VTMS charges
- Pilotage relatively expensive
- Supervision relatively expensive

8 Assessment of Bulgarian ports

8.1 Varna

8.1.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Varna port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 8.1.*1 Current throughput Varna, x 1000 tonnes and TEU*

Type of goods	2005	2006	2007
Dry bulk	7,374	6,724	6622
Liquid bulk	789	942	
General, excl containers	1,060	1,030	
Containers, x 1000 tonnes	1,038	1,180	
Containers, TEU	84,100	94,000	99,713
Total, x 1000 tonnes	10,261	9,876	

Source: Varna Port, Varna and Bourgas port handle around 83% of all cargo through Bulgarian ports.

Future capacity

The following table gives an insight in the capacity of Varna port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port own estimates for 2015. The estimated capacity for dry and liquid bulk is based on throughput estimation.

Table 8.1.*2 Capacity/ throughput Varna, x 1000 tonnes and TEU*

Type of goods	2006	2015
Dry bulk	6,724	
Liquid bulk	942	
General, excl containers	1,030	
Containers, x 1000 tonnes	1,180	
Containers, TEU	94,000	466,000
Total, x 1000 tonnes	9,876	

Source: Varna Port

Main constraints and prospects

- Obsolete container handling equipment
- Border crossing procedures in ports
- Old ramps in Varna rail ferry complex;
- Lack of ICT systems
- The recently build state-of-the-art facilities and the rational Master Plan indicate that Bulgarian ports will benefit from the expected grow of transport flows.
- The combination of the growing Bulgarian economy and the possibilities of the Pan-European Corridor no VIII, the potential for Varna seems promising to develop as a logistics centre with value added services.
- A major advantage of Varna West is that the road and rail link with the hinterland do not cross the city of Varna
- Another prospect is a (rail) link to the Danube port of Ruse
- Growing tourism in Bulgaria, in 2006 4.7 mio tourist of which almost 4 mio foreigners, offers possibilities for the passenger terminal.

8.1.2 General information

Port management

- The port is operated by EAD, a 100% state owned company and offers employment to some 2,000 employees. The Bulgarian Government has stated that ports will not be privatised, which does not exclude a later renting out of operations by the land-lord principle.
- The port is located on the Black Sea's west coast, on Varna Bay and in the adjacent Lake Varna and Lake Beloslav, the port consists of an East and West port. Two inland canals connect the sea and Port of Varna East with Lake Varna, Lake Beloslav and Port of Varna West.

Summary of port facilities & capacity

- Handling over 8 million tons of cargoes per year, mainly grain, containers, chemicals and general cargoes. Some 2/3 is handled in Port of Varna West.
- Principal exports include urea, soda ash, cement, clinker, silica, fertilisers, grain, containers and RoRo. Principal imports are coal, metals, ores and ore concentrates, phosphates, timber, molasses, containers and RoRo.
- The depths of the ship berths and the approaches allow the handling of vessels of capacity up to 50,000 gross tonnes or some 34,000 – 40,000 DWT

8.1.3 Current capacity and throughput

Containers

- Container handling in Varna is modest in comparison with some other ports in the Black Sea area, but steadily growing.

Year	TEU	Growth rate %
2001	45,500	
2002	57,200	26
2003	65,200	14
2004	78,600	21
2005	84,100	7
2006	94,000	12
2007	99,173	6

- Varna has 2 container terminals – one in Varna East and one in Varna West. The terminals serve mostly the feeder lines of the Mediterranean and the Black Sea.
- Varna East Container Terminal has a stacking area of 45,000 sq. metres and storage capacity of 1,600 TEU, Varna West Container & Ro-Ro Terminal has a stacking area of 70,000 sq. metres and a storage capacity of 2,000 TEU.

Dry bulk / general cargo

- The grain terminal handles some 1.5 million tons per year, approximately 150 – 180,000 trucks transfer the cargo from the hinterland to the terminal.
- Three of the berths in Varna West specialize in handling of coal, coke, petro-coke and clinker.
- Most of the cement is exported in bulk via berth No. 10 in Varna West.
- Soda (light or heavy) in bulk, bags or big bags forms a considerable share of cargo traffic at Port of Varna.

Liquid bulk

The liquid chemicals terminal is located next to berth 2 in the area of port of Varna West.

RoRo

There are no RoRo (trucks) facilities in Varna. See Rail Ferry.

Rail ferry

- Varna is the only place in the Black Sea region which has a rail ferry terminal with possibility to change the rail car bogies from European to Russian standard and vice-versa.
- Navigation Maritime Bulgare (Navibulgar) and the National Company BDZ (the Bulgarian Railways) operate Varna Ferry Complex in the Lake of Varna, which transports also trucks. Primarily each of the ferries, serving Varna Ferry Complex was designed to operate 108 wagons. Due to cargo fall Varna Ferry Complex serves trucks more and more.
- The regular service to Ukraine and Georgia is provided by means of 4 ferry vessels with capacity 108 rail wagons or 920 trucks each. Liner Service: Varna - Illichevsk – Varna, and Varna - Illichevsk - Poti/Batumi - Illichevsk - Varna.
- The terminal can handle maximum two vessels per day. The maximum handling capacity of the facility is 3.5 million t/year, though current throughput is a mere 300,000 t/year.
- The loading/ unloading operations take minimum 5:30 hrs, average loading/ unloading time is 8:00 hrs as quoted by the operators.
- In the eighties the maximum tonnage transported was almost 3.3 mio tonnes. The operational results of the ferry line and the traffic volumes dropped down due to:

  - Change of social-political system in Black Sea countries;
  - Collapse of the USSR;
  - New geopolitical and economic orientation;
  - Drastic production drop-down in our country;
  - Loss of some markets

- Apparently Bulgaria and Russia recently signed an agreement to stimulate rail ferry transport between Varna and Russian ports on the Black Sea (Kavkas).

Passengers

- The only passenger terminal along the sea route between Istanbul and Odessa is here.
- The Passenger Terminal, also known as the Sea Station, is located at the entrance of the oldest port facility – Varna East.
- The Passenger Terminal allows for passenger ships with LOA 240 m up to 53,000 GT.

8.1.4 Port performance

General

- The Port of Varna EAD indicated in the meetings held that they were of the opinion that a higher level of port operations efficiency could be attained if the company would be completely privatised and would operate the terminals under a concession agreement.
- It is expected that the major part of the dry bulk activities at Varna East will be shifted in the future to Varna West Port, though hygienic cargo (i.e. a.o. grain) cannot be handled in Varna West due to the vicinity of contaminants. The obsolete berths in Varna East will be developed as a marina.

Containers

- The performance for containers has been calculated as 160 TEU/year/berth metre (TEU/y/m). This performance rate is very low.
- Despite new facilities in the West Port the throughput has increased only from 45,500 TEU in 2001 to 84,100 TEU in 2005. In terms of Black Sea market share this is a dropdown from 11% to less than 5%.
- There is sufficient quay length and yard space to allow for an increase of throughput. The main disadvantages are:

    - Draught is limited to 7 meters in the East Port and 8.7 meters in the West Port. The East Port therefore serves only small feeders of up to 500 TEU and the West Port is also limited and can serve feeders of 1,000 TEU only.
    - It is likely that customs operations are inefficient. Since Bulgaria has a national disadvantage compared with Romania and Ukraine on the northbound routes it should focus on excellent customs operations towards the West.
    - Modern gantry cranes are available in Varna West. Varna East has only one gantry crane.

General Cargo

- General Cargo is only handled in Varna East. The performance of 800 tonnes/year/berth metre (t/y/m) is very low compared with the benchmark of 5,000 t/y/m. Most likely the port is not competitive and lacks the potential to attract cargoes. Port space is underutilised. .

Shipyard

- In the vicinity of Varna East Port there is a shipyard located of almost the same size as the port itself. It was reported that the yard is being underutilised.

Dry Bulk

- Dry bulk commodities are handled in the East and West Port. The port has a performance of 2,000 tonnes/year/berth metre (t/y/m) which is low compared with the benchmark and might be related to the fact that the draught of the port is limited to 10.5 m at the deepest berths.
- A new grain facility is planned just inside the lake. This facility will only be effective if the draught of the port can be increased to some 11-12 meters near the terminal.

8.1.5 Hinterland connections

- Pan-European Transport Corridor No. VIII (Brindisi-Durres-Tirana-Skopje-Sofia-Varna.
- Railway capacity on the Bulgarian TRACECA section links the ports of Varna and Bourgas with the rest of Bulgaria and other South, Central and West European countries, and could be handling up to 40 million tons per year.
- The Hemus motorway, connecting Varna with Sofia, is currently under construction.

8.1.6 Development plans and capacity

According to the approved Master Plan for 2020 major projects for new construction, reconstruction and modernization include:

- New container terminal, capacity in 2015 should be around 320,000 TEU and in 2020 around 466,000 TEU
- RoRo terminal on the island under the Asparuhov most bridge
- Grain terminal on the north shore of Lake Varna
- Liquid chemicals terminal
- Cement and clinker terminal at Varna West
- Modernization of the passenger and RoRo terminals at Varna East.
- A liquefied natural gas terminal is being developed at Beloslav.
- The obsolete berths in Varna East will be developed as a marina.
- Varna recently announced special efforts to increase efficiency: a special entry point at the Varna-West port for incoming containerised cargo trucks, a new centre for the computerised processing of containerised cargo.

The new system is expected to cut the layover of container trailers at the port from 12 hours to 40 min.

8.1.7 Assessment of major constraints and prospects

Main constraints

- The channel and the bridge both limit the size of vessels that can reach Varna West.
- Obsolete container handling equipment
- Border crossing procedures in ports
- Old ramps in Varna rail ferry complex;
- Lack of the RoRo terminals (trucks)
- Lack of ICT systems

Prospects

- EU accession will continue to stimulate growth of the Bulgarian economy
- The location on the Pan-European Corridors (7 and 8) could stimulate (transit) traffic via the Bulgarian ports.
- The recently build state-of-the-art facilities and the rational Master Plan indicate that Bulgarian ports will benefit from the expected grow of transport flows.
- Growing tourism in Bulgaria, in 2006 4.7 mio tourist of which almost 4 mio foreigners, offers possibilities for the passenger terminal.

8.2 Bourgas

8.2.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Bourgas port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU). More recent data was not available.

Table 8.2.1 *Current throughput Bourgas, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	4,858	4,583	
Liquid bulk	8,045	9,053	
General, excl containers	2,712	2,573	
Containers, x 1000 tonnes	302	315	
Containers, TEU	28,132	26,420	26,000
Total, x 1000 tonnes	15,917	16,524	19,000[1]

Source: Bourgas Port

Future capacity

The following table gives an insight in the capacity of Bourgas port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port own estimates for 2015. The estimated capacity for dry and liquid bulk is based on throughput estimation.

Table 8.2.2 *Capacity/ throughput Bourgas, x 1000 tonnes and TEU*

Type of goods	2005	2015
Dry bulk	4,583	
Liquid bulk	9,053	
General, excl containers	2,573	
Containers, x 1000 tonnes	315	
Containers, TEU	26,420	576,000
Total, x 1000 tonnes	16,524	

Source: Bourgas Port

Main constraints and prospects

The recently build dry bulk terminal is state-of-the-art and offers good prospects for growth. The same goes for the new container terminal that will be build.

There is additional potential when the prospects of the project Novorossiysk-Burgas-Aleksandropolus are realized.

8.2.2 General information

Port management

The port is operated by the EAD which is a 100% state owned company which is responsible for operating the terminals of Bourgas East and West.

[1] Sources indicate that in total some 19 mio tonnes were handled in 2006.

Summary of port facilities

- Port of Bourgas incorporates several port facilities: Port of Bourgas East, Port of Bourgas West, Port Bulk Cargoes, Container Terminal, Cold Store, Ro-ro, Oil Port, Lozovo, Buffer Warehouse Base, Harbours of Pomorie, Nessebar, Sozopol and Tzarevo cities[1].
- There are 23 berths for general cargo ships, 4 berths for bulk cargo, 3 piers for tankers and 2 Ro-Ro berths. The total length of the quays is 3,905 m. Open storage area is 311,600 sq.m and there are 74,900 sq.m of warehouses. The total cold store area is 18,000 sq.m.
- Terminal East: General cargoes of all kinds, metals, wood, paper, foodstuff are handled in Terminal East.
- Maximum vessel length for the East terminal is 225m, for West terminal the maximum vessel length is 240m, longer vessels require special permission from the HM to enter the port.
- Bulk Cargoes Terminal: intended for handling and storing of bulk commodities-coal, coke, ores and concentrates, etc. The terminal has some state-of-the-art facilities.
- Terminal 2A: intended for handling of bulk cargoes mainly-coal, coke, ores and concentrates, clinker, etc. The facility is equipped with most sophisticated handling technology, capable of highest efficiency.
- Terminal West: handles generally metals of all kind, RO-RO and container traffic. A modern cold storage facility is built on port's area.

8.2.3 Current capacity and throughput

Containers

- Container handling in Bourgas is modest in comparison with other ports in the Black Sea area, with 28,132 TEU in 2004, 26,420 TEU in 2005 and 26,000 TEU handled in 2006.
- The Container Yard is situated at Terminal West with allowable draught alongside of 11 m.
- The dedicated area is about 60,000 sq m with 1,330 ground slots. The boxes are stowed on 3 - high.
- At present, five container operators - Mediterranean Shipping Company, Bulcon, ZIM Integrated Shipping Services LTD., K-Line and Happag Lloyd use Port of Bourgas' container terminal.

[1] Harbours of Pomorie and Tsarevo do not belong to the Port of Bourgas any longer but to the corresponding municipality; The Port is therefore not able to confirm any data about these two port neither their future development plans - most probably they will be develppped as marinas and smal passenger and fish ports]

Dry bulk / general cargo

- Port of Bourgas is a leading in cargo operations of all kind of temperature-controlled goods. The available cold storage has a capacity of 10,000 tons,
- The cold store covers 7,000 sq.m. The warehouse area is 5,280 sq.m and cooling volume of 52,800 m3. The maximum allowable height of goods is 6.80 m.

Liquid bulk

- A special facility for handling of oils, chemicals and ethanol is installed on berth №20A. A pipeline connects the site with the tank farm, near to Terminal West. There are also filling up station for tanker rail cars and ethanol storage tanks in the vicinity.

RoRo

- The RoRo line Bourgas-Poti-Novorossiysk-Bourgas is open since the year 1996, and exploited by Intershipping with the vessel Sredetz, weekly sailings from Bourgas
- The RoRo line has the following schedule: departure day A, arriving in Poti on A+3, arriving in Novorossiysk on A+4.
- In 2007 in total 3,910 (in = 1,857 / out 2,053) trucks were handled, representing 113,468 tonnes.
- In addition SOMAT runs 4 RoRo lines on the Danube.

Rail ferry

No rail ferry facilities.

Passengers

No passenger facilities

8.2.4 Port performance

General

- It is foreseen that the operational activities currently taking place at the quays along the northern breakwater are being moved to Terminal 1 when construction is completed. The freed area will then be used as a marina/ passenger terminal.
- Entrance channel has been deepened in 2007 from 12 to 15.5 m.
- The port had acquired a new mobile 100t crane in the beginning of 2007 (for heavy cargo and containers), it was expected to be delivered end of September 2007. Recently it has been put into operation..

Containers

- Container yard is situated in Terminal West and uses two berths (no. 23 and 24) for container vessels. These berths are also used for general cargo.
- Available area of 60,000 sq meters and 1,330 ground slots. Stacking 3 high.
- Performance of 250 TEU/y/m (based on 1 berth of 200 m) is far below benchmark of 900 TEU/y/m.
- The vessel's handling is carried out by two multi purpose 40-tons cranes, using semi-automatic spreaders. The quoted productivity of the cranes is some 16 moves/hour. It is anticipated that the productivity will increase considerably when the new mobile crane becomes available (expected September 2007 see above).
- The poor performance figure is most likely due to the following:

    - The container stack yard is located some 200m behind the quay, straddle carriers are used to transport the containers from the quay side to the storage area.no automated yard planning system is in place
    - the crane productivity of 16 moves/hour is substantially lower than a world average of 25 – 30 moves/hour

- Handling of almost 49,312 TEU in 2005 required the cranes to be operated over 50% of the operational port time. Therefore the current terminal is reaching its capacity limits.
- The yard is located next to a new cold storage. The port could focus more on handling reefer containers and become main stop for reefer cargoes. This might force Bourgas into the loop of feeder lines and increase overall TEU throughput.
- The Port Masterplan foresees in a new container terminal (terminal 4) opposite the new dry bulk terminal (terminal 2). Estimated quay length of the terminal is 600m.

General Cargo

- There is almost 2 km of general cargo berths available, but throughput is very low.
- The quay cranes were being refurbished during the time of the Consultant's visit.
- The storage facilities positioned along the northern breakwater are no longer used.
- Performance is poor, only 140 t/y/m against a benchmark of 5,000 t/y/m, main reason is the low throughput. It was understood that the throughput share of Mittal steel amounts to 30% of the total throughput, at the time of the visit no Mittal steel was exported and all steel cargo was stored just behind the general cargo quays.

Dry Bulk

- Dry bulk cargo is handled at two different terminals, the old dry bulk berths 17 to 20 located in the East Basin and the second being the new Terminal 2A.
- Performance is almost 3,500 tonnes/year/berth metre (t/y/m) which is below the benchmark of 7,000 t/y/m. Since the majority of the cargo is handled at terminal 2A the benchmark at this terminal will be in the order of 5,000 t/y/m or higher.
- Since a highly modern new facility is in place the old bulk cargo terminal is hardly used (as confirmed from 2005 berth statistics). It can be questioned if it is still desirable to maintain the existing facilities in view of the new development plans.
- Terminal 2A comprises a quay length of 707m;

  - The first section of the quay is used for the handling of copper concentrate (export), cargo handling at this section is done using Takraf cranes (capacity 16t). The cranes have a productivity of some 250t/hr, usually two cranes are used simultaneously for the unloading of the vessel.
  - At the middle part of the quay coal is being handled, capacity of this terminal is some 5-6 million ton per year, while the turnover for the previous year attained 3.5 million tons.

    The unloading of coal is being done by two grab gantry cranes (peak capacity 1,200 t/h) subsequently the coal is transported via conveyor belts to the stockpile where stacker/reclaimers are installed, the cargo is further transported fully automatically to a wagon loading facility. Currently some 200 wagons per day are required for the hinterland transport of the coal.
  - At the far end of the quay (berth 32) iron ore is handled, unloading is also done by means of the two rail mounted cranes; the storage of the commodity is done using trucks and Volvo frontloaders.

Liquid Bulks

- Most of the liquid bulks are handled in the facility of LUKOIL some 5 km south-east of the main port. Here three jetties are available for ships of about 150, 200 and 250 m. Also the bulk berths 17, 18 and 20 are being used for liquids. The benchmark included berth 17 for liquid bulks since this berth was mainly used for liquids in 2005.
- A relatively new unloading facility is provided at berth 20A. At this facility oil products and chemicals are being handled.
- The performance of the berths is almost 10,000 t/y/m. This is close to the benchmark of 12,000 t/y/m. It can be concluded that liquid operations are quite up to standard.

8.2.5 Hinterland connections

- Pan-European Transport Corridor No. VIII (Brindisi-Durres-Tirana-Skopje-Sofia-Plovdiv-Bourgas.
- Railway capacity on the Bulgarian TRACECA section links the ports of Varna and Bourgas with the rest of Bulgaria and other South, Central and West European countries, and could be handling up to 40 million tons per year.

8.2.6 Development plans and capacity

Estimated container capacity in Bourgas is in 2015 380,000 TEU and in 2020 576,000 TEU.

The port is upgraded according to the Master plan. Already in place are a

- new cold storage attached to the container yard;
- new terminal 2A;
- new breakwater as a start of a new basin for terminal 1and 2.

The Master Plan envisages 4 new terminals to be built:

- Terminal 1. For general and liquid cargoes. It also includes a defending breakwater. The last is already under construction, as a part of Port of Bourgas Expansion Project or Terminal 2A, as it is also known. According to the Master Plan, Terminal 1 should have 4 berths with total length of 750 m.
- Terminal 2. For bulk commodities and metals.
  The terminal should have 6 berths with total length of 1,580 m and draughts allowed of up to 15.50 m for-for capesize vessels with loa of 270 m and dwt of 120,000 t. The Terminal 2A, which is presently under construction, represents a main part of this Terminal 2.
- Terminal 3. Ro-ro and ferry terminal. The total length of berths is foreseen to be 380 m.
- Terminal 4. Container terminal. This box facility should cover 2 berths with aggregate length of 450 m. The estimated annual capacity is 300,000 TEU.

Plans exist to build a multi-modal terminal, linking sea, river, road and rail transport.
Plans exist to develop a RoRo service between Koper, Slovenia and Bourgas.
There is additional potential when the prospects of the project Novorossiysk-Burgas-Aleksandropolus are realized.

Hinterland connections

Trakia Motorway linking Burgas with Sofia via Plovdiv is under construction

Burgas – Plovdiv railway line is under modernization (partial doubling and renewal) and the line Plovdiv – Sofia is planned to be upgraded for 160 km/h..

8.2.7 Assessment of major constraints and prospects

- EU accession will continue to stimulate growth of the Bulgarian economy
- The location on the Pan-European Corridors (7 and 8) could stimulate (transit) traffic via the Bulgarian ports.
- The recently build dry bulk terminal is state-of-the-art and offers good prospects for growth. The same goes for the new container terminal that will be build.
- There is additional potential when the prospects of the project Novorossiysk-Burgas-Aleksandropolus are realized.

8.3 Bulgarian Port Dues

Tariff Setting

In conformity with international standards

- Bulgarian Port Tariffs are levied (imposed and collected) by the Bulgarian Port Infrastructure Company, by decree of the Bulgarian Council of Ministers. This organization is responsible for infrastructure investments in the ports.

Tariff Collection

In conformity with international standards

- Collection takes place through direct invoicing by the Territorial Directorate of the Bulgarian Port Infrastructure Company in the various ports. Port Tariffs should be paid prior to the vessels' departure.

Tariff Structure

In conformity with international standards: clear separation of relevant items

1) Channel Dues, per passage
2) Light Dues, per call
3) Tonnage Dues, per call
4) Quay Dues, per hour from mooring till unmooring
5) Waste Dues, administration, amount of oil waste and amount of garbage

Tariff Coverage

In conformity with international standards

- Income generated through Port Dues and Charges are part of the budget of the Bulgarian Port Infrastructure Company

Tariff Availability

Deviating from international standards

- Port Tariffs are available in English from the website of the Bulgarian Port Infrastructure Company.
- The individual Ports do not publish these dues and scarcely mention the existence of the Port Infrastructure Company as levier of Port Dues.
- Knowledge regarding the role and existence of the Bulgarian Port Infrastructure Company is required to locate the Dues.

It is customary that the Port Dues are published on the websites of the ports, as they are the primary source of information.

Efficiency Focus

In conformity with international standards

- Quay dues are levied per hour. This gives a optimal incentive for efficient use of the port facilities.

Fairness

In conformity with international standards

- Charging units: port dues and charges are mainly based on the vessel's GT (and GT-class) and LOA; these items are clearly documented in the vessels' official registration documents.
- Flexibility: although port dues are set by a national entity, regional adjustment provide the levier with sufficient flexibility: even within the two ports tariff differences are applicable
- Discounts: no discrimination occurs.

Level

- Projected total costs for hypothetical vessel: Bourgas € 5,000 and Varna € 4,400
- Average level, but only covers "landlord items" such as tonnage, quay, lighthouse, and channel dues. This level is lower than a Western benchmark port as Rotterdam (€ 6,000)
- Both ports have similar structure and level
- Tonnage Dues relatively expensive, however Lighthouse dues relatively low

9 Assessment of Turkish ports

This chapter only briefly summarises the main aspects of the Turkish TRACECA ports, because:

- Haydarpasa port will be closed in the future, and turned into a tourist and trade complex.
- Derince is in the process of privatisation, apparently the new owners are known but no development plans are public yet. However, it seems clear that the new owner will restructure the port and will mainly focus on developing a 1 mio TEU container terminal.
- Samsun port is also being privatised. The last day for bidding was April 22, 2008.
- Hopa port is already privatised.

Furthermore, Turkey has plans to build a new port facility in Filyos. The aim of this port is to facilitate North-South cargo by offering a land bridge via Filyos to reduce Turkish Straits (Istanbul and Canakkale Strait) traffic. The land bridge connects Filyos with Derince and Candarli ports, and Mersin container port.
The estimated capacity of Filyos is 9 mio tons in the first three years, and 25 mio tons to be reached in 10 years. No further details are known.

9.1 Haydarpasa

9.1.1 Summary

Current capacity and throughput
The following table gives an insight in the throughput of Haydarpasa port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 9.1.1 *Current throughput Haydarpasa, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	8	0	0
Liquid bulk	0	0	0
General, excl containers	3,321	1,144	74
Containers, x 1000 tonnes	3,129	3,470	3,712
Containers, TEU	317,000	340,000	400,000
Total, x 1000 tonnes	6,458	4,614	3,786

Source: Haydarpasa Port

Current handling capacity is 407,000 TEU according to the port authorities.
In 2007 398,637 TEU were handled.

Future capacity
Haydarpasa port will be closed in the near future.

9.1.2 General information

Port management
The port is managed by TCDD, the General Directorate of Turkish State Railways.

Summary of port facilities & capacity:

- Haydarpasa is mainly a container port (95%).
- Open storage areas 313.047 sq.m. and covered areas 21.043 sq.m and one container stacking areas 50.000 sq.m outside the port for stacking the empty containers.
- There are facilities to handle general cargo and bulk.
- A newly built modern RoRo terminal is in service. The RoRo terminals can accommodate 360 ships per year, and can handle 410.000 tons/year of RoRo cargo, 65.000 trucks (incoming-outgoing), and 60.000 cars/year. There are daily RoRo services between Haydarpasa and Trieste and Constantza ports.
- Also ferries operate between Sirkeci and Haydarpasa. Three rail ferries each of 480 tons capacity are available.
- From April 2005, the new Ro-Ro terminal of Pendik (situated 35 km. away from Istanbul city) is working. The objective is to decrease the traffic congestion in the city area through by moving the Ro-Ro terminal.

9.1.3 Current capacity and throughput

Containers

- 95% of throughput is containers, the rest is cars.
- Modest growth in container handling
- Direct lines from Asia, going to Haydarpasa or Marport (a private container terminal run by the Turkish Arkas Group)

Year	TEU	Growth rate %
2004	317,000	
2005	340,000	7
2006	400,000	18
2007	397,000	0

RoRo

Main RoRo port is in nearby Tuzla.

9.1.4 Port performance

Containers

- Container throughput in 2006 was 400,067 TEU in 2007 they expected 400,000 TEU
- Performance 2006: 423 TEU/m/y, which is less than the benchmark for similar terminals of 900 TEU/m/y
- The mainliners (cap 3,000 TEU) normally have about 2,200 moves and maximum three no. of gantry cranes operate the vessel at the same time
- In total the port operates 4 gantry cranes and 1 mobile crane, average productivity 18 moves/hour, a modern standard container terminal has an average crane productivity of 25 - 30 moves/hour
- The available space at the terminal is limited (some 179,000 m² and container stacking capacity is 269,000 TEU/year), trucks have to wait along quay side, container stacks are situated just behind the container gantry cranes
- A storage yard is located some 7km from the port and has an area of some 50,000 m²
- Main operational problems;
    - Lack of equipment (toplifters, forklift trucks)
    - Lack of qualified staff
    - Shortage of staff

9.1.5 Hinterland connections

- Though the port is managed by TCDD most land transport to and from the port is by road.
- The port has good access to the D-100 highway, which connects to the E-80 (TEM). The port has a link to the Istanbul-Ankara Main line railway offering an alternative to road transport..

9.1.6 Development plans and capacity

Despite the coming closure some EUR 4 mio will be invested in 2008 to resturcure facilities. Also work is done for RoRo transport.

9.1.7 Assessment of major constraints and prospects

The port will be closed in about three years.

9.2 Derince

9.2.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Derince port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 9.2.1 *Current throughput Derince, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	800	849	1,073
Liquid bulk	65	62	93
General, excl containers	1,090	1,308	1,374
Containers, x 1000 tonnes	12	5	5
Containers, TEU	1,509	550	609
Total, x 1000 tonnes	1,967	2,224	2,545

Source: Derince Port

Future capacity

- Derince port will be privatised soon. The new owner is already known by the Turkish authorities.
- Apparently the new owner will transform Derince into a container terminal. No details about the plans are available.
- According to TCDD the rail ferry facilities that enable Derince to receive rail ferries carrying wagons with Russian gauge will be moved to another location within the port.
- It is estimated that the new owner will build a container terminal with 1 mio TEU capacity.

Main constraints and prospects

- Since almost no details are known regarding future plans for the port it is not possible to give an overview of constraints and prospects.
- The new owner of the port faces competition from quite a number of private terminals also specialising in containers in the Sea of Marmara.

- The current rail ferry facilities will be moved to another location within the port, according to TCDD.
- The area around the port is heavily industrialised giving good prospects, especially for containers. As an example, in the area around the port currently 2 mio cars are produced.

9.2.2 General information

Port management
The port is managed by TCDD, the General Directorate of Turkish State Railways.

Summary of port facilities & capacity:
- Facilities to handle general cargo, dry and liquid bulk, and cars.
- Facilities to accommodate rail ferries, European and Russian gauge.
- No containers.
- Import: Aluminium, logs, rubber, scrap paper, steel and iron products, timber and wood pulp.
- Export: Magnetite, steel and iron products and general cargo.

9.2.3 Current capacity and throughput

Containers
Almost no containers are handled by Derince in the current situation.

Ro-Ro
- The cars handled in the port of Derince are exported to Ukraine/ US/ Europe
- The cars are parked on earth (i.e. no pavement present in car parking area), it is recommended to pave the area

Rail ferry
- In this frame junction line is built to the pier for providing service to the ships carrying railway carriages in rail ferry line between Derince-Kostence Ports. Moreover a min. 150 m radius 1.520 mm single rail line and 3 gauge line is constructed for using in charging and discharging of carriages from the ship, ferryboat docking ramp, in carriage transportation which are made by Ukraine ferry ships. This construction is in charge since 28.09.2004.
- Derince has facilities to accommodate rail ferries with Russian gauge. The port has two rail ferry terminals, one for Russian gauge vessels the other for European gauge vessels

- There is a connection between Odessa/Illichevsk and Derince, used once per month.
- The 'Russian' rail ferry terminal comprises one single track of Russian gauge with a length of a few hundred meters, once unloaded onto the terminal area the Russian wagons are discharged into Turkish trucks/ wagons
- In 2006 they handled 16 rail ferry vessels from Constantza and 34 from Illichevsk
- In the future they foresee a new connection between Akport (Turkey European side) and Derince
- Most of the current railway tracks facilitating rail ferry transport in the port will be have to move because of the construction of the new anticipated container terminal.

9.2.4 Port performance

Containers

- At present no or very few containers are being handled in the port
- The new container terminal will have an anticipated length of 700-900m and will comprise 5 post Panamax gantry cranes, future available draught is 14m
- Maximum expected design vessel for the new container terminal is a 7,000 TEU vessel

General Cargo

- The overall performance was almost 1,400 tonnes/year/berth metre (t/y/m) which is low compared to the benchmark of 5,000 t/y/m
- The quay cranes are outdated and need to be refurbished or substituted

Dry Bulk

- The performance for dry bulk in 2006 was 2,440 t/y/m
- The coal terminal appeared to be in a sound state, it is thought that the low throughput figures are due to a low berth occupancy

Liquid Bulk

- A limited amount of vegetable oil is handled in the port

9.2.5 Hinterland connections

The port has a link to the Istanbul- Ankara Main line railway that should offer available alternative to road transport (with a consequential reduction in environmental impact) as improvements to the railway network are made.

It has good access to the D-100 highway already, which connects to the E-80(TEM). This port is sited about 100 kms to the East of Istanbul and is in the centre of the Kocaeli province in which there is a considerable amount of economic activity. The port is also strategically placed for transport, with rail connections already in place and the highway network between Istanbul and Ankara passing close by.

9.2.6 Development plans and capacity

Overall

- Derince port will soon be privatised
- The port was demolished during the 1999 earthquake in Izmit, since then TCDD has invested little money
- Once the port has been privatised, the port will be fully reconstructed, part of the development scheme is a new container terminal with a future capacity of 1 million TEU

9.2.7 Assessment of major constraints and prospects

Constraints

Uncertainty regarding privatisation (port staff, potential clients)

Prospects

The area around Derince is heavily industrialised which gives good opportunities especially in handling containers. For instance, in the nearby area currently 2 mio cars are produced.

There might be propspects for rail ferry lines with Russia, if the current facilities will remain within the ports new plans after the privatisation.

9.3 Samsun

9.3.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Samsun port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 9.3.1 *Current throughput Samsun, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	2,319	2,212	1,149
Liquid bulk	37	34	18
General, excl containers	756	821	879
Containers, x 1000 tonnes	0	0	0
Containers, TEU	0	0	0
Total, x 1000 tonnes	3,112	3,067	2,046

Source: Samsun Port

Future capacity

Samsun will be privatised, last day for bidding was April 22, 2008.

Main constraints and prospects

- Samsun could develop as a transport hub for Central Anatolia, and transit port for North-South cargo, especially if the Turkish Straits (Istanbul and Canakkale Strait) would be a bottleneck for future cargo flows.
- The new rail connection reduces transport time to the Ankara region.
- Samsun will be one of the few ports in the Black Sea that can accommodate Russian gauge rail wagons. If the rail ferry concept would be successful in the future, and in other ports similar facilities disappear

9.3.2 General information

Port management

The port is managed by TCDD, the General Directorate of Turkish State Railways.

Summary of port facilities & capacity:

Samsun has, apart from general cargo and bulk cargo facilities, rail ferry facilities and RoRo services to Russia.

9.3.3 Current capacity and throughput

Containers

No containers are handled in Samsun.

RoRo

- The port of Novorossiysk (Russia) is the main destination for the Ro-Ro vessels of Ulusoy, total number of vessel services to Novorossiysk is 6
- Capacity of the ropax vessels is some 90-100 trailers, the vessel length is some 140m

Rail ferry

- The rail ferry terminal had not been operational since 4 years
- It comprises only 1 track with an European gauge
- Two years ago a feasibility study was prepared for the implementation of a bogey exchange station in Samsun
- According to the decision taken in Turkey/Russia Common Transport Commission IV. Period meeting, a Turkey-Russian Federation Combined Transportation Group is formed and according to this group Ro-Ro transport between Samsun and Kavkas is suitable and this will enhance the railway transportation of the both of the countries.
- A Service Contract has been signed between TCDD and UPM for 5 years on 20.07.2007 for building a foundation which is composed of a ramp for railway ferries which carry carriage and boogie exchange area in the frame of the project of Rail Ferry Line transportation between Samsun and Kavkaz Port due to the estimated increase in port revenues, railway transport and transportation incomes by establishing a rail ferry line between Turkey and Russian Federation.
- According to the contract, an area is destined to the company in Samsun Port on 01.08.2008 and it is estimated that the foundation will be opened in this year.
- After the completion of the foundation there will be the opportunity to transport the freight coming from North-Central Europe-the Balkans, Russia Federation and Commonwealth of Independent States by rail ferries to Mersin, İskendurun Ports by Samsun Port with railway and to Middle East by railway.

9.3.4 Port performance

General Cargo

- Performance rate of the handling of general cargo is low, i.e. 630 t/y/m.

Dry Bulk

- Coal and grain are being handled at the berths near to the storage warehouses, total length of the berth is 380m
- Performance of 1,580 t/y/m is amongst the lowest of Black Sea ports
- It was mentioned that the quay equipment should be replaced to attain a higher port efficiency rate
- The warehouses located near the main berth are being used to store grain

Ro-Ro

- Total duration of unloading and loading activities is 11hrs, total sailing time to Novorossiysk is 14hrs
- The return cargo from Novorossiysk comprises some 50% empties

9.3.5 Hinterland connections

Good rail and road hinterland connections. Direct liason with TRACECA Corridor and main gate to Middle East, Asia and CIS.

9.3.6 Development plans and capacity

Overall

Development depends on the outcome of the privatisation process.

Other

- During the visit (October 2007) it was mentioned that construction of the bogey exchange station and auxiliary facilities will commence end of November 2007, it is expected that the new rail ferry terminal will be operational early 2008
- The TCDD has entered into a 5 year agreement with a Russian company, UFB, for the operation of the terminal
- Once the terminal is operational again it is the intention to open a line between the ports of Samsun and Kavkaz (Russia)

Hinterland connections

A new rail line is build to Ankara; this reduces time from 15 hours to 3 hours.

9.3.7 Assessment of major constraints and prospects

Constraints

- Major constraints according to the users of the ports is the productivity that is running behind, due to obsolete cranes, limited length of berths, slow elevator, no moving cranes.
- It can be expected that after the privatisation new facilities will be developed.

Prospects

- Samsun could develop as a transport hub for Central Anatolia, and transit port for North-South cargo, especially if the Turkish Straits (Istanbul and Canakkale Strait) would be a bottleneck for future cargo flows.
- The new rail connection reduces transport time to the Ankara region.
- Samsun will be one of the few ports in the Black Sea that can accommodate Russian gauge rail wagons. If the rail ferry concept would be successful in the future, and in other ports similar facilities disappear, the prospects look good for Samsun.
- Samsun could develop its RoRo services and passengers services.
- The development of Sochi in Russia might prove to lead to opportunities for the port.

9.4 Hopa

9.4.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Hopa port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 9.4.1 *Current throughput Hopa, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006
Dry bulk	281	266	292
Liquid bulk	12	15	24
General, excl containers	18	30	12
Containers, x 1000 tonnes	0	0	0
Containers, TEU	0	0	0
Total, x 1000 tonnes	311	311	328

Source: Hopa Port

Future capacity

Due to the port's geographical position the port has potential serving as a transit port.

With its existing storage area, value added services and cargo handling equipment, the port is performing well.

9.4.2 General information

Port management

The Hopa Port is a private port operated by Park Denizcilik ve Hopa Liman İşletmeleri A.Ş (Park Shipping and Hopa Port Management). Park Denizcilik has leased the port from the Turkish government for a period of 30 years.

Summary of port facilities

Situated in the Eastern coast of Black Sea at 15 km from Georgian border.
After being privatized in 1997, the port has been modernized and equipped with mobile cranes, reach stackers and forklifts.
The port has:
1150 m quay and 10 m draft
18,000 sqm modern warehouses
10,000 ton wheat silo
Liquid storage with the capacity 37,500 cbm

9.4.3 Current capacity and throughput

Containers

From 1998 to 2001 in total 1362 TEU were handled. With 15,000 sqm container area and mobile shore cranes, the port is ready to increase its throughput capacity in accordance with market demand.

Other

- Main products handled are: coal, oil products, cotton, wheat, sugar, fertilizer, sunflower, seed, construction materials, project cargo, non-ferrous metals.
- Total surface area of the closed warehouse from 2000 m2 to 18.120 m2.

9.4.4 Port performance

General

- The port's throughput is very low

Dry Bulk

- The performance is very low, i.e. only 1,400 t/y/m, this is most likely due to the low throughput of the port

9.4.5 Hinterland connections

Hopa Port claims to be an ideal point for transit to and from the CIS as well as destinations in Iran, but is also limited in size.

9.4.6 Development plans and capacity

No details known.

9.4.7 Assessment of major constraints and prospects

9.5 Turkish Port Dues

Tariff Setting

Deviating from international standards

- TCDD Ports (Samsun, Hayder Pasha, and Derince): Tariffs "OTHER THAN" determined by the General Directorate of Turkish Sate Railways in the TCDD Ports Services Tariffs
- Privatized ports (Hopa): Tariffs determined by the Park Denizcilik Company
- For the six main Port Dues items tariff ceilings are set by the Undersecretariat for Maritime Affairs (MoT) in their "Tariffs on Port Services", published on August the 1st 2003. The main items are Pilotage, Tug services (un)Mooring services, Passenger Port Tax, Anchorage and Waste Reception. Tariffs for other services provided at ports are determined by the operators.
- Other bodies levy a number of dues and charges for several services:
    - Chamber of Shipping Dues: national representative of the Turkish Ports, involved in (inter)national policy, PR, education, administration, and the portal to international organizations.
    - Turkish Coastal Safety and Salvage Administration Dues: This administration (under the Directorate General of Coastal Safety, a part of the Maritime Undersecretariat) is responsible for lighthouses, radio beacons, VTMS, seamarks, foghorns as well as coastal safety equipment and rescue stations in all Turkish waters, including the Turkish Straits.
    - Turkish Ministry of Health Dues: A health charge for all vessels passing the Turkish Straits. These charges relate to the health of the crew and they are based on the Net Tonnage of the vessel.

A relatively large number of entities are involved in the levying the dues, which makes the administrative process of a vessel call relatively complex.

Tariff Collection

In conformity with national setting, not In conformity with international standards

The various tariffs that are levied are collected by the same entity that determines them (except for waste reception):

	Tariff Setter	Tariff Collector
Pilotage tariff	Undersecretary for Maritime Affairs	UMA
Tug service tariff	Undersecretary for Maritime Affairs	UMA
(Un)Mooring services tariff	Undersecretary for Maritime Affairs	UMA
Passenger port tax tariff	Undersecretary for Maritime Affairs	UMA
Anchorage tariff	Undersecretary for Maritime Affairs	UMA
Waste reception tariff	Undersecretary for Maritime Affairs	
Chamber of Shipping charges	Istanbul Chamber of Shipping	Cha.of Shipping
Lighthouse and Rescue Charges	Directorate General of Coastal Safety	Directorate General of Coastal Safety
Health Care Charges	Ministry of Health	Ministry of Health

In a Landlord setting, the local/regional Port Authority has a major role in the maritime administrative activities. In Turkey, the local authority function is non-existent and a more centralized policy is implemented.

Tariff Structure

In conformity with international standards with reservations

1) Pilotage, per GT; different systems for Ports in the Straits (Hayder Pasha and Derince) and other Ports (Samsun & Hopa)
2) Tug Service, per GT
3) (Un)mooring Dues, per GT
4) Chamber of Shipping Dues, per GT
5) Lighthouse and Rescue Dues, per NT
6) Health Charges, per NT

7) Waste Dues, per GT

There is a clear separation between the various dues and charges; however, there is no charge or due that relates to recovery of investments made in port infrastructure. This shows that the ports are not acting as budget-independent entities.

Tariff Coverage

In conformity with international standards

- Income generated through Port Dues are part of the budgets several organisations that directly use these incomes for the port investments. The dues are not considered cost coverage. However, cost coverage is claimed, but is currently lacking due to commercial considerations: the competitiveness of the the market is high.

Tariff Availability

Deviating from international standards

- Currently only available in Turkish. However, the tariffs will be published soon at www.denizcilik.gov.tr (available in Turkish and English):

The entities involved in levying the dues are:

- the TCDD
- the Maritime Undersecretariat (Turkish Chamber of Shipping)
- Directorate General of Coastal Safety
- The Ministry of Health
- the Private Port Operator/Authority

Only the Directorate General of Coastal Safety is able to present its rates and structure in English through the internet.

It is customary that the Port Dues are published on the websites of the ports, as they are the primary source of information. The tariffs should also be available in English. Efforts are currently being made to publish the tariffs in English through Turkish web-portals.

Efficiency Focus

In conformity withing with international standards

Within Undersecretariat For Maritime Affairs, the works are in process for "Building up a Port Authority Model" Project. Also U.M.A. with colloboration of T.C.D.D,

Chamber of Shipping and The Union of Chambers and commodity exchanges of Turkey, encourage Short Sea Shipping concept in order to provide efficient and fast Port Operations for Turkish Ports.

Fairness

In conformity with international standards

- Charging units: port dues and charges are mainly based on the vessel's GT (and GT-class) and NT; these items are clearly documented in the vessels' official registration documents.
- Flexibility: although port dues are set by various national entities, the tariffs are set specifically set for the individual ports
- Discounts: no discrimination occurs

Level

- Projected total costs for hypothetical vessel: Samsun € 2,400, Hayder Pasha € 2,200 and Derince € 2,300.
- These costs cannot be considered complete, due to intransparency of the various items
- Charges and Dues for Hopa could not be determined as a result of intransparency and the fact that the port is completely privatized
- Low level, but difficult to determine actual amount
- It is expected that levels are low, since the majority of port infrastructure investments is not recovered through dues and charges
- All TCDD ports have a similar structure and level
- Relatively high Lighthouse & Rescue charges
- Relatively low tug charges
- No Land-Lord type of charge could be determined due to the lack of transparency regarding the background of the individual dues

10 Assessment of Georgian ports

10.1 Poti

10.1.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Poti port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU).

Table 10.1.1 *Current throughput Poti, x 1000 tonnes and TEU*

Type of goods	2004	2005	2006	2007
Dry bulk	2,447	2,466	2,917	3,019
Liquid bulk	1,185	962	1,165	1,423
General, excl containers	1610	1664	1456	1,661
Containers, x 1000 tonnes	882	1,035	1,148	1,632
Containers, TEU	79,927	106,458	126,897	184,792
Total, x 1000 tonnes	6,124	6,127	6,686	7,700

Source: Poti Port

Future capacity

The following table gives an insight in the capacity of Poti port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port plans to improve operations. The aim is to reach 10 mio tonnes with the existing facilities.
However, the new area (400 ha), where a new port is planned and a free zone that will be developed by a private company, has a much higher potential. At this moment details are not yet known, but this area could double the turnover to a total of 20 mio tonnes.

Table 10.1.2 *Capacity/ throughput Poti, x 1000 tonnes and TEU*

Type of goods	2006	2007	2015
Dry bulk	2,917	3,016	
Liquid bulk	1,165	1,392	
General, excl containers	1456		
Containers, x 1000 tonnes	1,148		
Containers, TEU	126,905	185,000	
Total, x 1000 tonnes	6,686	7,734	20,000

Source: Poti Port (2007 estimate)(including the development of the new port.

Main constraints and prospects

- The main current problem of Poti port, the limited space and berth length, will be solved when the new area will be developed.
- However, if the "leasing" of management rights is done like the Batumi case, there is a chance that the private investor will develop the port not completely in line with the strategic position of the Port on the TRACECA corridor and the strategic function of the Port for Georgia
- Organisations like shipping agents ad freight forwarders are uncertain of the developments related to the leasing of management rights of both ports since it is not clear what private parties are planning to do with the ports, especially during the bidding process.
- Cargo flow of Caucasus & Central Asian Countries with EU is estimated at 66 mio tonnes, which shows the prospects for the Georgian ports.
- The new area that will be developed including the free zone might offers interesting prospects to serve as a logistics centre for the hinterland. Especially if road and rail connections would be upgraded

10.1.2 General information

Port management

- Poti Seaport Ltd. Is a state owned organisation and acts as the port authority.
- 80% of all terminals are leased out to private operators, remaining 20% (the Rail Ferry- and Container Terminal are operated by Poti Seaport Ltd. themselves)
- Poti Seaport Ltd. acts also as dispatcher/ coordination centre for all vessels
- Poti Seaport Ltd. owns and operates all service vessels (tugs, pilot boats, water supply, etc.)
- A new area of 400 ha (now the port covers 29 ha) will be developed by a private party; deadline for EOI's was October 15. This is a step away from the landlord model used in the current situation.

Summary of port facilities & capacity

- Terminals operated at present:

  - General cargo terminals
  - Bulk cargo terminals
  - Container terminal
  - Passenger terminal (not is use)
  - Ferry terminal
  - Oil terminal

10.1.3 Current capacity and throughput

Containers

- Container handling is limited due to lack of space, but has grown fast in recent years.
- In 2007 63% were 40 feet containers, 37% 20 feet.
- 57% full, 43% empty

Year	TEU	Growth rate %
2003	60,593	
2004	79,927	32
2005	106,458	33
2006	126,897	20
2007	184,792	47

Dry bulk / general cargo

- Investors from Kazakhstan will upgrade the existing grain silo with better storage capacities and grain handling equipment. The export of Kazakh grain is expected to be in the first stage about 0.5 mio tonnes per year.
- Alumina is transported via Poti – Baku – Turkmenistan to Tajikistan, where aluminium is made and transported back via the same route.

Liquid bulk

- Poti handles some oil products (about 1 mio tonnes per year) but no crude.

RoRo

- 2 RoRo connections: Poti - Bourgas, Poti – Kavkaz,
- Frequency of these connections:

  - Poti – Bourgas – 4 times per month
  - Poti – Kavkaz – 8 times per month

Number of vehicles:

	Empty		Full		Total	Total	Total
	In	Out	In	Out	In	Out	
2006	96	369	1,634	1,882	1,730	2,251	3,981
2007	30	126	1,827	1,927	1,857	2,053	3,910

Tonnage

	Empty		Full		Total	Total	Total
	In	Out	In	Out	In	Out	
2006	2,587	5,362	51,584	63,515	54,171	68,877	123,048
2007	343	1,665	52,467	58,993	52,810	60,658	113,468

Rail ferry

- Apparently the concept of rail ferry connections was supported by the former USSR. Rail ferry connections gave major strategic military advantages because of the possibility to transport large volumes of tanks relatively fast. The use of rail ferries for the transportation of goods was facilitated by introducing favourable port dues for these vessels.
- Apparently another reason to develop rail ferry transport in the past was to create better possibilities to reach Bulgaria from Ukraine while surpassing Romania.
- Stakeholders in the port doubt whether the concept can continue to be used in an economically sound way in the Black Sea now port dues are also collected from these vessels. Furthermore, rail ferry facilities at ports are relatively large which may hinder the development of the ports. Last but not least is the problem with the wagons of which the use is much less flexible than for instance containers. In the past there have been problems with wagons between Bulgaria, Ukraine and Georgia.
- Poti port has a rail ferry connection operated by UKRferry with Varna and Illichevsk, which have the same Russian gauge. The relation with Varna is of less importance than Illichevsk. It is estimated that only in one of five trips also the Port of Varna is included.
- Because of the political problems in the north of Georgia (Abkhazia), apparently Russia has tried to set up rail ferry connections between Kavkaz and Poti, mainly to facilitate trade with Armenia. For this the Russians modified a vessel (former tugboat) to be used as a rail ferry.
- Currently four vessels call at the berth :

  - 2 Ukrainian owned vessels, capacity 103 and 108 wagons
  - 2 Bulgarian owned vessels, capacity respectively 103 and 108 wagons

- The vessels are unloaded and loaded in 24 hrs. The Ukrainian wagons are directed all the way to Armenia and Baku, ie the cargo is not being transferred to Georgian wagons. The current throughput is some 18,000 – 25,000 tons per week, cargo transported comprises a.o. steel pipes and timber
- The current tariff for a 60 tonnes wagon transport by rail ferry between Illichevsk and Poti seems to be USD 2400, though also other figures (USD 1200 – 1500) were heard.

Passengers

- Poti has a large passenger terminal which is not used because of lack of demand.

10.1.4 Port performance

General

- Siltation in the entrance channel and in front of berth no.1 amounts to some 1 million m³ per year. The declared depth of the entrance channel is 10.5m (October 2007).
- During the winter period (November - March) downtime occurs due to swell and strong winds, port downtime in 2006 was 40 days with on average 8 hrs per day.

Containers

- The container throughput in 2007 was 184,792 TEU.
- The container terminal comprises only one berth (berth 7) which has a length of 210m and available draught of 8.5m, hence only 1,000 TEU vessels can be received.
- As container throughput is increasing berths 4 is more and more used for the handling of containers. It was mentioned that berth 12 in the future might also be used as a dedicated container berth.
- The performance figure is quite high (521 TEU tonnes/year/berth metre (t/y/m)) considering the port lacks dedicated container gantry cranes
- The available space behind the quay no. 7 is limited to 2 ha, hence various container yards are developed outside the port area and containers are shipped to and from these yards as soon as possible.
- Barwill Unitor Ship Service Ltd. are currently extending their container yard to allow a future storage capacity of 37,000 TEU.
- About 80% of all containers are further transported to the hinterland by road, the remaining 20% is transported via rail.

General Cargo

- The capacity of the cranes at berths 8, 9 and 10 are limited to 20 tons. In case heavy cargo is handled the floating crane is used for the handling of cargo.
- scrap is handled at berths 3 to 6, these berths are leased by two companies
- the performance figure is low, i.e. some 1,700 t/y/m, it is thought this is due to:
    - direct (un)loading is not common, hence double handling is an issue
    - rail tracks are positioned alongside berth which makes operations at the terminal area difficult in case wagons are parked alongside a berth
    - outdated quay equipment

Liquid Bulk

- throughput oil products some 1.5 million t/y (last two years)

Rail Ferry

- The rail ferry was put into operation with funds from TACIS in 1998/ 1999.
- The (un)loading of the vessels is performed by 2 locomotives owned by Georgian Railways. Before (un)loading operations the wagons are temporarily stored on the rail shunting yard located alongside berth 6. The wagons will arrive at the ferry shunting yard to/from the 'Area1 shunting station' where the wagons will be ranged into (block) trains.
- four vessels call at the berth:
    - 2 Ukrainian owned vessels–, capacity 103 and 108 wagons
    - 2 Bulgarian owned vessels, capacity respectively 103 and 108 wagons
- vessels are unloaded and loaded in 24 hrs
- the Ukrainian wagons are directed all the way to Armenia and Azerbaijan, ie the cargo is not being transferred to Georgian wagons
- current throughput is some 18,000 – 25,000 tons per week, cargo transported comprises a.o. steel pipes and timber
- crossing time of rail ferry vessels to Illichevsk is some 42 hrs.
- per month 9 to 10 rail ferry vessels call to Poti from Illichevsk

Passenger

- the passenger terminal is currently not being used, during the Soviet time a line to Sotsj (Russia) was in operation

10.1.5 Hinterland connections

- Poti is a crucial port for the development of TRACECA corridors
- Containers are transported to and from Poti by road (80%) and by rail (20%).
- Main problem with the rail connection is that the first 40 kilometres in the direction of Tbilisi is single track. The total distance between Poti and Baku is around 865 kilometres.

10.1.6 Development plans and capacity

Overall

- Optimization of existing facilities in order to reach the full productive capacity of 10 mio tonnes.
- Further increase of capacities by developing new terminals and berths together with relevant infrastructure to accommodate the growing cargo shipment turnover
- Establishment of the Free Industrial Zone on seaport adjacent territory, which should attract additional cargo flow.
- This new area will be developed by private investors. EOI's were requested by October 15. The investor has to develop the 400 ha plus a free industrial zone like the model used in Dubai.
- The leasing of management rights might be a step back from the landlord model.
- Details about the capacity of the new port are not yet known..
- Organisations like shipping agents ad freight forwarders are uncertain of the developments related to the leasing of management rights of both ports since it is not clear what private parties are planning to do with the ports, certainly during the bidding process.
- The Dutch company Boskalis is currently upgrading the breakwater with so-called X-blocs. Poti port is hindered by mud coming from the river, so regular dredging is necessary.
- Other plans include overhauls reconstruction of berth No 5, maintenance and repair of berths No 1 and No 2.
- For supply chain network development: block train system support & development, inland Logistic centres and bounded areas development, harmonization of neighbour countries legislation.
- Simplifying procedures: one stop window (port & custom) 24 hours access, road and railway transport port pass automation and simplification, ships clearance procedures simplification.

Containers

- Through the development of the new area, Poti aims to attract main container liners, instead of feeders from Illichevsk. Currently feeders call mainly from Gioia Tauro, Istanbul and Constantza.

Other

- Development of new terminals: grain terminal berth No 15, alumina terminal berth No 14, liquid Chemical Terminal berth No 2.

Hinterland connections

- Stakeholders indicate that investments are also needed in the road infrastructure, for instance a double lane highway to Tbilisi.

10.1.7 Assessment of major constraints and prospects

Constraints

- Main problem of Poti port is the limited space and berth length. The current container terminal is overloaded, and has only 2 ha of available space. The berth can only handle 1000 TEU vessels. The current solution is to move containers out of the port as soon as possible.
- The problem will be solved by the developed of a large new area very close to the existing facilities.
- However, if the leasing of management rights is done like the Batumi case, there is a chance that the private investor will develop the port not completely in line with the strategic position of the Port on the TRACECA corridor and the strategic function of the Port for Georgia
- Organisations like shipping agents ad freight forwarders are uncertain of the developments related to the leasing of management rights of both ports since it is not clear what private parties are planning to do with the ports. After the bidding process details will be known.
- Cranes are obsolete with electricity problems or other mechanical failures.

Prospects

- Cargo flow of Caucasus & Central Asian Countries with EU is estimated at 66 mio tonnes, which shows the prospects for Georgian ports.
- The new area (400 ha, current area is 29 ha) that will be developed including the free zone might offers interesting prospects to serve as a logistics centre for the hinterland. Especially if road and rail connections would be upgraded

10.2 Batumi

10.2.1 Summary

Current capacity and throughput

The following table gives an insight in the throughput of Batumi port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU). Unfortunately figures for 2006 and 2007 were not available at the time of reporting.

Table 10.2.1 *Current throughput Batumi, x 1000 tonnes and TEU*

Type of goods	2005	2006	2007
Dry bulk	0.3		
Liquid bulk	10.0		
General, excl containers	0.8		
Containers, x 1000 tonnes	0		
Containers, TEU	0		
Total, x 1000 tonnes	11.1		

Source: Batumi Port

Future capacity

The following table gives an insight in the capacity of Batumi port for dry bulk, liquid bulk, general cargo and containers (in tonnes and TEU), based on the port own estimates for 2015. Unfortunatley only figures for expected TEU turnover are known through press releases related to the selling of the terminal to ICTS (see below).

Table 10.2.2 *Capacity/ throughput Batumi, x 1000 tonnes and TEU*

Type of goods	2007	2008/2009
Dry bulk		
Liquid bulk		
General, excl containers		
Containers, x 1000 tonnes		
Containers, TEU		300,000
Total, x 1000 tonnes		

Source: Batumi Port

Main constraints and prospects

- Outdated equipment.
- Lack of storage space.
- International Container Terminal Services Inc. took over the container terminal in Batumi in September 2007 because they believe that Batumi has a strategically important location and a great potential. They plan to develop the container terminal and bring it to an international standard transforming it into a world class container terminal.
- Furthermore, the fact that the Kazak company KazMunaiGas took over Batumi Sea Port and Batumi Oil terminal in February 2008, in combination with the fact that Kazakhstan is the main key in transferring cargo either through Georgia or Russia to Europe (total value of goods transported from Kazakhstan each year is some 92 billion USD of which some 10% goes to Europe via Georgia, 80% via Russia) creates prospects.
- However, given the limited space in the port the capacity will have its limits in the future.
- Developing tourism might increase passenger transport. Recently BSP lowered port dues for cruise vessels with 50% to stimulate this transport.

10.2.2 General information

Port management

- Batumi Sea Port Ltd (BSP) was the concessionaire of the Port of Batumi, duration of the concession agreement is 49 years. Greenoak Holdings bought the oil terminal in 1999 and Batumi Sea Port in 2006. In February 2008 it was announced that Greenoak Holdings and its partners have sold Batumi Oil Terminal Limited and Batumi Sea Port Limited to KazMunaiGas, the state oil company of Kazakhstan.
- The container terminal has been bought in September 2007 by International Container Terminal Services Inc.
- The intention is to act in the near future more as a land lord, concessioning all other berths and terminals except the oil terminal.

Summary of port facilities & capacity:

- The main commodity handled are oil products (in 2006 12 mio tonnes), arriving from Baku.
- LPG is currently handled, though in small amounts.
- Other products handled include wheat, ammonium, sugar, general cargo, and quite large amounts of scrap.

10.2.3 Current capacity and throughput

Dry bulk / general cargo

- Other products handled include wheat, ammonium, sugar, general cargo, and quite large amounts of scrap.

Liquid bulk

- The main commodity handled are oil products (in 2006 12 mio tonnes), arriving from Baku.
- Also a new oil terminal is currently under construction
- LPG is currently handled, though in small amounts.

Rail ferry

- The railway ferry terminal was constructed taking into consideration "Geroy Shipky" type vessels, which ply between ports of Varna (Bulgaria), Poti (Georgia), Ilichevsk (Ukraine) and Batumi (Georgia).
- The nominal annual throughput of the terminal is about 700 thousand tons.
- BSP is not optimistic about the future of rail ferry connections. It seems commercially not interesting, requires special ships, jetties/quays (maintenance) and shunting stations, and in cases bogey change stations.
- Due to the lack of space at Batumi rail ferry operations may be stopped. However, the rail-ferry landing berths are included in the container operator concession.
- There might be chances for economically viable rail ferry lines to Samsun (where construction for a bogey exchange station has begun) and possibly Constantza if the ”gauge” problem is solved.

10.2.4 Port performance

General

- The Tjagun is a natural phenomenon which results in high swell inside the port basin;

  - the affect of the Tjagun has increased significantly since an underground channel to the sea located under berths 4 and 5 were blocked and straight quay lines were constructed near the passenger terminal and along the foreshore of the area between the passenger terminal and the port
  - HM sends the ship out of the port, during wintertime some 5 days per month (November - April), total downtime some 25-30 days per annum only during Norhtwestern winds

Containers

- berths 4, 5 and 6 will be leased out together to the future container operator, berth no. 6 is currently used for the mooring of rail ferry vessels, it was mentioned that the new operator can decide whether they want to continue the operation or cease all rail ferry activities in the port
- the new container terminal comprises three new portal cranes and new trailers, Batumi Sea Port Ltd. intends to acquire two new quay container cranes
- containers can be stacked two high using the portal cranes
- in September 2007 a lease arrangement for the operation of the container terminal had been agreed with International Container Terminal Services Inc.

General Cargo

- The overall performance was almost 1,900 t/y/m which is low compared to the benchmark of 5,000 t/y/m
- the main difficulties related to port operations are due to:

  - outdated equipment
  - Tjagun during winter period (high swell inside the port basin, vessels need to move outside basin)
  - Rail tracks are positioned alongside berth which makes operations at the terminal area difficult
  - no storage facilities, direct loading/ unloading (except scrap) hence congestion on the terminal due to trains blocking roads

Dry Bulk

- The performance for 2006 was about 1,300 t/y/m which is extremely low considering the benchmark of 7,000 t/y/m
- berths 7, 8 and 9 will be leased out to a dry bulk operator in the near future
- Kazakh investors might lease berth no. 7 (wheat berth), this berth has recently been refurbished

Liquid Bulk

- The oil terminal has a capacity of 3,500t/hr, the terminal was refurbished a few years ago, as can be seen from the performance figure (15,215 t/y/m) this is the most efficient liquid bulk facility in the Black Sea Region

Ro-Ro

- The port tried to open a Ro-Ro line between Poti-Riseria-Novorisirsk in 2005, the line is still not in operation due to slow decision making progress from the governments.

Rail Ferry

- It was mentioned that main problem of the Rail-Ferry is, apart of the availability of cargo;
  - the lack of transparency in future developments
  - the compatibility between the old railway system build by the Russians in 1965 and the new rail-ferry pontoon, build in 1996 with EU-funding
- cargo needs to be discharged at Batumi and wagons to be sent back
- wagons carry mostly oil, high quality wheat, construction materials

Passenger

- Green Oak Holding are looking for an operator for the passenger terminal

10.2.5 Hinterland connections

- Railway track from Batumi to Samtradja is single track, from Samtradja to Tbilisi is double track, see also Poti Port
- Relatively high railway tariffs in Azerbaijan were mentioned as a problem area.

10.2.6 Development plans and capacity

Overall

- The Kazak company KazMunaiGas took over Batumi Sea Port and Batumi Oil terminal in February 2008. It is not yet clear what the development plans are.

Containers

- International Container Terminal Services Inc. bought the container terminal end 2007. It plans to develop the container terminal and bring it to an international standard transforming it into a world class container terminal with a capacity of 300,000 TEU.

10.2.7 Assessment of major constraints and prospects

Constraints

- The main bottleneck in Batumi at the moment is the equipment which is outdated and needs to be replaced as soon as possible. Another bottleneck is the lack of storage space.

- Organisations like shipping agents ad freight forwarders are uncertain of the developments related to the privatisation of both ports since it is not clear what private parties are planning to do with the ports. Other sources indicate that since the privatisation port fees have increased with something between 11% and 13%.

  NB. The last months have given some clarity about the privatisation with the Kazak company KazMunaiGas taking over Batumi Sea Port and Batumi Oil terminal in February 2008, and International Container Terminal Services Inc. buying the container terminal end 2007.
- The relatively high railway tariffs in Azerbaijan were mentioned as a problem area.
- Furthermore, the port has a problem with swells which results in closing down the port on average 5 days per year.
- Kazakhstan is the main key in transferring the cargo either through Georgia or Russia to Europe, total value of goods transported from Kazakhstan each year is some 92 billion USD of which some 10% goes to Europe via Georgia, 80% via Russia

10.3 Georgian Port Dues

Tariff Setting

Deviating from international standards

- Both Ports (Poti & Batumi) have the legal authority to establish their own port dues and charges (by decree of the General Directors of the ports)
- Batumi Port is currently privatized under a 49 year masterconcession and Poti is currently subbject to major changes with regards to privatization/concessioning. The ports have the incentive to become full private landlords (without operations)
- Lighthouse Dues set and levied through Hydrographic Service of the Ministry of Defense, which owns and maintains these assets
- Pilotage through private entity (Poti) and the Harbormaster's office (Batumi)

Although a Landlord-principle is created, private authorities do not have the incentive to reinvest in infrastructure, since they have a limited concession (50 years) and therefore limited opportunities to recuperate their investments. They only focus on realizing an optimal return on the concession fees they are required to pay to the government. Therefore they will focus on maximizing the concession fees negotiated with their private operators; maximizing income on port dues is not commonly seen, but it might well occur.

Tariff Collection

In conformity with international standards

At the end of the day all dues and charges are collected by ship's agent and then distributed to the relevant organizations.

Tariff Structure

In conformity with international standards: clear separation

1) Tonnage Dues, per LxWxD[1] volume measure
2) Canal Dues, per LxWxD volume measure, only in Poti (no dredging in Batumi)
3) Berthing Dues, per LxWxD volume measure
4) Anchorage Dues, per LxWxD volume measure
5) Sanitary Dues, per LxWxD volume measure
6) (Un)mooring, per LxWxD volume measure
7) Towage, per LxWxD volume measure
8) Watchmen, per LxWxD volume measure
9) Lighthouse to Hydrographic Service
10) Pilotage to Harbor Master (Batumi) or Private Party (Poti)
11) Support Vessels

One sidenote is that is unclear from official translations, which tonnage measure is being used (GRT/GT/M3).

Tariff Coverage

Deviating from international standards

- Income generated through Port Dues and Charges are part of the budgets of private companies that do not directly use this income for port infrastructure investments and maintenance; therefore dues are not considered cost coverage.

This limits the Ports to bear their own budget responsibility and to act as an independent entity with a focus longer than the (master)concession period. This results in the inability of the national government to make a port policy with a focus on future traffic needs.

Tariff Availability

Deviating from international standards

- Port Dues difficult to obtain
- Not available from any website; only the website of Poti pubishes them, however, only accesible after payment of USD 30 web-access fee.
- Available through Ports or Ship Agents or governmental bodies

[1] Length x width x height of a ship board

- Source of origin will be the Ports, which mention the existence, but not the level and the structure.

It is customary that the Port Dues are published on the websites of the ports, as they are the primary source of information. The tariffs should also be available in English.

Efficiency Focus

Deviating from international standards

- No structure or discounts that stimulate the efficient use of port facilities are identified

It is common to incorporate a time-dependent and/or productivity-dependent factor in the port dues structure. In a private authority setting it is however often not the priority of the authority to stimulate and manage this.

Fairness

In conformity with international standards

- Charging units: port dues and charges are mainly based on the vessel's M3 volume (and volume-class) and the vessels' type; these items are clearly documented in the vessels' official registration documents.
- Flexibility: both ports are able to set, levy and collect their own port dues

Level

- Projected total costs for hypothetical vessel: Batumi € 10,000 and Poti € 14,300
- Difference mainly caused by Canal Dues for Poti (no dredging required at Batumi)
- Similar structure and level at both ports
- This could change, due to recent privatisations
- Very high tariff level when compared to the other Black Sea Ports
- With only "landlord-related" items (tonnage, quay/berth, lighthouse/VTMS, and channel/access dues) costs are € 5,900 (Batumi) and € 9,600 (Poti) which is considered very high in the region, and equal or even higher than a Western benchmark port as Rotterdam (€ 6,000)

11 Ports prospects 2020

11.1 Approach to generate growth prospect for the Black Sea ports

A scenario approach is followed to produce port flow forecasts by handling type for the Black Sea ports. This means that not a single figure is produced but a bandwidth is presented for the future transport demand for a port or group of ports. The scenarios combine the main uncertainties in economic\trade developments, see chapter 4, and sector specific uncertainties as share of containerized goods.

The port forecasts are generated by combining the following five steps:

1. The trade scenarios out of chapter 4, the central forecast and lower growth scenario, are giving detailed forecasts for freight flows by commodity type (NSTR 3 digit level) at a regional level in the black sea region. In this step these trade flows are assigned to the ports reflecting the current hinterland of the ports. Note that not all freight flows out of chapter 4 are included as part of the maritime flows through the black sea ports, e.g. excluded are land flows between Russia and Ukraine or flows from southern Turkey to Asia using Mediterranean ports.

   For the detailed flows by commodity type the appearance is also part of the database. This information is used to calculate at an aggregated level the volumes by type of appearance (general cargo, dry bulk, liquid bulk) for a port.
   Output: forecasts of General Cargo, Solid Bulk and Liquid Bulk flows in 2020 by port following the two trade scenarios

2. Extension of existing port hinterland area; a port can enlarge its hinterland as border barriers are reduced, hinterland infrastructure improves or scale advantages enables the port to deliver more competitive rates. For each of the ports potential additional freight flows are generated based upon the trade scenarios and direction of the freight flows (e.g. flows from Belarus for the Ukrainian ports or flows from the Danube countries for Constantza).

   Output: scenario on additional freight flows due to an extension of the current hinterland area

3. Level of containerization. In most of the Black sea countries the current level of containerization of goods is very low compared to international standards. This factor combined with a substantial growth in volumes indicates that the share of goods transported in containers is likely to increase impressively. Uncertain is however which level of containerization can be reached in 2020 (among others depending on developments in shipping services and port facilities). Therefore two scenarios are developed for the level of containerization; one high scenario based upon what can be containerized (e.g. US and South-East Asia levels for the commodity types transported in the region) and an in-between level of containerization taking into account current level of containerization and maximum or world class level of containerization.

   Output: two scenarios for the level of containerization by handling type for each of the ports in 2020.

4. To transfer the forecasted number of containerized ton into number of TEU an average weight by TEU needs to be assumed. The assumed average weight in 2020 depends on the current 2005 level in the ports and the trend of somewhat falling weights as share of imports of lighter consumer goods increases.

   Output: Change in average tonnage per TEU in 2020

5. Transshipment flows. At the moment the port of Constantza is the only important transshipment port in the Black Sea area. However this situation might change and estimation is needed for the level of transshipment in 2020. This depends on number of direct ship calls for intercontinental traffic, shift from Meda-black sea transshipment lines and overcapacity in the ports (in situations with under capacity transshipment is unlikely).

   Output: scenario for the size of transshipment flows in 2020

Steps 1 to 3 are needed to forecast the bandwidth in number of tons by handling type (general cargo, containers, dry bulk and liquid bulk) for the ports. The lower growth trade scenario and middle level of containerization are combined into scenario A. Scenario B consists of the central forecast in combination with the higher or maximum level of containerized goods. In both scenarios it is assumed that the hinterland area of the port does not change. Steps 4 and 5 are needed to forecast the bandwidth for the number of TEU by port.

Supply issues

Of course the demand forecast is not independent of capacity developments such as investments in port infrastructure, their operations and hinterland connections. Therefore the forecasts should be treated as a market potential not as a growth that will be realized regardless the actions of the ports itself. Key action points are identified in the prospect sections by country, based upon assessment of the ports and growth potential. It should be noted that these increases in capacity and/or performance need to be realized in order to realize the growth potential as presented in this chapter.

Another issue is that the hinterland areas or catchments of the ports are overlapping to such extend that these ports should be treated as one to derive their market potential. The future market share of each of these ports will depend on the performance of the ports. Such overlap in catchments will be discussed in the country sections.

11.2 Overall results

In this paragraph the overall results of the forecasts will be presented in some graphs showing the results for all ports.
In the following paragraphs the detailed results per port of the forecasts and the assessment of the ports in relation to the forecasted volumes will be presented, and also priority investments are suggested.
However, before going into detail it is necessary to focus on a number of issues that are relevant for all ports when considering the high growth rates expected.

Efficient procedures

For all ports high growth rates are predicted, which require serious investments in hardware in order to be able to handle growing cargo flows.
However, investments in hardware are not enough. All stakeholders (Ministries, ports, Customs, terminal operators, freight forwarders, transport companies etc) should also focus their attention on more efficient procedures, supported by state-of-the-art ICT applications.

Hinterland connections

Traffic congestion is not only the major concern of ports in North-Western Europe, but it will also become a major concern of Black Sea ports if the hinterland connections are not upgraded and brought in line with the expected transport volumes.

Results of the forecasts for all ports

The following three graphs show the results for the year 2005, the forecast for 2020, with scenario A and B.

Figure 11.1 *Throughput per type of cargo, 2005*

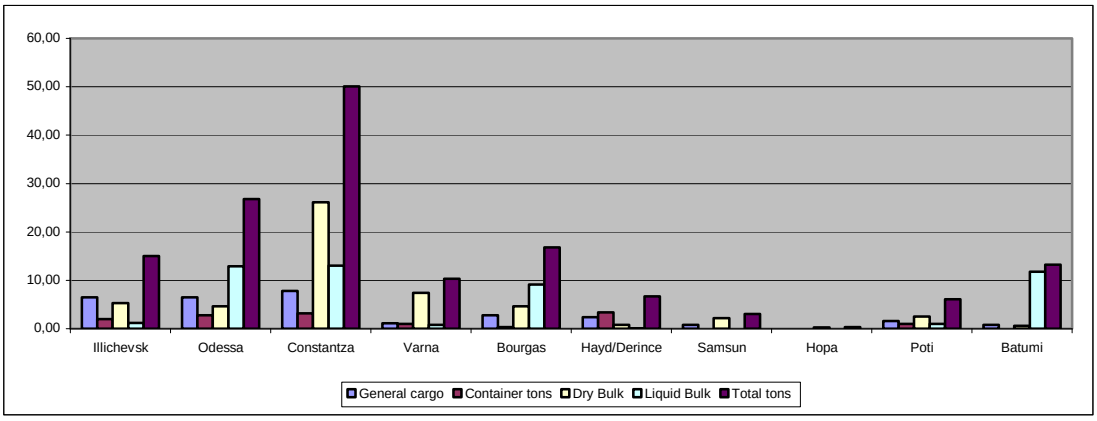


Figure 11.2 *Throughput per type of cargo, 2020 scenario A*

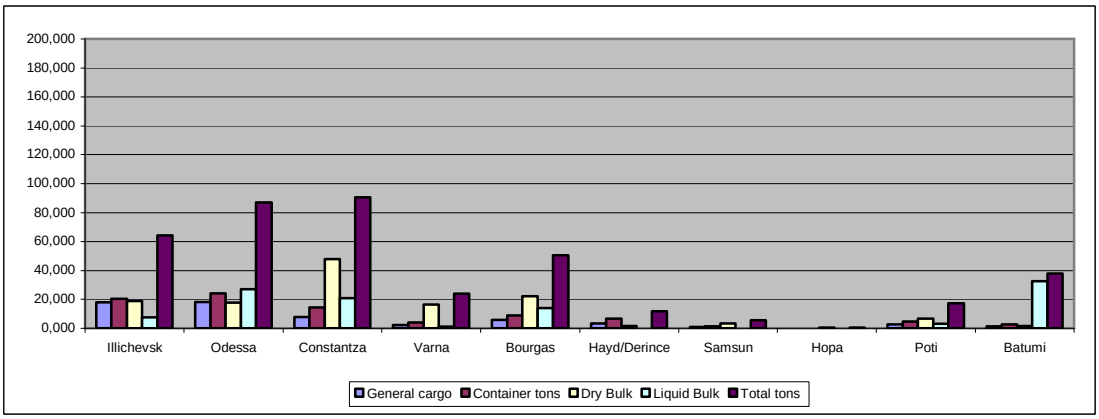
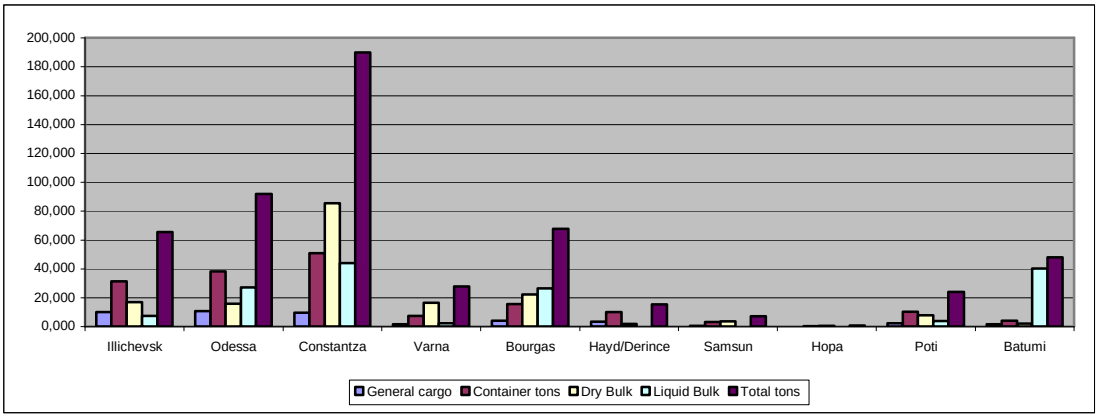
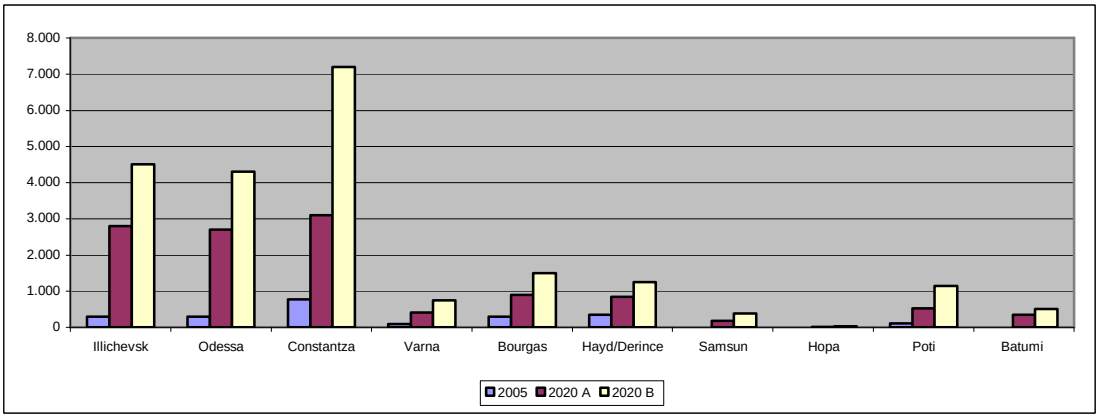


Figure 11.3 *Throughput per type of cargo, 2020 scenario B*



The next graph shows the results for containers measured in TEU.

Figure 11.4 *Throughput containers 2005, 2020 scenario A and 2020 scenario B, x 1000 TEU*



11.3 Prospects for Ukrainian ports

This study includes the ports of Illichevsk and Odessa in the Ukraine as the two main ports of this country. The two ports are geographically very closely located to each other and both ports are serving an overlapping hinterland. In this section the forecasts are presented by port based on current market shares of the ports. However, it is clear that the individual share of the ports can change in the future depending on the performance of the port and its competitor. Further it should be noted that other Ukrainian ports are not analyzed in this study and it is assumed that their combined market share is constant to the market shares of Odessa and Illichevsk together.

11.3.1 Freight demand potential Illichevsk

The base year for the analysis is 2005 for all ports as the trade scenarios are based on 2005 trade data. For the 2005 port volumes are used as starting point for the port forecasts. The port forecasts are produced for 2020 in tons by handling type and number of TEU.

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.36, bulk 3.78 and liquid bulk 6.06;
- Share of containerized goods in 2020 is 50% for general cargo, 10% for dry Bulk and 4% for liquid bulk;
- Average weight of a TEU in 2020 is 7 ton, which is similar to current average.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.62, bulk 4.01 and liquid bulk 6.06;
- Share of containerized goods in 2020 is 72% for general cargo, 24% for dry Bulk and 7% for liquid bulk;
- Average weight of a TEU in 2020 is 7 ton, which is similar to current average

Table 11.1 *Forecast for Illichevsk port in tons and TEU*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 – tons	6,5 mio	2,0 mio	5,3 mio	1.2 mio	15,0 mio
A 2020 tons	17,8 mio	20,2 mio	18,8 mio	7,4 mio	64,2 mio
% per annum	7.0%	16.5%	8.9%	12.7%	10.2%
B 2020	9,9 mio	31,5 mio	16,8 mio	7,2 mio	65,4 mio
% per annum	2.9%	20.0%	8.1%	12.4%	10.3%
2005 TEU		291,000			
A 2020 TEU		2.8 mio			
B 2020 TEU		4.5 mio			

1) Growth rates for containerized transport are based on developments in TEU

Observations:

- Once again the Consultant wants to stress that the forecast gives a market potential for the region and Odessa port, the actual realization depends among other factors also on developments in nearby non-TRACECA ports.
- Overall high growth in trade for the Ukraine (11% a year) results in a high growth potential for Illichevsk port.

- Transshipment is not included for 2020 as this requires sufficient free capacity. However if free capacity is available Illichevsk has potential as transshipment port in the Black sea as a direct service port from Asia.
- The growth potential for container transport (between 16.5% and 20.0% a year) is enormous due to a combination of a high growth in trade volumes and a catching up effect resulting from the low shares of containerized goods in 2005.
- Projected container throughput – between 2.8 and 4.5 mio TEU – is in line with the estimated capacity in 2015/2020 of the port itself. It seems essential that all planned investments will be realised.
- Projected general cargo – between 9.9 and 17.8 mio tons – is more than planned capacity (8 mio), indicating extra investments are required. However, a large part is steel which has shifted to Odessa in recent years. Therefore the forecast should be treated carefully.
- Projected dry bulk throughput is higher than the port's own estimate, but could be handled by an increase in productivity. This also holds for liquid bulk.
- Important risk for not meeting its demand potential is that capacity and operation improvements are not realized fast enough and meanwhile alternative options arise.
- The port of Illichevsk has substantial potential to further enlarge its current hinterland. High trade flow volumes exist from Belarus and Western Russia which can be transported via the Black sea (forecasted in 2020 44 mio tons GC, 111 mio tons SB and 48 mio tons LB). Even a small increase in market share (in competition with Baltic Sea ports and Russian/Ukrainian black sea ports) would result in a substantial additional volume for the port.
- Illichevsk seems to need considerable extra investments to realise its ambition as a transit and transhipment port.

11.3.2 Freight demand potential Odessa

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.36, bulk 3.78 and liquid bulk 6.08;
- Share of containerized goods in 2020 is 50% for general cargo, 10% for dry Bulk and 5% for liquid bulk;
- Average weight of in 2020 is 9 ton, which is similar a little lower than the current average of 10 tons.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.62, bulk 4.01 and liquid bulk 6.06;

- Share of containerized goods in 2020 is 72% for general cargo, 24% for dry Bulk and 7% for liquid bulk;
- Average weight of in 2020 is 9 ton, which is similar a little lower than the current average of 10 tons.

Table 11.2 *Forecast for Odessa port in tons and TEU*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 – tons	6,5 mio	2,8 mio	4,6 mio	12,9 mio	26,8 mio
A 2020 tons	18,1 mio	24,1 mio	17,7 mio	27 mio	86,9 mio
% per annum	7.0%	16.0%[1]	9.3%		8%
B 2020	10.7 mio	38,3 mio	15,8 mio	27 mio	91.8 mio
% per annum	3,4%	19,7%	8.5%		8.5%
2005 TEU		288,000			
A 2020 TEU		2.7 mio			
B 2020 TEU		4.3 mio			

1) Growth rates for containerized transport are based on developments in TEU

2) Growth has been maximized on 27 million tonnes, which will be realized far before 2020

Observations:

- Overall high growth in trade for the Ukraine (11% a year) results in a high growth potential for Odessa port.
- Although the forecasts show high market potential for Odessa, it seems difficult to imagine that the port will be able to handle these large volumes, given the limited space available, the location in the city centre, and the resulting problematic connections with the hinterland.
- The growth in liquid bulk is even higher than the average trade growth and as major liquid bulk port Odessa's its market potential is almost 80 mio tons. In the forecast a growth limit of 27 million tonnes has been used as the port does not have plans to grow above this number. This means that substantial possibilities exist for other ports in the Ukraine to attrack the remaining market potential if they are capable of realizing sufficient capacity.
- The growth potential for container transport (between 16.0% and 19.7% a year) is very high due to a combination of a high growth in trade volumes and a catching up effect. The catching up effect for Odessa is a little lower than for Illichevsk due to a somewhat higher level of containerized goods in 2005 for Odessa.
- Transshipment is not included for 2020 as this requires sufficient free capacity. However if free capacity is available in the port than Odessa, like Illichevsk, has potential as transshipment port in the Black sea as a direct service port from Asia.

- Projected container throughput – between 2.7 and 4.3 mio TEU – is somewhat more than the estimated capacity in 2015/2020 of the port itself. It seems essential that all planned investments will be realised, including the announced 2 mio TEU terminal by Odessilmash.
- Investment is required to optimise the productivity of the container terminal operated by HPC
- The port of Odessa has substantial potential to further enlarge it current hinterland. High trade flow volumes exist from Belarus and Western Russia which can be transported via the Black sea (forecasted in 2020 44 mio tons GC, 111 mio tons SB and 48 mio tons LB). Even a small increase of the current market share would result in a substantial additional volume for the port.
- It is recommended to restructure the central part of the port to cope with the estimated increase in traffic for containers and general cargo
- Because of the limited area available and its vicinity to the city centre, it is recommended that the port focuses on the handling of a selection of clean cargoes, i.e. containers, a variety of general cargoes and perhaps only a few specific dry bulk commodities. Handling very large volumes of liquid bulk so close to the city might also be reconsidered.
- Important risk for not meeting its demand potential is that capacity and operation improvements are not realized fast enough and meanwhile alternative options arise.
- It is recommended to restructure the central part of the port to cope with the estimated increase in traffic for containers and general cargo
- Because of the limited area available and its vicinity to the city centre, it is recommended that the port focuses on the handling of a selection of clean cargoes, i.e. containers, a variety of general cargoes and perhaps only a few specific dry bulk commodities. Handling very large volumes of liquid bulk so close to the city might also be reconsidered.

11.4 Prospects for Romanian ports (Constantza)

The port of Constantza is currently the largest port in the Black Sea region and it serves as its hinterland a region larger than Romania itself via transshipment and its location at the entrance of the Danube. In the analysis transshipment has been split out in sea-river and domestic transshipment and international sea-sea transshipment. Sea-river and domestic transshipment is hereunder presented as part of the general forecast and international transshipment is added separately to this.

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 1.78, bulk 1.92 and liquid bulk 1.63;
- Share of containerized goods in 2020 is 50% for general cargo, 10% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 9 ton, which is similar to 2005;
- International sea-sea transshipment is forecasted to grow from 400 thousand TEU in 2005 towards 1.5 mio in 2020.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 3.77, bulk 3.86 and liquid bulk 3.67;
- Share of containerized goods in 2020 is 72% for general cargo, 20% for dry Bulk and 10% for liquid bulk;
- Average weight of a TEU in 2020 is 9 ton, which is similar to 2005;
- International sea-sea transshipment is forecasted to grow from 400 thousand TEU in 2005 towards 1.5 mio in 2020.

Table 11.3 *Forecast for Constantza port in tons and TEU*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 - tons	7,8 mio	3,2 mio	26,1 mio	13,0 mio	50,1 mio
A 2020 tons	7,8 mio	14,3 mio	47,8 mio	20,7 mio	90,6 mio
% per annum	0.0%	9.7%[1]	4.1%	3.1%	4.0%
B 2020	9,6 mio	50,9 mio	85,3 mio	44,1 mio	190 mio
% per annum	1.4%	16.0%	8.2%	8,5%	9,3%
2005 transship		427,500			
2005 TEU tot		770,000			
A 2020 trans.		1.5 mio			
A 2020 TEU tot		3,1 mio			
B 2020 trans.		1.5 mio			
B 2020 TEU tot		7,2 mio			

1) Growth rates for containerized transport are based on developments in TEU

Observations:

- The trade scenarios for Romania show a substantial variation in trade growth between 4.5 % and 9.5% a year. Rather similar growth figures can be found for the overall growth of Constantza port; differences can be explained by trade relationships which are not maritime and excluded like for example Romania – Slovakia;

- The growth potential for container transport shows a large bandwidth between 3.1 mio and 7.2 mio reflecting uncertainty in trade developments for Romania and level of containerization;
- Transshipment is forecasted to grow with a factor 3 (7.6% a year), consolidating the position of Constantza as transshipment port without expecting very high, above market, growth figures. A very high growth in transshipment is not expected as number of direct calls in the Black sea region is likely to increase which may result in the rise of competing transshipment ports (e.g. Illichevsk or Odessa, Filyos). Besides competition within the Black Sea alternative transshipment ports exist outside the Black sea. The transshipment forecast has a large bandwidth as this is a highly competitive and footloose market. For example, if free capacity is not available at Constantza port it can easily loose it position as transshipment port;
- The port of Constantza has substantial potential to further enlarge its current hinterland, especially if travel conditions on the Danube are improved. The combined trade flow volumes from Serbia, Hungary, Austria, Moldavia and Slovakia (for which the port of Constantza is a potential option) are forecasted in 2020 at 23 mio tons GC, 47 mio tons SB and 29 mio tons LB. An increase of the current market share of Constantza in these flows would result in a substantial additional volume for the port.
- The estimated container capacity of the port for 2020 (around 5 mio TEU) falls within the bandwidth of the projected container throughput (between 3.1 and 7.2 mio TEU). So it seems essential that all planned investments will be realised, and some reserve capacity should also be planned.
- The port seems to have at least in theory the possibilities to handle to projected 90 to 190 mio tons.
- The basin north of the passenger terminal could be developed into a marina/ public area, so that money could be freed for other investments
- There is scope to optimise the efficiency of the container terminals at berths 44 and 51 – 52 by perhaps replacing quay- and yard equipment
- It is noted that sea- and river transport are currently separated, though it could be considered to combine both in order to achieve higher productivity rates
- In case Constantza port intends to act as a container hub, it is recommended to allow sufficient spare container capacity
- Hinterland transport via the Danube river requires additional investments in order for Constantza to compete with West European ports for traffic to central Europe.

11.5 Prospects for Bulgarian ports

Varna and Bourgas are the two most important ports of Bulgaria and together these ports cover over 85% of the maritime transport to and from Bulgaria. The two ports

do have a strong overlap in their hinterland and can be considered as competitive ports for large parts of the Bulgarian hinterland.
For the future the competitive position of Bourgas, and market share, in dry bulk and container transport is likely to increase as this port has more favourable nautical and hinterland conditions. For the port of Varna the region directly surrounding the port remains a very important part of its hinterland. The market share of the other Bulgarian ports is assumed to be stable.

11.5.1 Freight demand potential Varna

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 3.00, bulk 2.28 and liquid bulk 1.59;
- Share of containerized goods in 2020 is 50% for general cargo, 10% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 10 ton, which is lower than the current high figure of 12 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 3.00, bulk 2.60 and liquid bulk 3.10;
- Share of containerized goods in 2020 is 66% for general cargo, 21% for dry Bulk and 7% for liquid bulk;
- Average weight of a TEU in 2020 is 10 ton, which is lower than the current high figure of 12 ton.

Table 11.4 *Forecast for Varna port in tons and TEU*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 - tons	1,1 mio	1,0 mio	7,4 mio	0.8 mio	10,2 mio
A 2020 tons	2,2 mio	4,0 mio	16,4 mio	1,2 mio	23,8 mio
% per annum	4.9%	11.1%[1]	5.5%	3.0%	5.8%
B 2020	1,5 mio	7,4 mio	16,4 mio	2,3 mio	27,6 mio
% per annum	2.3%	15.6%	5.5%	7.5%	6.8%
2005 TEU		84,100			
A 2020 TEU		406,000			
B 2020 TEU		740,000			

1) Growth rates for containerized transport are based on developments in TEU

Observations:

- Overall growth for the port of Varna is substantial as current volumes of 10 mio ton are forecasted to increases towards volumes between 23 and 28 mio tons.
- The current container volumes are small but an annual growth rate between 11% and 15,6% results in substantial market potential of volumes between the 400 and 740 thousand TEU in 2020.
- Important risk for not meeting its demand potential is that capacity and operation improvements are not realized fast enough and meanwhile alternative options arise.
- Volumes is Varna are too small to play a role as transshipment port;
- The potential of Varna port to enlarge it current hinterland outside Bulgaria is limited. The intercontinental trade volumes on its East-West corridor serving Serbia and Macedonia are relatively small (forecasted in 2020 0.8 mio tons GC, 1.3 mio tons SB and 1.1 mio tons LB).
- In general it should be noted that the port of Varna faces strong competition from especially Constantza and also the Greek and Turkish ports. Under these highly competitive conditions a lack of performance in Varna port can easily result in a lost in market share.
- The market potential – from 24 to 28 mio tons – has to be realised in a highly competitive environment.
- In order to increase productivity it would be preferred if port operations would be handed over to private operators on a lease term agreement
- The estimated container capacity of the port for 2020 (around 466,000 TEU) is near the lower limit of the bandwidth of the projected container throughput (between 406,000 and 740,000 TEU). So it seems essential that all planned investments will be realised, and some reserve capacity should also be planned.
- Investments are required for the new container terminal and grain terminal to be constructed just inside the lake
- These new developments need to come on stream asap in order to capture the anticipated growth
- Funds are required for dredging cost, it is considered of the utmost importance to Varna port to ensure good and safe navigability through the channels and ensure that also deeper draught vessels could call at the port
- The efficiency of general cargo- and dry bulk operations need to be improved perhaps by replacing outdated equipment

11.5.2 Freight demand potential Bourgas

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.23, bulk 5.24 and liquid bulk 1.59;
- Share of containerized goods in 2020 is 50% for general cargo, 10% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 10 ton, which is lower than the current high figure of 12 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 4.23, bulk 5.97 and liquid bulk 3.09;
- Share of containerized goods in 2020 is 66% for general cargo, 21% for dry Bulk and 7% for liquid bulk;
- Average weight of a TEU in 2020 is 10 ton, which is lower than the current high figure of 12 ton.

Table 11.5 *Forecast for Bourgas port in tons and TEU*

	Gen Cargo	Container	Bulk	Liq Bulk	Total
2005 - tons	2,8 mio	0,3 mio	4,6 mio	9,1 mio	16,8 mio
A 2020 tons	5,7 mio	8,9 mio	22,1 mio	13,8 mio	50,5 mio
% per annum	5.5%	26.4%[1]	11.0%	2.8%	7.7%
B 2020	3,9 mio	15,4 mio	22,1 mio	26,3 mio	67,7 mio
% per annum	2.8%	31.2%	11.1%	7.4%	9.9%
2005 TEU		288,000			
A 2020 TEU		891,000			
B 2020 TEU		1.5 mio			

1) Growth rates for containerized transport are based on developments in TEU

2) Liquid bulk data and supply plans cann't by verified by port authority as this is outside their current responsibility

Observations:

- The port of Bourgas is currently the main liquid bulk port in Bulgaria, but it has good market potential as well to become the main dry bulk and container port. The market potential for bulk and container transport get so substantial that it becomes a more attractive destination for larger ships and direct calls.
- The growth potential for container transport (between 26,4% and 31,2% a year) is enormous partly reflecting the low current container volumes.

The high growth results from a combination of a catching up effect, towards more 'normal' level of containerized goods, high trade growth rates for Bulgaria and a higher market share for Bourgas in the Bulgarian hinterland. With forecasted container transport volumes between the 0.9 and 1.5 million TEU the port of Bourgas becomes an interesting destination for direct call services (this is currently only the case for Constantza, Illichevsk and Odessa).

- The potential of Bourgas port to enlarge it current hinterland outside Bulgaria is limited. The intercontinental trade volumes on its East-West corridor serving Serbia and Macedonia are relatively small (forecasted in 2020 0.8 mio tons GC, 1.3 mio tons SB and 1.1 mio tons LB).
- There is potential when the prospects of the project Novorossiysk-Burgas-Aleksandropolus are realized.
- The Port of Bourgas like the port of Varna faces strong competition from the Greek ports, Turkish ports and Constantza. Under these highly competitive conditions a lack of performance can easily result in a lost in market share.
- The quays alongside the northern breakwater could be developed into a marina.
- It is recommended that the new container terminal scheme is to be constructed asap.
- The efficiency of the general cargo commodities should be enhanced substantially perhaps by replacing equipment.
- Funds should be made available for further investments in new general cargo terminals.
- Hinterland connections also require substantial investments.

11.6 Prospects for Turkish ports

The Turkish ports of Haydarpasa, Derince, Samsun and Hopa are part of this study. The port of Haydarpasa is a special case as its closure has been decided. In this study we assume that its market potential will move to the port of Derince as new container facilities will be created at this location.

Further it is important to note that these ports only cover a small part of the total Turkish maritime transport market. Because of this highly competitive situation it is not possible to make port specific outlooks and instead region specific demand forecasts have been produced. For the ports itself this can be interpreted as the transport growth under stable market conditions; this means that the market share of the port in 2020 is similar to its share in 2005.

11.6.1 Freight demand potential Haydarpasa and Derince

The hinterland area of Derince and Haydarpasa consists of Western Turkey and part of Middle Turkey. The forecasted growth is based on trade developments to and from the administrative regions in these parts of Turkey.

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 1.70, bulk 1.85 and liquid bulk 1.28;
- Share of containerized goods in 2020 is 65% for general cargo, 24% for dry Bulk and 17% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.22, bulk 2.31 and liquid bulk 1.85;
- Share of containerized goods in 2020 is 73% for general cargo, 29% for dry Bulk and 19% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Table 11.6 *Forecast for Haydarpasa and Derince region*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 - tons	2.4 mio	3.4 mio	0.8 mio	0.06	6.8 mio
A 2020 tons	3.3 mio	6.7 mio	1.6 mio	0.08	11.7 mio
% per annum	2.1%	6.0%[1]	4.2%	1.7%	3.7%
B 2020	3.4 mio	9.9 mio	1.8 mio	0.1	15.3 mio
% per annum	2.2%	8.8%	5.3%	4.0%	5.5%
2005 TEU		340,000			
A 2020 TEU		841,000			
B 2020 TEU		1,241,000			

Observations:

- Overall growth in freight flows for the region is between the 3.7% and 5.5% a year. This results in a, for the Black Sea region, modest growth factor between 1.72 and 2.23 for total volumes.
- Highest growth occurs in containerized transport with annual growth rates between the 6.0% and 8.8% (growth factor of 2.41 and 3.55).

- Again the highly competitive situation needs to be emphasized with competing ports in the Mediterranean Sea, Sea of Marmara and Black Sea.
- No investments in Haydarpasa are required as the port will be developed into a marina in a few years time
- The port of Derince will soon be privatised, it is understood that the new operator is required to invest in a new container terminal
- Some parts of the terminal area require paving, in particular the car parking area
- Substantial investments in quay- and yard equipment are required

11.6.2 Freight demand potential Samsun

The hinterland area of Samsun consists of international freight flows from Northern Central Turkey and the international freight flows from Southern Central Turkey to the Black sea region. The forecasted growth is based on trade developments in the specified directions.
The future growth of the port of Samsun could possibly be much higher than forecasted, if the Turkish Straits would become a bottleneck and traffic flows would be redirected over land via Samsun using rail connections.

Key elements of scenario A are:
- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.01, bulk 1.76 and liquid bulk 1.69;
- Share of containerized goods in 2020 is 50% for general cargo, 15% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Key elements of scenario B are:
- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.63, bulk 2.21 and liquid bulk 2.43;
- Share of containerized goods in 2020 is 76% for general cargo, 28% for dry Bulk and 20% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Table 11.7 *Forecast for Samsun*

	Gen Cargo	Container	Bulk	Liq Bulk	Total
2005 - tons	0.82 mio	0 mio	2.2 mio	0.03 mio	3.1 mio
A 2020 tons	0.82 mio	1.4 mio	3.3 mio	0.05 mio	5.6 mio
% per annum	0.0%	n.a.	2.7%	3.2%	4.1%
B 2020	0.52 mio	3.0 mio	3.5 mio	0.07 mio	7.1 mio
% per annum	-3.0%	n.a.	3.1%	4.5%	5.8%

2005 TEU		0			
A 2020 TEU		177,000			
B 2020 TEU		378,000			

Observations Samsun:

- Overall growth in freight flows of interest for Samsun is between the 4.1% and 5.8% a year. This results in a growth factor between 1.83 and 2.32 for total volumes. The growth in Dry Bulk and Liquid bulk is 3 to 4% a year and the growth in general cargo strongly depends on developments in containerized transport;
- The potential growth in containerized transport for Samsun cannot be presented as % or growth factor as 2005 container flows are zero. If Samsun is capable of taking its current market share in containerized goods as well than the market potential for the port is between 175 and 370 thousand TEU;
- The existing Ro_RO service between Samsun and Novorossiysk and planned rail ferry between Samsun and Kavkaz can benefit from the high growth in the transport corridor between central Turkey and Russia. Growth projections are 2.9% a year in the direction Turkey – Russia and almost 12 % a year in the direction Russia-Turkey. Of course these ferry services face competition from normal shipping lines, especially as travel times are quite substantial for a ferry connection;
- The port of Samsun needs to compete with some other Black Sea port along the coast, like Trabzon, Giresun or Zonguldak. Furthermore, the port of Samsun needs to compete with larger Mediterranean ports for flows from Northern Turkey to non-Black Sea destinations.
- The port of Samsun will also soon be privatised, it is understood that a new rail ferry terminal with a bogey exchange station will be implemented soon
- In the next phase of the project the focus will turn to feasibility of RoRo ferry services in Samsun. The focus on market potential for railferry as mentioned in the ToR in result number 2 has been changed in coordination with Turkey and Brussels.

11.6.3 Freight demand potential Hopa

The hinterland area of Hopa consists of international freight flows from Northern East Turkey and the international freight flows from Southern East Turkey to the Black sea region. The forecasted growth is based on trade developments in the specified directions.

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 1.74, bulk 1.60 and liquid bulk 1.36;
- Share of containerized goods in 2020 is 50% for general cargo, 15% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.28, bulk 2.0 and liquid bulk 1.96;
- Share of containerized goods in 2020 is 76% for general cargo, 24% for dry Bulk and 20% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Table 11.8 *Forecast Hopa*

	Gen Cargo	Container	Bulk	Liq Bulk	Total
2005 – tons	0.029 mio	0 mio	0.27 mio	0.015 mio	0.310 mio
A 2020 tons	0.026 mio	0.090 mio	0.36 mio	0.019 mio	0.498 mio
% per annum	-0.9%	n.a.	2.1%	1.7%	3.2%
B 2020	0.016 mio	0.190 mio	0.40 mio	0.019 mio	0.629 mio
% per annum	-3.9%	n.a.	2.8%	1.5%	4.8%
2005 TEU		0			
A 2020 TEU		11,000			
B 2020 TEU		23,700			

Observations Hopa

- Overall growth in freight flows of interest for Samsun is between the 3.2% and 4.8% a year. This results in a growth factor between 1.6 and 2.0 for total volumes. The growth in Dry Bulk and Liquid bulk is 2 to 3% a year and the growth/decline in general cargo strongly depends on developments in containerized transport;
- The potential growth in containerized transport for Hopa cannot be presented as % or growth factor as 2005 container flows are zero. If Hopa is capable of taking its current market share in containerized goods as well than the market potential for the port is between 11 and 24 thousand TEU;
- The port of Hopa needs to compete with some other Black Sea port along the coast, like Rize and Trabzon. Furthermore the port of Samsun needs to compete with larger Mediterranean ports for flows from Northern East Turkey to non-Black Sea destinations.

- The port is a private port, priority investments are identified by the owner
- From the analysis it is considered that the efficiency of the port could be optimised.

11.7 Prospects for Georgian ports

The hinterland of the Georgian ports of Poti and Batumi is overlapping and both ports have the countries of Georgia, Armenia and Azerbaijan as their direct hinterland. A huge potential market or additional hinterland is located cross the Caspian Sea, although current flow volumes following this route are still modest. The ports of Poti and Batumi differ in their specialization and currently the port of Batumi is mainly a liquid bulk port.

For the interpretation of the forecasts for the Georgian ports it is important to note that maritime landscape is changing rapidly in Georgia. Besides Poti and Batumi additional port developments take place and for the futurebe realized that more options exist including Supsa sea port, Kulevi oil terminal and Kars. The forecast for Poti and Batumi indicate the growth potential in the region and the opening of alternative ports along the Georgian coastline is likely to influence the market shares of these ports (at least for the relevant type of appereance, e.g. liquid bulk).

11.7.1 Freight demand potential Poti

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.68, bulk 2.77 and liquid bulk 3.20;
- Share of containerized goods in 2020 is 50% for general cargo, 15% for dry Bulk and 4% for liquid bulk;
- Average weight of a TEU in 2020 is 9 ton, which is lower than the current figure of 10 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 3.92, bulk 3.88 and liquid bulk 3.97;
- Share of containerized goods in 2020 is 75% for general cargo, 31% for dry Bulk and 4% for liquid bulk;
- Average weight of a TEU in 2020 is 9 ton, which is lower than the current figure of 10 ton.

Table 11.9 *Forecast for Poti port in tons and TEU*

	Gen Cargo	Containers	Bulk	Liquid Bulk	Total
2005 - tons	1.6 mio	1.0 mio	2.5 mio	1.0 mio	6.1 mio
A 2020 tons	2.7 mio	4.7 mio	6.7 mio	3.1 mio	17.2 mio
% per annum	3,4%	11,2%[1]	6.9%	8.0%	7,1%
B 2020	2.2 mio	10.2 mio	7.7 mio	3.8 mio	23.9 mio
% per annum	2.0%	17.2%	7.8%	9.6%	9.5%
2005 TEU		106,000			
A 2020 TEU		518,000			
B 2020 TEU		1,141,000			

1) Growth rates for containerized transport are based on developments in TEU

Observations:

- Overall growth for the port of Poti is substantial with growth rates between the 7,1% and 9.5% a year;
- The current container volumes are small but an annual growth rate between 11% and 17% results in substantial market potential of volumes between the 500 thousand and 1.1 million TEU in 2020;
- Biggest opportunity for the Georgian ports is to enlarge their hinterland via the Caspian Sea route. The trade volumes on this corridor from Turkmenistan, Uzbekistan and especially Kazakhstan are already high but it is expected that freight flows from these countries will grow at a high rate. The forecasted trade volumes in 2020 for this potential hinterland are enormous at 11.4 mio tons GC, 68 mio tons SB and 206 mio tons LB. This is excluding non relevant relationships for the ports of Georgia like Kazakhstan – Russia.
- Poti handled in 2005 around 106,000 TEU and in 2007 185,000 TEU. The projected container throughput of the port for 2020 varies between 518,000 and 1.1 mio TEU. So it seems necessary to develop new container terminals at the new 400 ha area.
- It is understood that a new basin will be developed north of the existing one, this should be set up such that sufficient space is allocated for future expansion and that deep draught vessels are able to call at the quays
- Operation efficiency at the current berths could be optimised by replacing old equipment and relocating rail tracks away from the berth
- Substantial investments in new container-, general cargo-, dry bulk and liquid bulk facilities are required.

11.7.2 Freight demand potential Batumi

Key elements of scenario A are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 2.68, bulk 2.82 and liquid bulk 3.20;
- Share of containerized goods in 2020 is 50% for general cargo, 15% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Key elements of scenario B are:

- Growth factor (2020 volume/ 2005 volume) for general cargo is 3.92, bulk 3.94 and liquid bulk 3.97;
- Share of containerized goods in 2020 is 72% for general cargo, 24% for dry Bulk and 5% for liquid bulk;
- Average weight of a TEU in 2020 is 8 ton.

Table 11.10 *Forecast for Batumi port in tons and TEU*

	Gen Cargo	Container	Bulk	Liquid Bulk	Total
2005 - tons	0,8 mio	0 mio	0,6 mio	11,8 mio	13,2 mio
A 2020 tons	1,3 mio	2,7 mio	1,5 mio	32,5 mio	38,0 mio
% per annum	3,2%		6.4%	7.0%	7,3%
B 2020	1,6 mio	4,0 mio	2,0 mio	40,3 mio	47,9 mio
% per annum	4,6%		8,4%	9,0%	9.0%
2005 TEU		0			
A 2020 TEU		342,000			
B 2020 TEU		505,000			

*) General cargo includes ferry transport

**) Oil terminal is privatized, capacity plans are unknown. Forecast illustrate demand potential

Observations:

- The port of Batumi is currently the main liquid bulk port in Georgia and the demand volumes liquid bulk are forecasted to grow substantial from 10 million tons to 30 – 37 million tons. As noted capacity response, and therefore realization, is unknown as oil terminal is privatized and competing oil terminals arise along the Georgian coastline.
- Although the port Batumi does not have container transport in 2005 the forecast shows that there is a market potential from its existing hinterland between the 350 and 500 thousand TEU.
- Biggest opportunity for Batumi, like Poti, is to enlarge its hinterland via the Caspian Sea route. The trade volumes on this corridor from Turkmenistan, Uzbekistan and especially Kazakhstan are already high but it is expected that freight flows from these countries will grow at a high rate. The forecasted trade volumes in 2020 for this potential hinterland are enormous at 11.4 mio tons GC, 68 mio tons SB and 206 mio tons LB.
- The new investor in the container terminals in Batumi aims at a capacity of 300,000 TEU. This is the lower limit of the projected throughput in 2020, which varies between 342,000 and 500,000 TEU. It is questionable whether Batumi has the space to handle this volume.
- Measures could be taken to reduce the impact of the Tjagun in order to reduce the downtime of the port
- The general cargo- and dry bulk operations can be optimised by restructuring the yard area and replacement of outdated equipment

12 Miscellaneous

12.1 Potential bottleneck: The Turkish Straits

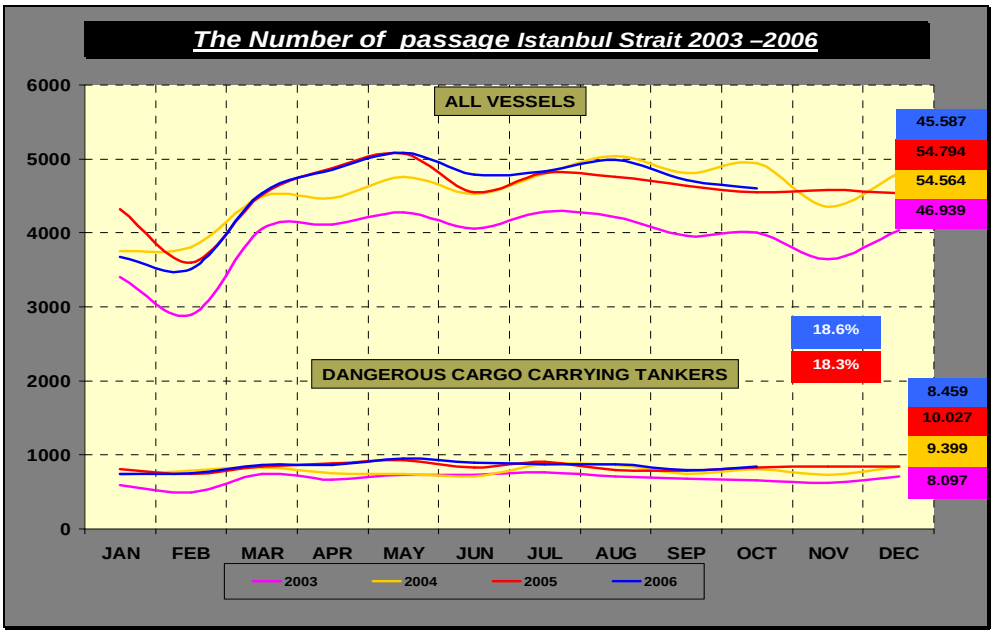
In the previous part the traffic forecasts were made assuming no bottlenecks related to maritime transport through the Turkish Straits (Istanbul Strait, navigational part Marmara Sea and Cannakale Strait). However, the consultants feel that this potential problem should at least be mentioned in this report because the consequences for the Black Sea ports could be huge.

The problem

When looking at prospects for Black Sea ports the Istanbul Strait issue should be mentioned. The issue comes down to the fact that the Turkish Straits are potential bottlenecks for vessels coming from or going to the Black Sea.

Since 1936 when Montreux Convention was signed, the number of ships transiting through Turkish Straits increased 10 times, while the daily number of people travelling between two sides of Istanbul Strait is over 2.5 millions. Furthermore, everyday more than 20 tankers carrying oil and hazardous pass through the Turkish Straits.

The following graph gives an impression of the number of vessels passing through the Turkish Straits.



The issue is that while the Straits, comprising the Canakkale Strait at the southern end and the Istanbul Strait at the northern, are completely surrounded by Turkish territory - with the Istanbul Strait actually running through the middle of the megalopolis that is present day Istanbul - they nonetheless link the landlocked states of the Black Sea with the Mediterranean and, for one of the world's major countries, Russia, constitute its main maritime link with the outside world.

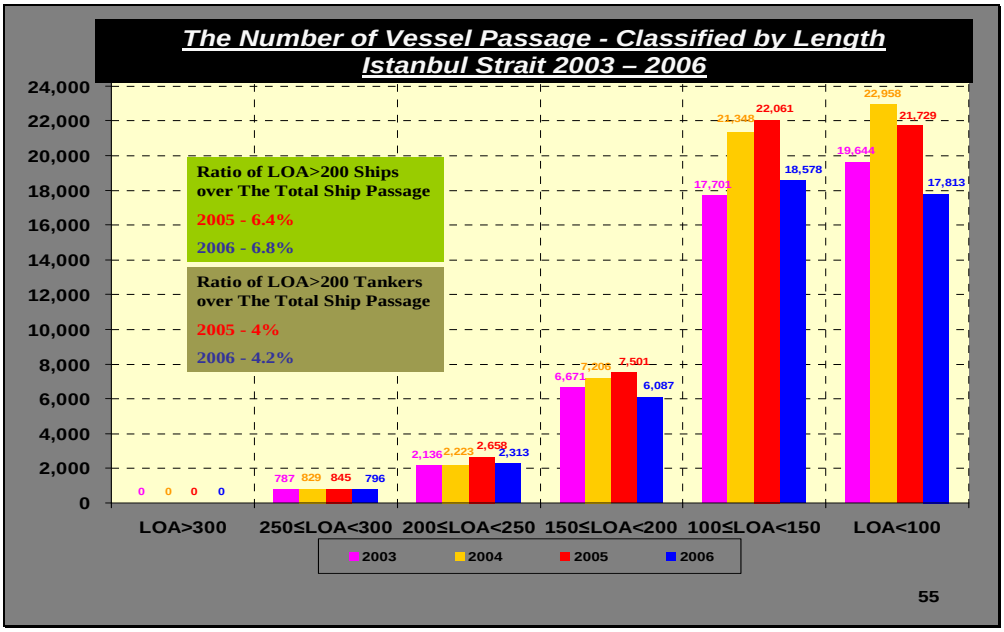
The Istanbul Strait is not easy to tackle for vessels. Tankers carrying dangerous cargo, may be more than 250 meters in length, have to navigate among narrow and sharp bends, one of which is located where the strait is less than 700 meters wide.
It should be mentioned that during the last years Turkey has introduced state-of-the-art vessel traffic service system that positively influence the efficiency of the Straits without compromising for safety, security and environmental protection, but despite these systems it remains a question whether the expected growth can be facilitated by the Straits.

The efficiency is also influenced by the type of vessels. Slower vessels reduce the capacity.

During the last 4 years waiting period for İstanbul Strait is 14-18 hour/single way passing in average.

Possible consequences for Black Sea ports
If due to increasing traffic the Straits become a bottleneck, this may have serious consequences for Black Sea ports. Especially for the ports that have the ambition to become large transit and transhipment ports in the region. Impacts could be:

- limited vessel size to be used for direct calls (now vessels up to 5,000 TEU call on Constanta, Odessa and Illichevsk, and these ports expect to receive 9,000 TEU vessels in the future)(see also the graph below)
- negative impact on competitive position of Black Sea ports compared to ports in North Western Europe
- possible central role for Turkey as a main transhipment area for the Black Sea



Solutions

Part of the solution lies in switching from maritime transport of oil and gas to pipelines, thereby reducing the number of vessels that have to pass the Straits. Therefore, the oil and natural gas from Central Asia and Azerbaijan should reach the sea via projected pipelines. As an example the Baku-Tbilisi-Ceyhan pipeline, that was completed recently, should be mentioned. This pipeline will be capable of carrying as much as 1-mil barrels a day of Caspian crude to markets, without reliance on tanker traffic through the Istanbul Strait.

Another solution Turkey is working on, is to establish land bridges for North-South cargo. The idea is to develop ports like Filyos and efficient rail way links between these Black Sea ports and the ports in the South of Turkey to accommodate cargo from Russia/Ukraine for the Middle East and further while reducing Istanbul Strait traffic. This solution might not seem economically sound at first sight but could be a necessary escape when the congestion in the Straits really affect the market.

Furthermore, the efficiency of the Istanbul Strait could be improved by using faster ships with better trained crews. Possibly such a solution could be developed via an international environment like BSEC.

12.2 Prospects for rail ferry services

In the previous chapters much attention has been given to rail ferry services, and especially the Russian gauge related services. The main reason behind this was to

get an insight in the current and future prospects for this type of service. The most important observations made were as follows:

History

- Apparently the concept of rail ferry connections was supported by the former USSR. Rail ferry connections gave major strategic military advantages because of the possibility to transport large volumes of tanks relatively fast. The use of rail ferries for the transportation of goods was facilitated by introducing favourable port dues for these vessels.
- Apparently another reason to develop rail ferry transport in the past was to create better possibilities to reach Bulgaria from Ukraine while surpassing Romania.
- For a similar reason there have been quite recently ferry services between the Russian port of Kavkas and the Georgian ports.In the eighties the maximum tonnage transported was almost 3.3 mio tonnes. The operational results of the ferry line and the traffic volumes dropped down due to:

  - Change of social-political system in Black Sea countries;
  - Collapse of the USSR;
  - New geopolitical and economic orientation;
  - Drastic production drop-down in our country;
  - Loss of some markets

Current situation

- Ukrainian ports like Illichevsk and Kerch have rail ferry facilities with Russain gauge, Varna is currently the only place in the Black Sea region which has a rail ferry terminal with possibility to change the rail car boogies from European to Russian standard and vice-versa, Derince has rail ferry facilities that can handle Russain gauge wagons, in Samsun rail ferry facilities focused on Russian gauge are currently build including a boogie exchange station, Poti and Batumi have rail ferry facilities with Russian gauge. Constantza has rail ferry facilities with European gauge; Haydarpasa has rail ferry facilitating Marmara Sea traffic.
- Facilities in Derince will have to be moved because of the reconstruction of the port and the building of a container terminal, the use of facilities in the Georgian ports depend on the plans of the companies that have recently acquired management concessions.
- The main services today include regular service between Ukraine and Georgia. (Poti/Batumi – Illichevsk, apparently only in 1 out of 5 loops between UA and GEO the port of Varna is included).
- The regular service to Ukraine and Georgia is provided by means of 4 ferry vessels with capacity 108 rail wagons or “ 16 metres long 90 trailers or 900

European standard passeneger cars" each. Liner Service: Varna - Illichevsk – Varna, and Varna - Illichevsk - Poti/Batumi - Illichevsk - Varna .

- Another service is between Illichevsk and Derince, used once per month. In 2006 they handled 16 rail ferry vessels from Constantza (European gauge) and 34 from Illichevsk
- The rail ferry terminal in Samsun has not been operational since 4 years, but construction of new facilities (Russian gauge) has started.

Future

- Apparently Bulgaria and Russia recently signed an agreement to stimulate rail ferry transport between Varna and Russian ports on the Black Sea (Kavkas).
- According to TCDD the rail ferry facilities that enable Derince to receive rail ferries carrying wagons with Russian gauge will be moved to another location within the port because of the construction of the new anticipated container terminal.
- In the future they foresee a new connection between Akport (Turkey European side) and Derince
- Besides Varna, also Samsun will be able to accommodate Russian gauge rail wagons. A Service Contract has been signed between TCDD and UPM for 5 years on 20.07.2007 for building a foundation which is composed of a ramp for railway ferries and a boogie exchange area to facilitate transport between Samsun and Kavkaz Port. After the completion of the foundation there will be the opportunity to transport the freight coming from North-Central Europe-the Balkans, Russia Federation and Commonwealth of Independent States by rail ferries to Mersin, İskendurun Ports by Samsun Port with railway and to Middle East by railway
- Due to the lack of space at Batumi rail ferry operations may be stopped. However, the rail-ferry landing berths are included in the container operator concession.

Advantages / disadvantages

- Because of more complex border control procedures the rail ferry concept has advantages in Eastern Europe as compared to the situation in the EU where crossing borders is easier.
- The rail ferry concept is by some considered only economically viable if the same gauge is applied at origin and destination, and only for specific types of cargo (bulk).
- An obvious disadvantage is that rail ferries are transporting heavy railwagons.
- When a rail ferry has more than one deck (like the four mentioned earlier), wagons have to be lifted from one deck to another, which increases loading and unloading time.

- Stakeholders in the port doubt whether the concept can continue to be used in an economically sound way in the Black Sea now port dues are also collected from these vessels. Furthermore, rail ferry facilities at ports are relatively large which may hinder the development of the ports.
- The use of rail wagons is less flexible compared to for instance containers. In the past there have been problems with wagons between Bulgaria, Ukraine and Georgia.
- Especially in the regions that use Russian gauge many facilities are in place for rail ferry transport. In these areas container handling facilities are lacking when the total door-to-door supply chain is considered. This is one of the reasons why containerisation is relatively low (varying from 10% to 20% as compared to levels of up to 80% for certain goods categories in for instance the US).
- Because of the lack of container handling facilities in the total supply chain, some stakeholders believe that rail ferry services can positively contribute to trade and transport within the region in the coming 10 years, since it is assumed that it will take this long to build up the necessary infrastructure for container transport in the region.

Overall evaluation

Although the economics of rail ferry transport, especially covering large distances across the Black Sea, might at first instance not look very promising, the fact that facilities are in place and vessels are avaible in combination with the fact that container handling facilities are lacking in the total door-to-door supply chain and containerisation is low, and given the advantages at border crossing points in eatsren Europe,, lead to the conclusion that rail ferries might positively contribute to trade and transport in the region at least for the coming 5 to 10 years.

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ANNEX 1 Port performance

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Overview

[t/y/m]	Benchmark	Best of Ports	Burgas	Varna	Constanta	Illichevsk	Odessa	Batumi	Poti	Derince	Hopa	Haydarpasa	Samsun
Containers	*9,000*	*7,440*	*1,576*	*1,970*	*6,931*	*7,440*	*5,456*	*N/A*	*4,597*	*N/A*	*N/A*	*3,928*	*N/A*
General Cargo	5,000	4,510	1,367	812	619	4,510	2,540	1,892	1,674	1,387	small	small	627
Dry Bulk	7,000	4,027	3,441	2,039	3,504	4,027	3,171	1,322	2,674	2,439	1,358	small	1,580
Liquid Bulk	12,000	15,215	9,734	4,711	5,106	5,162	13,278	15,215	7,115	small	small	N/A	small

[TEU/y/m]	Benchmark		Burgas	Varna	Constanta	Illichevsk	Odessa	Batumi	Poti	Derince	Hopa	Haydarpasa	Samsun
2005	900	TEU/y/m	247	140	423	585	352	N/A	300	N/A	N/A	360	N/A
2006	900	TEU/y/m		157	569	866	482	N/A	357	N/A	N/A	423	N/A
2007	900	TEU/y/m			774	1,373	638	N/A	521	N/A	N/A	420	N/A

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Ukraine

Port of Illichevsk Ukraine	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput [2007 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers		336		1.46	1.99	2.50	2.50	7,440					
General Cargo		1,164		8.54	6.46	5.25	5.25	4,510					
Ro-Ro and Rail Ferry (incl weight wagons)		700											
General Cargo & Containers		2,200		10.00	8.45	7.75	7.75	3,523					
General Cargo & Containers		2,200		10.00	8.45	7.75	7.75	3,523					
Dry Bulk		1,500		3.89	5.28	6.04	6.04	4,027					
Total Dry Cargo		3,700		13.89	13.72	13.79	13.79	3,727					
Total Dry Cargo		3,700		13.89	13.72	13.79	13.79	3,727					
Liquid Bulk		290		0.99	1.25	1.50	1.50	5,162	3.23				
Total Cargo	29	3,990		14.88	14.97	15.29	15.29	3,831			39%		

Port of Odessa Ukraine	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput [2007 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	3	820	2.26	2.85	3.69	4.47	4.47	5,456					
General Cargo	15	2,500	7.40	6.54	7.10	6.35	6.35	2,540					
Ro-Ro and Rail Ferry	none	none	0.00	0.00	0.00	0.00	0.00						
General Cargo & Containers	18	3,320	9.66	9.39	10.78	10.82	10.82	3,260					
General Cargo & Containers	18	3,320	9.66	9.39	10.78	10.82	10.82	3,260					
Dry Bulk	9	1,600	2.72	4.63	4.31	5.07	5.07	3,171					
Total Dry Cargo	27	4,920	12.38	14.02	15.10	15.90	15.90	3,231					
Total Dry Cargo	27	4,920	12.38	14.02	15.10	15.90	15.90	3,231					
Liquid Bulk	7	1,165	18.17	12.82	12.91	15.47	15.47	13,278	25.5				
Total Cargo	34	6,085	30.55	26.85	28.01	31.37	31.37	5,155					

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Romania

Port of Constanza Romania	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput [2007 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	8	1,824	3.92	7.44	9.82	12.64	12.64	6,931					
General Cargo	58	10,008	6.08	6.61	4.87	6.20	6.20	619					
Ro-Ro and Rail Ferry	2	437	0.06	0.23	0.14	0.20	0.20	458					
General Cargo & Containers	68	12,269	10.07	14.28	14.83	19.04	19.04	1,552					
General Cargo & Containers	68	12,269	10.07	14.28	14.83	19.04	19.04	1,552					
Dry Bulk	31	7,060	28.12	31.02	27.62	24.74	24.74	3,504					
Total Dry Cargo	99	19,329	38.19	45.30	42.45	43.77	43.77	2,265					
Total Dry Cargo	99	19,329	38.19	45.30	42.45	43.77	43.77	2,265					
Liquid Bulk	14	2,744	12.73	15.33	14.68	14.01	14.01	5,106					
Total Cargo	113	22,073	50.91	60.63	57.13	57.78	57.78	2,618	120	4,952			12,244

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Bulgaria

Port of Varna Bulgaria	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	5	599	0.98	1.04	1.18	1.18	1,970					
General Cargo	3	798	0.60	0.60	0.65	0.65	812					
Rail Ferry	not included	not included	0.41	0.46	0.38	0.38		3	104		451	3,608
General Cargo & Containers	8	1,397	2.00	2.10	2.20	2.20	1,577					
General Cargo & Containers	8	1,397	2.00	2.10	2.20	2.20	1,577					
Dry Bulk	23	3,301	6.97	7.37	6.73	6.73	2,039					
Total Dry Cargo	31	4,698	8.97	9.47	8.93	8.93	1,902					
Total Dry Cargo	31	4,698	8.97	9.47	8.93	8.93	1,902					
Liquid Bulk	1	200	0.53	0.79	0.94	0.94	4,711					
Total Cargo	32	4,898	9.49	10.26	9.88	9.88	2,016		1,360			7,261

Port of Bourgas Bulgaria	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers		200	0.30	0.32		0.32	1,576					
General Cargo		1,882	2.71	2.57		2.57	1,367					
Ro-Ro		220	0.07	0.06		0.06	282					
General Cargo & Containers	6	2,082	3.08	2.95		2.95	1,417					
General Cargo & Containers	6	2,082	3.08	2.95		2.95	1,417					
Dry Bulk	4	1,332	4.86	4.58		4.58	3,441					
Total Dry Cargo	10	3,414	7.94	7.53		7.53	2,206					
Total Dry Cargo	10	3,414	7.94	7.53		7.53	2,206					
Liquid Bulk		930	8.04	9.05		9.05	9,734					
Total Cargo		4,344	15.98	16.59		16.59	3,818		1,200	68,627	427	13,821

Turkey

Port of Haydarpasa Turkey	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	5	945	3.13	3.47	3.71	3.71	3,927.52	6	912			4,070
General Cargo	4	580	0.05	0.06	0.03	0.03	47.47	2	62			444
Ro-Ro and Rail Ferry	2	361	3.27	1.09	0.04	0.04	114.56	2	24			1,723
General Cargo & Containers	11	1,886	6.45	4.61	3.78	3.78	2,004.45	10	998			3,788
General Cargo & Containers	11	1,886	6.45	4.61	3.78	3.78	2,004.45		998			3,788
Dry Bulk	2	430	0.01	0.00	0.01	0.01	12.09		1			5,200
Total Dry Cargo	13	2,316	6.46	4.61	3.79	3.79	1,634.54		999			3,789
Total Dry Cargo	13	2,316	6.46	4.61	3.79	3.79	1,634.54		999			3,789
Liquid Bulk	-	-	0.00	0.00	0.00	0.00	0.00		0			-
Total Cargo	13	2,316	6.46	4.61	3.79	3.79	1,634.54		999			3,789

Port of Derince Turkey	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers			0.01	0.01	0.00	0.00			9			492
General Cargo	2	458	0.50	0.56	0.64	0.64	1,387		380			1,672
Ro-Ro and Rail Ferry		400	0.59	0.74	0.74	0.74			357			2,078
General Cargo & Containers	5	858	1.10	1.31	1.38	1.38	1,610		880			1,570
General Cargo & Containers	5	858	1.10	1.31	1.38	1.38	1,610		880			1,570
Dry Bulk	4	440	0.80	0.85	1.07	1.07	2,439		66			16,259
Total Dry Cargo	9	1,298	1.90	2.16	2.45	2.45	1,891		946			2,595
Total Dry Cargo	9	1,298	1.90	2.16	2.45	2.45	1,891		946			2,595
Liquid Bulk		other loc.	0.07	0.06	0.09	0.09			26			3,463
Total Cargo		1,298	1.97	2.22	2.54	2.54			972			2,618

Port of Samsun Turkey	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers			0.00	0.00	0.00	0.00						
General Cargo	3	380	0.20	0.17	0.24	0.24	627					
Ro-Ro and Rail Ferry			0.56	0.65	0.64	0.64						
General Cargo & Containers			0.76	0.82	0.88	0.88						
General Cargo & Containers			0.76	0.82	0.88	0.88						
Dry Bulk	4	726	2.32	2.21	1.15	1.15	1,580					
Total Dry Cargo			3.07	3.03	2.03	2.03			751			2,700
Total Dry Cargo			3.07	3.03	2.03	2.03			751			2,700
Liquid Bulk			0.04	0.03	0.02	0.02			5			3,646
Total Cargo			3.11	3.07	2.05	2.05			756			

Port of Hopa Turkey	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [million tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers								3.2				
General Cargo	6	983	0.02	0.03	0.01	0.01	12	0.6	12			959
Ro-Ro and Rail Ferry	1	38			0.01	0.01	331					
General Cargo & Containers	7	1,021	0.02	0.03	0.02	0.02	24	3.8	12			
General Cargo & Containers	7	1,021	0.02	0.03	0.02	0.02	24	3.8	12			2,009
Dry Bulk	1	215	0.28	0.27	0.29	0.29	1,358	1.2	71			4,112
Total Dry Cargo	8	1,236	0.30	0.30	0.30	0.30	246	5	83	1,445		3,656
Total Dry Cargo	8	1,236	0.30	0.30	0.30	0.30	246	5	83	1,445		3,656
Liquid Bulk			0.01	0.02	0.02	0.02		0.9	9	65		2,642
Total Cargo			0.31	0.31	0.33	0.33		5.9	92	1,510		3,557

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Georgia

Port of Poti Georgia	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput [2007 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	2	355	0.88	1.04	1.15	1.63	1.63	4,597					
General Cargo	3	484	1.18	0.94	0.71	0.81	0.81	1,674					
Ro-Ro and Rail Ferry	2	280	0.43	0.72	0.75	0.85	0.85	3,036					
General Cargo & Containers	7	1,119	2.49	2.70	2.60	3.29	3.29	2,942					
General Cargo & Containers	7	1,119	2.49	2.70	2.60	3.29	3.29	2,942					
Dry Bulk	4	1,129	2.45	2.47	2.92	3.02	3.02	2,674					
Total Dry Cargo	8	1,664	4.94	5.17	5.52	6.31	6.31	3,793					
Total Dry Cargo	8	1,664	4.94	5.17	5.52	6.31	6.31	3,793					
Liquid Bulk	2	200	1.19	0.96	1.17	1.42	1.42	7,115					
Total Cargo	10	1,864	6.12	6.13	6.69	7.73	7.73	4,149					

Port of Batumi Georgia	Berths [no.]	Berth Length [m]	Throughput [2004 mt]	Throughput [2005 mt]	Throughput [2006 mt]	Throughput* [million tons]	Throughput* [tons/m]	Capacity [tons]	Vessel Calls [no.]	Occupancy [hours/year]	Avg Unloading [tons/h]	Parcel Size [tons/call]
Containers	2	under constr.										
General Cargo		195	0.43	0.40	0.37	0.37	1,892					
Ro-Ro and Rail Ferry		187	0.66	0.41	0.35	0.35	1,877					
General Cargo & Containers		382	1.10	0.81	0.72	0.72	1,885					
General Cargo & Containers		382	1.096	0.807	0.72	0.72	1,885					
Dry Bulk		454	0.224	0.309	0.6	0.60	1,322					
Total Dry Cargo	4	836	1.32	1.116	1.32	1.32	1,579					
Total Dry Cargo	4	836	1.32	1.12	1.32	1.32	1,579					
Liquid Bulk	4	780	6.86	9.89	11.87	11.87	15,215					
Total Cargo	8	1,616	8.18	11.00	13.19	13.19	8,161		771			17,105

ANNEX 2 Port Dues

Hypothetical Vessel

Vessel Capacity: 1,100 TEU
Vessel Size: 155m LOA, draught 8.4m, breath 25m, depth: 12m; 13,500 GT;
Throughput: 500 TEU (250 on, 250 off)
FEU:TEU = 1:4 = 50 FEU : 200 TEU
Yard Storage: 7 days (including free time)
Berthing Time: 1 day
International Journey
No Anchoring

Derived from Maersk Series A

Hypothetical Vessel Call Ukraine

Illiychevsk

Tariff	Unit	Level	Discount	Total Due
Tonnage Dues	M3*	$ 0.095	20% (1)	$ 2,474
Canal dues	M3*	$ 0.020	x2	$ 1,302
Lighthouse Dues	M3*	$ 0,029		$ 944
Berth Dues	M3*	$ 0.022		$ 716
Anchorage Dues	M3*	$ 0.0027	100% (2)	$ 0
Administration Dues**	M3*	$ 0.014		$ 455
Sanitary Dues	M3*	$ 0.014	50% (3)	$ 228
Pilotage Charges***	M3*	$ 0.0036	20% (4) x2	$ 187
		$ 0.0088	20% (4) x2	$ 458
Mooring Charges	M3-class*	$ 108	x2	$ 216
Tugboat for Mooring	M3*	$ 0.043	25% (5) x2	$ 2,100
VTMS Charges	M3*	$ 0.0094	x2	$ 612
Total Tariff				**$ 9,692**

Odessa

Tariff	Unit	Level	Discount	Total Due
Tonnage Dues	M3*	**$ 0.094**	20% (1)	$ 2,447
Canal dues	M3*	**$ 0.011**	x2	$ 716
Lighthouse Dues	M3*	$ 0,029		$ 944
Berth Dues	M3*	$ 0.022		$ 716
Anchorage Dues	M3*	$ 0.0027	100% (2)	$ 0
Administration Dues**	M3*	$ 0.014		$ 455
Sanitary Dues	M3*	$ 0.014	50% (3)	$ 228
Pilotage Charges***	M3*	**$ 0.0025**	20% (4) x2	$ 130
		$ 0.0058	20% (4) x2	$ 302
Mooring Charges	M3-class*	$ 108	x2	$ 216
Tugboat for Mooring	M3*	**$ 0.052**	25% (5) x2	$ 2,,539
VTMS Charges	M3*	$ 0.0094	x2	$ 612
Total Tariff				**$ 9,305**

NB. The tariff for a vessel with 46500 m3 without taking into account the reduction factor = USD 11750,50

(1). For cargo vessels of group A, sailing on foreign-going lines, opened according to the established routine, tonnage dues shall be collected with a 20% discount.

(2). Hypothetical Vessel call does not require anchorage

(3). A discount of 50% is granted to ships fitted with environment protecting equipment for complete utilization of all kinds of ship's wastes and having international certificate for the prevention of pollution of the sea by oil and waste water and certificate for the prevention of pollution of the sea by garbage (ecologically clean).

(4). A discount of 20% on pilotage dues collected for out-of-harbour and in-harbour pilotage is granted to group A ships going on international voyages and to group B ships.

(5). A discount of 25% is allowed for ships that use thrusters for mooring operations.

*M3 after reduction: M3r = 0.7 x 46,500 = 32,550 M3r

** Under future amendment, the Administration Dues will increase with 172.8% to $ 0.038 per M3. This entails an increase from $ 470 to $ 1,277

*** Pilotage separate tariff for in-port and outside-port pilotage

Hypothetical Vessel Call Romania

Constantza

Item	unit	price/unit	price
Port Access	GT	€ 0.155	€ 2,092
Quay	LOA	€ 8.472	€ 1,313
Basin	LOA	€ 0.309	€ 48
Supervision	GT	€ 0.080	€ 1,080
Mooring/Unmooring	LOA-class	€ 160	€ 160
Pilotage	GT	€ 153 + (GT x € 0.049)	€ 815
Towage	LOA-class	€ 1,260	€ 1,260
Total Estimate			**€ 6,768**

Hypothetical Vessel Call Bulgaria

Varna (Varna-West)

Tariff	Article	Unit	Level	Discount	Article	Total Due
Channel Dues	2	GT*	€ 0.10	20%	2.2	€ 972
Light dues	3	GT-class*	€ 150	30%	3.4	€ 105
Tonnage dues	4	GT*	€ 0.40	40%	4.5	€ 2,916
Quay Dues	5	LOA	€ 0.10			€ 372
Waste dues**	8	GT*	n/a	n/a	n/a	n/a
Total Tariff						**€ 4,365**

Bourgas (Terminal West)

Tariff	Article	Unit	Level	Discount	Article	Total Due
Channel Dues	2	GT*	€ 0.05	20%	2.2	€ 486
Light dues	3	GT-class*	€ 150	30%	3.4	€ 105
Tonnage dues	4	GT*	€ 0.55	40%	4.5	€ 4,010
Quay Dues	5	LOA	€ 0.10			€ 372
Waste dues**	8	GT*	n/a	n/a	n/a	n/a
Total Tariff						**€ 4,973**

*GT after reduction: GTr = 0.9 x 13,500 = 12,150 GTr
** Waste dues are not taken into account

Hypothetical Vessel Call Turkey

Hopa, Samsun, Hayder Pasha, Derince

		Hopa	Samsun	Hayder Pasha	Derince
Pilotage (gen)	GT	n/a (1)	$ 785	n/a (2)	n/a (2)
Pilotage (Straits)	GT	n/a (2)	n/a (2)	$ 900	$ 900
Tug Service	GT	n/a (1)	n/a (1)	$ 717	$ 780
Anchorage	GT	n/a (3)	n/a (3)	n/a (3)	n/a (3)
(Un)mooring	GT	n/a (1)	n/a (1)	$ 195	$ 210
Waste	GT	n/a (3)	n/a (3)	n/a (3)	n/a (3)
Chamber of Shipping	GRT-class	260 YTL $ 214 (4)	260 YTL $ 214 (4)	260 YTL $ 214 (4)	260 YTL $ 214 (4)
Lighthouse and Rescue	NT	$ 2,250 (5)	$ 2,250 (5)	$ 950 (5)	$ 950 (5)
Health Charges	NT	$ 302	$ 302	$ 302	$ 302
Total Estimate (7)		n/a (6)	$ 3,551	$ 3,278	$ 3,356

(1) not available
(2) not applicable
(3) not taken into account
(4) exchange rate: 1 YTL = US$ 0.824 (per 22/01/2008)
(5) to avoid taking into account the costs Lighthouse & Rescue Charges for all the other non-Turkish Black Sea ports, only the additional charges are taking into account (calculated rate per NT minus the rate per NT (assumed 5,000) that applies to vessels not visiting Turkish ports ($ 0.25))
(6) too few items to obtain insight
(7) limited comparability

Hypothetical Vessel Call Georgia

Batumi

Tariff	Unit	Level	Discount	Total Due
Tonnage Dues	m3	$ 0.252	41.2%	$ 6,890
Canal dues (1)	m3	n/a		n/a
Berthing Dues	m3	$ 0,02		$ 930
Anchorage Dues (2)	m3	n/a		n/a
Sanitary Dues	m3	$ 0.02		$ 930
(Un)Mooring	m3-class	$ 230 x2		$ 460
Towage Dues	m3	$ 0.075	20%	$ 2,790
Watchmen Dues (3)	m3	$ 0.03		$ 1,395
Lighthouse Dues	m3	$ 0.02		$ 930
Pilotage Dues	m3	$ 0.013	20%	$ 484
Total Tariff				**$ 14,809**

Poti

Tariff	Unit	Level	Discount	Total Due
Tonnage Dues	m3	$ 0.252	41.2%	$ 6,890
Canal dues	m3	$ 0.12		$ 5,580
Berthing Dues	m3	$ 0,02		$ 930
Anchorage Dues	m3	n/a		n/a
Sanitary Dues	m3	$ 0.15		$ 698
(Un)Mooring	m3-class	$ 144 x2		$ 288
Towage Dues	m3	$ 0.055	20%	$ 4092
Watchmen Dues (3)	m3	$ 0.017		$ 791
Lighthouse Dues	m3	$ 0.02		$ 930
Pilotage Dues	m3	$ 0.026	20%	$ 967
Total Tariff				**$ 21,166**

(1) in Batumi, no canal dues are levies as there is no entrance channel that requires dredging
(2) no anchorage dues are levied in Batumi
(3) watchmen dues are ISPS related dues that involve safety and security of cargo and vessel

Comparative Analysis

Comparing Port Tariffs is a difficult task, especially in the Black Sea region where

- ports are active in a wide arrange of institutional settings
    - service ports
    - tool ports
    - landlord ports
    - private ports
- the institutional landscape is changing rapidly
- the quality of port infrastructure comes in a wide variety
- port size is often incomparable

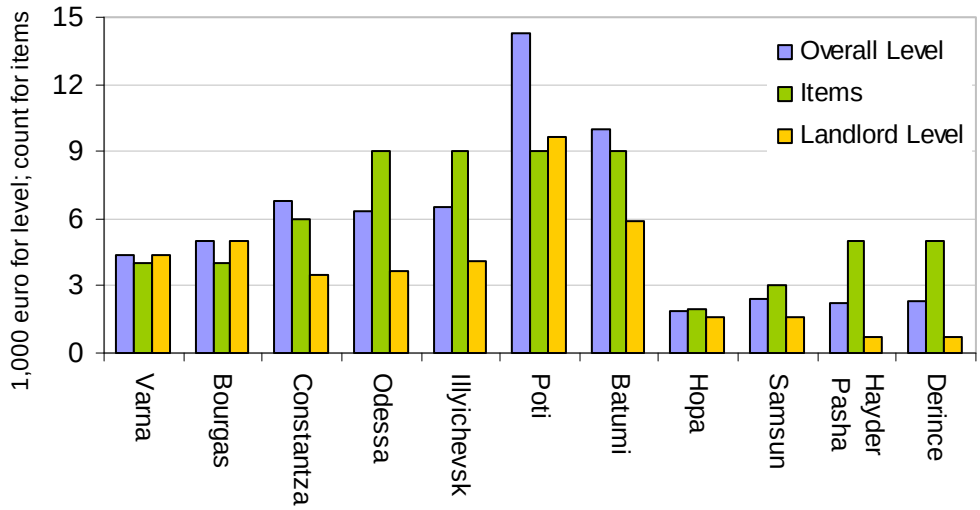
To facilitate in making comparisons and generating a view on the level and the structure of the Port Tariffs in the various ports, the identified tariffs are structured and visualized in a single table. The currency is set at Euros with the exchange rate of the end of January 2008 ($1.48 for €1.00).

due / tariff (€)	Varna	Bourgas	Constantza	Odessa	Illyichevsk	Poti	Batumi	Hopa	Samsun	Hayder Pasha	Derince
Channel / Access / Basin	972	486	2,140	482	877	3,757	-				
Lighthouse & VTMS	105	105		1,048	1,048	626	626	1,552	1,552	655	655
Tonnage	2,916	4,010		1,647	1,666	4,639	4,639				
Berth / Quay	372	372	1,313	482	482	626	626				
Sanitary / Waste				154	154	470	626				
Mooring / Unmooring			160	145	145	194	310			131	141
Towage / Tug Service			1,260	1,709	1,414	2,755	1,878			483	525
Pilotage			815	291	434	651	326		529	606	606
Supervision / Watchmen			1,080			533	939				
Administration				306	306			367	367	367	367
Total Estimate	**4,365**	**4,973**	**6,768**	**6,265**	**6,525**	**14,250**	**9,970**	**1,919**	**2,448**	**2,242**	**2,294**

The level of the relevant items is now displayed more insightful; however, the only observations that can be made from this list are:

- the level of port dues levied in the various countries varies significantly
- the structure of the port dues levied also varies significantly amongst the counties involved
- ports within the same country generally have a similar structure and level
- the quantity of services provided by the various port authorities highly varies

Another method to facilitate a comparison amongst the various ports is by looking at the number of items levied and the level of the total dues. One would expect that the higher the number of items (services) incurred, the higher the total tariff. The level when only taking into account the available items that relate to pure landlord activities are also taken into account in this histogram.



From this histogram, one can make the following observations:

- Georgian Ports levy the highest overall dues, but offer a high number of services.
- Turkish ports show a great diversity when comparing their total due level and the number of services provided.

A reservation to these observations is that it can be unclear which actual activities are funded through various dues such as Tonnage Dues. If a port has not separated its items in its pricing scheme, it is hard to obtain insight what service is actually paid for.

Regarding the public availability of the dues a qualitative interpretation is made, based on:

- the availability of the dues on the internet
- the ease of locating the dues on the internet
- the language in which the dues are presented (English)

Regarding the transparency a qualitative estimation of the ease of interpreting the various port dues is made

	Availability	Location	Language	Transparency	Overall
Bulgaria					
Georgia					
Romania					
Turkey					
Urkaine					

Based on this qualitative assessment it is observed that:

- with regard to availability and transparency, Romania scores the highest marks
- compared to the other countries in the review, Georgia and Turkey have a lacking availability and transparency with regards to their Port Dues

Observations

From this generic and concise Port Dues analysis, several observations were made with regards to the Port Dues in the five countries involved. The main observations are that

- the level of port dues levied in the five countries varies significantly
- the structure of the port dues levied also varies significantly amongst the counties involved
- ports within the same country have a similar structure and level
- the number of services provided by the various port authorities varies significantly and is sometimes hard to identify from the various cost items

- Georgian Ports levy the highest overall dues, but offer a high number of services.
- Turkish ports show a great diversity when comparing their total due level and the number of services provided.

- with regard to availability and transparency, Romania scores the highest marks
- compared to the other countries in the review, Georgia and Turkey have a lacking availability and transparency with regards to their Port Dues

This Project is funded
by the European Union

ANNEX 3 Forecasting methodology

Introduction

Maritime transport in the Black Sea area provides an important set of transport links that can potentially be efficient and environmentally sustainable, contributing to the development of trade links and economic development in the region.

In order to develop these maritime linkages it is necessary to understand the evolution of the cargo flows that will underpin the development of the infrastructure, as well as the market mechanisms and cost structures that will influence the organisation of the supply side.

The methodology will therefore depend upon a formal analysis of cargo volumes, using conventional transport modelling techniques as well as thorough market research, and the integration of local transport data.

Demand Analysis

Although ports in the Black Sea are handling domestic (coastal) cargo, this is primarily an international transport network, so it is necessary to base the demand analysis upon a trade model. The study team has collected trade data from the countries in the region, and for important sources of transit cargo in order to quantify the size of the market. A trade model, based on the EU's TRANSTOOLS system is being extended within the WORLDNET project, and this forms the basis of the trade projections. Trade data allows different commodity sectors to be quantified, so it is possible to match cargo flows to infrastructure categories, by classifying them according to modes of appearance.

The national flows then need to be broken down into origin and destination regions, using regional economic data collected from the participating countries. In this way it is possible to project an O/D cargo matrix.

Supply Analysis

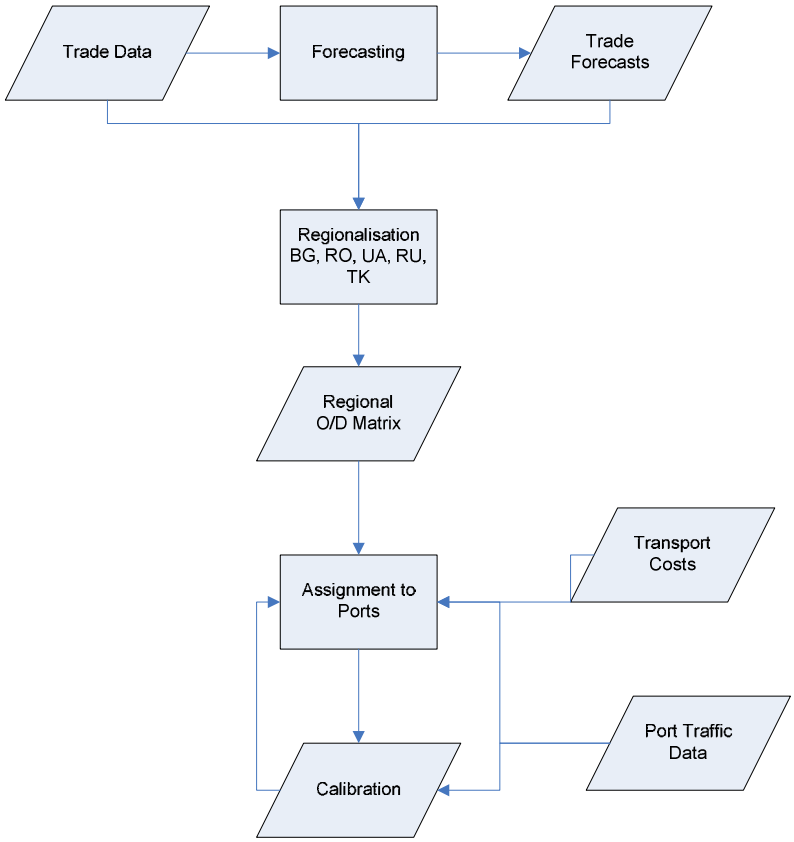
The study also required a thorough analysis of the freight services and freight transport costs that constitute the regional network. The team has collected information from the Black Sea countries, and used to inform the analysis.

Methodology Overview

A top down procedure has been developed, starting from a model of global trade. It uses estimates of trade flows measured in financial terms to produce forecasts at a country level. These are combined with data concerning tonnages to produce detailed country to country flows for each product sector.

The flows are then regionalised, in particular for the larger countries in the study area. In this way it is possible to measure the volumes of freight attracted to specific Turkish or specific Russian regions, and therefore to understand which flows affect ports in the Black Sea and which are likely to use other corridors.

The regional freight flows are then classified according to the ports in the study area. If a flow is likely to use a specific port, it is "assigned" to the market area for that port. Growth rates by port and by cargo sector can therefore be developed in this way, and compared with actual port data as a means of validation.



Trade Model Methodology

The country-to-country trade forecasts are based on an agent-based simulation model that forecasts total trade in dollars between country pairs, and a trend model that determines the flow in tonnes, disaggregated into several commodity groups. The methodology behind both models will now be described.

Global trade model

Global trade flows in dollars are difficult to forecast. There are many macro-economic models that attempt to predict the state of the economy in future years, but they are often very data intensive and focus more on the equilibrium state rather than the economy's path towards this equilibrium. The trade model developed by NEA attempts to be more practical and dynamic, requiring only historical trade data and variables such as GDP and population to obtain reasonable forecasts for countries' total imports and exports.

Input data (historical value of trade between country pairs) is gathered from the EU Comext and the UN Comtrade trade databases. There can be multiple sources for a specific trade flow (reported as imports and/or exports, from two different databases). If that is the case, these time series are consolidated into one, using a smoothing algorithm. The algorithm removes outliers, fills in gaps, and limits annual growth, so that one definite time series is obtained. When that is done for all different country pairs, the base origin-destination matrices can be constructed. Presently, the last "known" year is 2006, with trade data going back to 1995.

The global trade model is an agent-based simulation model. This means that countries are modelled as autonomous individuals, existing as separate entities within the system. They each have their own variables and behaviour. The model simulates one year at a time, starting at the base year (2006) with the capability of continuing indefinitely.

The import and export forecasts are initially produced on a national level (without interaction between countries), taking into account the size of the economy and historical trends in the country's trade. Additionally, trade growth is subject to various constraints such as a limited trade deficit. After the new import and export levels are determined for each country in the system, the agents interact with each other to restore balance (else exports might grow faster than imports, or the other way around).

The model places more emphasis on historical quantitative data analysis as opposed to qualitative analysis. Although qualitative information about countries' economies can be taken into account (for example, by using predetermined import and/or export growth rates) this is generally not done. The effect this would have on the model as a whole is usually quite insignificant, especially in the long run.

Trend model

The output of the global trade model is used to constrain the disaggregated trade flows in tonnes between country pairs. The commodity grouping used is the three-digit NST/R coding. Trade flows are already grouped accordingly in the EU Comext and UN Comtrade trade databases. Similar to the total trade flows that are used as input for the global trade model, the disaggregated trade flows (in both tonnes and values) are taken from the databases, and the smoothing algorithm is applied to the resulting time series where needed.

Initial tonne forecasts are made by simply extending the series into the future, letting the short-term trend converge to the long-term trend. A monetary value is attached to these figures by using historical value-

per-tonne rates. Then, the values for each commodity group are added up and compared to the output of the global trade model. Finally, the tonne forecasts are adjusted up or down based on the discrepancy between the two values.

Example

The process is best illustrated with an example. Consider Ukrainian merchandise exports to Romania. In 2006, this trade flow is valued at $673 million (note: all figures are in current USD). It is only a fraction of Ukraine's total exports (valued at $32.1 billion) and Romania's total imports (valued at $47.8 billion). These figures are displayed in the table below, along with forecasts for 2010 and 2020, as determined by the global trade model.

Table 1 Trade from Ukraine to Romania in billions of dollars

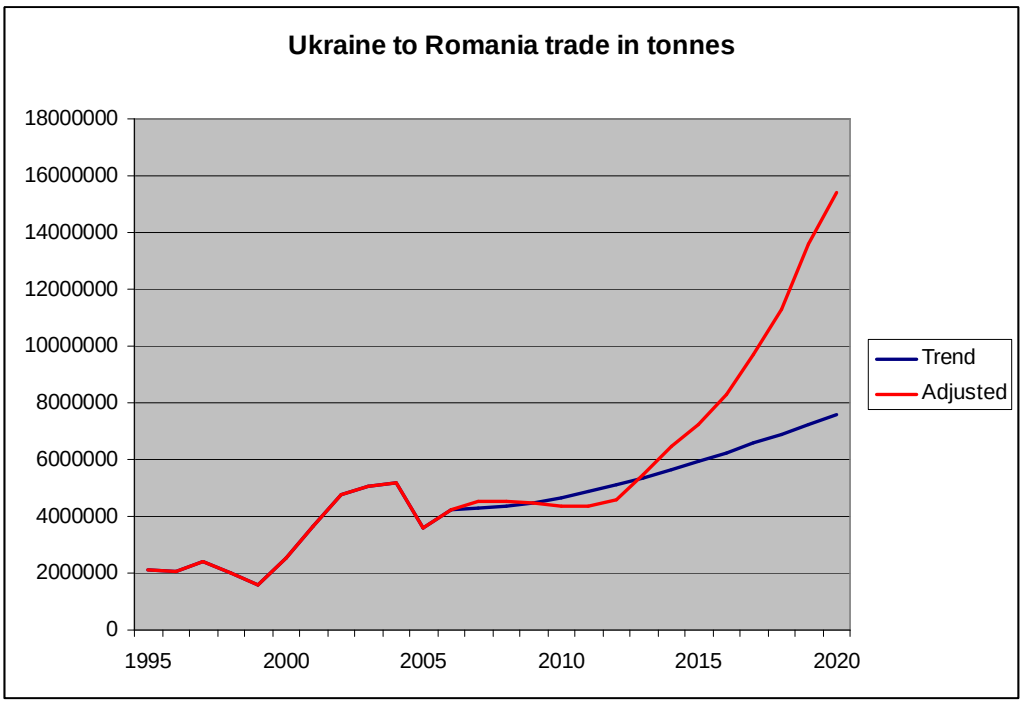
Trade flow	2006	2010	Annual growth	2020	Annual growth
UKR to ROM	$0.67 bn	$0.76 bn	3.2%	$3.50 bn	16.5%
UKR exports	$39.78 bn	$59.86 bn	10.8%	$215.76 bn	13.7%
ROM imports	$48.67 bn	$53.66 bn	2.5%	$162.19 bn	11.7%

For both countries, growth rates remain high. From 2010 and on, trade from Ukraine to Romania grows faster than the countries' own exports/imports, indicating that they are becoming an increasingly important trading partner to each other in that period. This is logical if their other important trading partners do not experience such strong growth.

It is surprising that short-term Romanian import growth is quite low. This is because Romania is presently running a high trade deficit, and the constraints placed on the country in the global trade model stop imports from growing as quickly as before, until the trade gap is closed. In reality, Romania might sustain this deficit for many more years, but it is unsure if and to what extent that would affect the Romanian economy. Regardless of what happens in the short term, Romanian imports do catch up eventually with the expected trend, as is evident from the 2020 figure.

Next, the commodity trend model is run to determine the trade flows in tonnes. These forecasts are then converted into dollar values, aggregated over all commodity groups, and compared to the global trade model output. In figure 1, the original forecast is graphed (based on the trend), as well as the adjusted forecast that agrees with the value forecast.

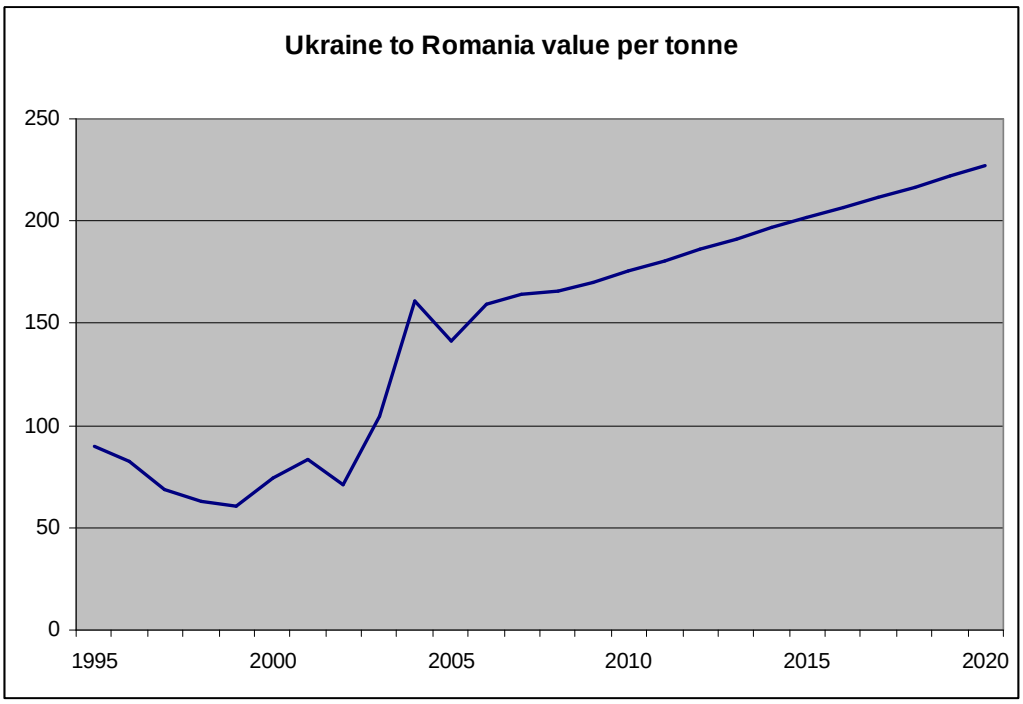
Figure 1 Trade in tonnes from Ukraine to Romania



As can be seen in the figure, trade in tonnes is expected to grow much faster than the trend line indicates. In 2020, the forecast is more than doubled.

One could argue that the high growth in value does not necessarily have to affect the growth in tonnes. Goods traded in the future could simply be more valuable. While this is indeed true, as seen in the figure below, trade in tonnes still has to sustain high growth rates for the global trade forecast to come true.

Figure 2 Average value-per-tonne in trade from Ukraine to Romania



This process is repeated for all commodity groups and all country pairs, resulting in a large database containing value and tonne forecasts for all possible combinations. Records in this database can then be aggregated to obtain, for example, a country's total imports and exports in tonnes in 2020.

Methodology for Regionalising OD Data

To refine the market analysis it is necessary to make estimates of the regional decomposition of the freight flows. This helps to allocate the cargo flows to specific coastlines and ports therein, as well as to resolve partially issues of mode choice. For example, in Turkey it is necessary to remove Aegean and Mediterranean port traffics form the Black Sea analysis, and in Bulgaria it is necessary to monitor how traffic flows from the West of the country (around Sofia) develop along the North-South axis towards Thessaloniki, bypassing the Black Sea.

To achieve this, the ETIS-Base (DG-TREN, 2005) technique was adopted. The system is now being further developed within the WORLDNET (DG-TREN, 2007-2009) project, so it made sense to base the Black Sea analysis on the same definitions.

The WORLDNET analysis is based on regional transport statistics obtained from Eurostat, but to date, there are only tables available for the EU25, so all of the Black Sea countries are excluded.

Therefore it was necessary to collect equivalent data from the individual countries, specifically:

- Bulgaria
- Romania
- Ukraine
- Russia, and Turkey

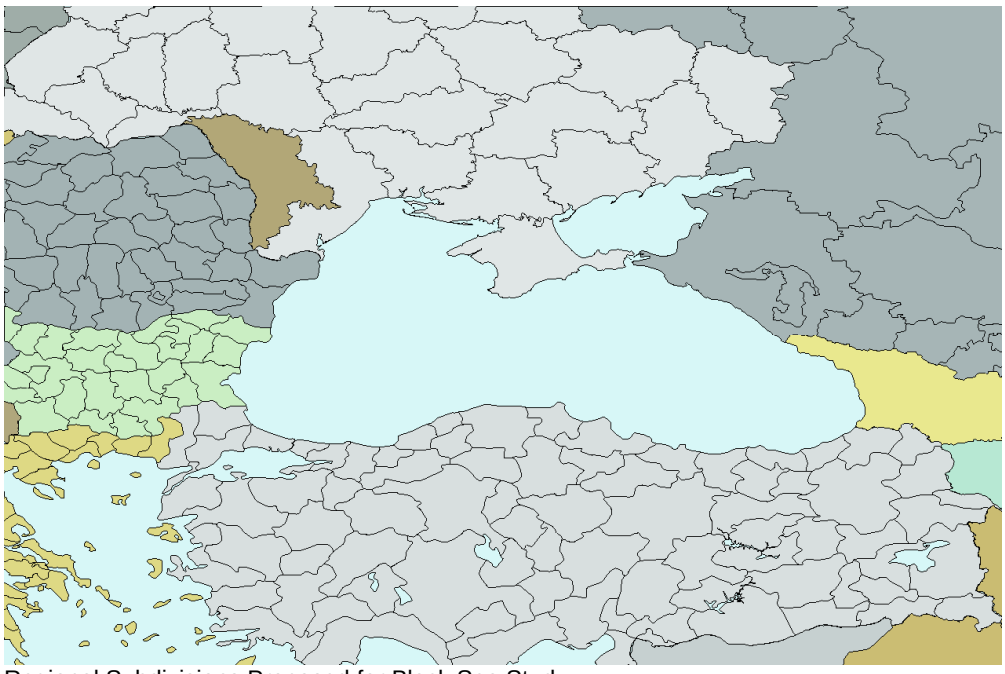
For the smaller countries in the region e.g. Moldova, Georgia, Armenia and Azerbaijan, this additional detailing is not required.

The method is simply to use regional weightings by product group (either NST or SITC) for each country. Since the total volumes are already known, the weightings allow the system to calculate row and column totals i.e. how many tonnes of a specific commodity are either produced or consumed in a given NUTS3 region. The system then uses a gravity based distribution model, taking into account the different characteristics of the different product groups.

In order to achieve this objective the study focused upon:

seeking national weightings of regional production and consumption by industry sector,
seeking national estimates of traffic generation (e.g. road traffic) by product, and region.
using publicly available statistics to estimate a satisfactory weighting.

The following map shows the zoning system:



Regional Subdivisions Proposed for Black Sea Study

Methodology for regionalization of international freight flows for Russia and the Ukraine

In recent years EU keeps intensifying the trade relations with Russia and the Ukraine. This trade involves significant freight volumes being transported on the European transport network. As reported by the UN Comtrade data source, EU has imported from Russia 342.7 mln tons and exported to Russia 18.5 mln tons in 2005. For the Ukraine the respective figures were 45 mln tons and 5.8 mln tons. In terms of value, the annual trade with Russia accounted for 90.2 bln Euro and 35.3 bln Euro accordingly, for the Ukraine respectively
9.8 bln Euro and 8.3 bln Euro.

For correct allocation of those international freight flows on the cross-border network and on specific routes of interest in particular (for instance, via the ports of the Black Sea), the exporting region and importing region of traded commodities need to be identified for each international trade relation in which either Russia or the Ukraine are part of. For the modeling purposes Russia is divided into 76 zones and the Ukraine in 25 zones. The geographic location of the region, and particularly in view of the sizes of the territories of these two countries and the distances involved, strongly influences the route choice and the choice of mode.

On the other hand, the economic structure and specialization of the region and the size of the consumption market gives indirect indication on the commodities and the quantities to be produced and attracted by the region. Namely, the socio-economic characteristics of the regions suggests the division pattern between the zones in Russia or in the Ukraine of the commodity specific freight flows.

The desk research of the public statistical sources in Russia and the Ukraine showed no direct availability of regional freight transport flows statistics describing region specific international flows. Because of data scarceness, a modeling approach was thought of and applied to solve this data gap. The approach is fine-tuned for each country individually.

The basics modeling concept is build upon available regional details of socio-economic character for Russia and the Ukraine which reflect the economic structure, size and specialization of the administrative regions. The approach focuses largely on the indicators describing sectoral shares into the regional GDP. The population statistics per region is also included as a model variable.

This regional information is used for derivation of the ratios for disaggregation of the commodity specific international flows (i.e. top-down approach), reported in the UN Comtrade database.

As a relevant step in the derivation of the ratios, the linkages between the NST/R commodity chapters and their sectors of production and sectors of attraction are assumed (as to the level of the available regional and sectoral details).

These are, as follows:

NST/R Chapter	Regional values for sectors of production (in case of export)	Regional values for sectors of attraction/consumption (in case of import)
0	Sector A	Sector A, GDP per capita
1	Sector A, sector B	Sector A, Sector B, GDP per capita, Sector H
2	Sector C	GDP
3	Sector C, Sector E	GDP
4	Sector C, Sector D	Sector D
5	Sector D	Sector D
6	Sector C, Sector D	Sector F
7	Sector D	Sector A
8	Sector D	Sector D, Sector N
9	Sector D	Sector G, GDP per capita Sector I
Legend for sectors/industries : A-agriculture, hunting, forestry; B – Fishing; C- Extraction industry; D – Processing industry; E – production of electricity, gas, water; F – Construction; G – Trade, repair of vehicles etc; H – hotels and restaurants; I – transport and communication		

The ratios for disaggregation of international commodity flows are derived by applying the following formula:

$$R_{commodity,zone,flow} = \frac{\sum_{i} S_{i,commodity,zone,flow}}{\sum_{j,zone} S_{j,commodity,zone,flow}}$$

Where:

$R_{commodity,zone,flow}$ - weighting ratio for specific zone participating in specific flow of specific commodity ;

flow - production (export) or attraction (import) of specific commodity;

$S_{i,commodity,zone,flow}$ - value for sector i in specific zone participating in specific flow of specific commodity;

i- economic sector participating in specific flow of specific commodity.

Assignment of Trade Flows to Ports

Regional O/D data allows traffic flows to be “assigned” to groups of competing ports, or “coastline ranges” but not exactly to specific ports, which will have specialised facilities and varying capabilities in terms of ship and cargo handling. The analysis therefore needs to consider both the current throughput levels and the capacities. In this way, traffic flows can be assigned to ports, taking into account the supply chain economics (i.e. diversion from the most efficient route) and the physical capacities.

The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

TACIS 117107

Improvement of Maritime Links between TRACECA and TENs Corridors

Bulgaria Georgia Romania Turkey Ukraine

Final Report Safety & Security

May 2009

This project is funded
by the European Union

A project executed by
Royal Haskoning,
NEA
BCEOM

This Project is funded
by the European Union

1 Report cover page

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors	
Project Number:	TACIS 117107	
Country:	Bulgaria, Georgia, Romania, Turkey, Ukraine	
Document Name	Maritime Links TRACECA-TEN Final Report Safety & Security	
	Client	Contractor
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2 Terms of Reference Project Result Safety & Security

« Existing safety management systems are improved in the respective countries and adjusted in order to achieve proper interoperation and to comply with IMOs (International Maritime Organisation) International Code for Ships and Port Facility Security (ISPS Code).
Favourable conditions are laid down for the creation of a common security management system applicable for the maritime transport and operation in the Black Sea area in order to reduce risk levels and to protect port facilities, ships, environment and people ».

« Activities required in order to achieve the result 3
Concerning activities to achieve result 3, an in-depth review on the state of the implementation process of ISPS Code has to be carried out with all involved stakeholders. The next step will be the elaboration of two guidelines, one related to ships and another one related to port facilities security management systems. Both systems should be able to run together. On this basis shortcomings and bottlenecks have to be identified and a country-wise implementation concept is to be proposed. The implementation concept has to include organisational measures, technical measures and familiarisation and training of the personnel.
Two regional workshops have to be organised one for the shipping industry in the Black Sea and one for the port operators and maritime authorities in the area: the objective is to familiarise the participants with the guidelines and to raise awareness of the necessary implementation measures. Participants should be selected carefully and should be able and encouraged to act after their participation as multipliers in their respective entities ».

3 Introduction

Maritime and port safety and security are managed in an autonomous manner in the 5 participating countries.
On one hand, if the ISPS code has allowed the international community to manage maritime and port facility security in a similar manner some differences can exist in the way to implement the code. For the security of the ports themselves, except for the two European Countries, only international recommendations exist so the similar implementation is not guaranteed. This situation can affect the quality of the services proposed to the shipping industry by the countries and their ports.
A security management system, common to neighbour countries of the Black Sea, should be helpful to harmonize all issues and consequently should improve the quality and celerity of this industry.

On the other hand, if the shipping industry has enough international mandatory tools to implement safety measures, the control of conformity is still in hands of the flag states for their own ships with the risk of having some differences between the level of quality of controls performed by neighbour countries. Very conscious of this issue, the international community has proposed some useful tools as the Port State Control or the VIMAS of IMO or any other recommendation for the implementation of mandatory instruments by the Contracting Governments. In fact, the efficiency of these instruments is still limited.
A safety management system, common to neighbour flag states of the Black Sea, should help to harmonize all existing issues and help to different countries to improve the level of the fleet under their flag.

Safety of port operations has no international mandatory tool yet. Fortunately ILO has published new guidelines which can be taken as referential to ensure a better level of safety in ports. By harmonizing the conditions and operations in ports and port facilities of neighbours countries we will reduce accidents and increase the quality and celerity of the services proposed to the shipping industry.
A safety management system, common to neighbour ports of the Black Sea, should help them to harmonize all issues and improve the regional port industry.

How to do that?
Usually, a good manner to ensure a better conformity to referential and constant improvement is to ensure the real internal operation of the management system. Instead of waiting for official assessment by an external body, it is commonly agreed that the better way to improve any management system is internal. This internal way seems to be the best tool used to create and improve the safety culture of any company or organization.
The internal way may be used also between neighbour countries and, in our case, between the countries of the Black Sea. A common management system based on common referential will ensure a good and similar level for safety and security of the shipping and port industry. The common management system will have to ensure conformity first and above all, will have to improve continuously the maritime safety level of the region.

After having analysed the situation in the five countries, we propose a common safety and security management system for the shipping and port industry of the five participating countries. Guidelines in the way to implement such a system for safety and security have been proposed during national workshops and regional seminars.

4 PART 1: review of the situation in the Black Sea region

General
We are of the opinion that we were right to analyze safety at the same time as safety in ports. In the international organizations (IMO/ILO), the tendency is today to bind both; their objectives are the same and for the users, security measures are additional to safety measures: the risks are similar even they are of different origin.

4.1 Maritime Safety

Maritime Safety in general

Maritime safety is completely regulated by International Conventions (IMO/ILO) which are overall self sufficient. These conventions determine applicable rules by all contracting nations which are involved in this project. These conventions provide a standard which could be used as a basis for ports and ships which work in the Black Sea area.

For specific transportation (passengers, dangerous goods etc…), the EC has already issue regulations in complement of the international ones. These regulations could help us to set up a common management system for the five countries involved.

Methods of control

The application of conventions by ships is controlled by the Flag state on the one hand (FSC) and the Port state (PSC) on the other hand.

FSC (Flag state control)
The SOLAS Convention allows today to build and equip ships of sufficient quality. The controls carried out directly by the flag or via a Recognized Organization are especially centred on the application of the ISM Code (International Safety Management) which is a mandatory code of management for safety and pollution prevention for all ships working in international voyages. This control of conformity and operation of ship's safety management system is a key element of maritime safety.

PSC (Port state control)
However, although all the states have signed and ratified the main conventions, their application is sometimes quite different from one country to another. For this reason, some states are gathered, in a regional way, in a Memorandum of Understanding (called M.O.U).
IMO has defined the bases of these controls of conformity; thus this PSC (Port state control) became the arm of both organizations (IMO and ILO). In fact we have to remember, there are no inspectors at IMO. The organization proposes only consultants or can organize a conformity audit of a Member State but in a completely voluntary way and on behalf of this State (Voluntary IMO member State Audit Scheme or VIMAS).
Each M.O.U regularly carries out campaigns targeted on significant parts of international regulation

For Flag and port state control of ships, Bulgaria and Romania have taken the necessary measures to ensure their share of control within the framework of PARIS MOU (since January 1, 2007 and Black Sea MOU since 2000). The other nations involved in our project, as GEORGIA, TURKEY and UKRAINE are part of BLACK SEA M.O.U.

It must be pointed out that the RUSSIAN FEDERATION which does not take part of our project is also a member of both PARIS M.O.U and BLACK SEA M.O.U!

The organization of these controls pertaining to these MOUs is already defined by the IMO so a harmonization is already acquired.
In addition such organization can be defined in a management system which will ensure their quality ("Quality insurance").

ISM Code
The control of the ISM code requirements by a maritime authority, which consists of a conformity audit and also an operational audit of a safety and pollution prevention management system, can ensure alone a sufficient verification of:

- Ships of the flag by the FSC
- Foreign ships, which call in the ports, by the PSC

All the countries of the TENs corridors are well organized for controls and appear to have the sufficient qualified personnel to ensure the necessary control within the framework of a global safety and pollution prevention management system involving shipping.

4.2 Maritime Security

General information
The security of ships was recently organized by IMO via a mandatory code for ships carrying out international voyages. This is the ISPS Code or International Ships and Port facilities Security Code.

I was not permitted to check the application of the ISPS code on ships of the 5 countries flags (that is quite difficult because the destiny of a ship is, evidently…to sail around the world!). But during quite targeted interviews on the methods to verify the conformity of security assessment and plans or conformity operation of a ship, it seemed to me that the inspectors met are carrying out these audits in a very professional manner.
The verifications carried out by Bulgarian, Romanian, Georgian and Ukrainian Administrations (Turkish Administration has also confirmed it was in conformity) are apparently in conformity with the ISPS Code and can be integrated easily in a possible common management system for the verification process of ship's security. Reminder: except in case of serious doubt, the PSC verifies only the presence of the ISSC (International Ship Security Certificate). The security plan of a ship includes a confidential part and a thorough verification requires the formal authorization of flag authorities. This ISPS code requirement is constraining and will not facilitate the Port State Controls on ships security as effective as those already existing for management of ship's safety.

European Requirements on Safety of Ships

a) For EU members
The persons in charge met, have ensured me that they apply now the European Regulation concerning maritime safety and security. We have checked during each interview the various regulations and directives on ship's safety which have been emitted for several years. It was confirmed to me that they had been taken into account. It is in particular:

- Directives 99/63 and 95 on the seafarers working and rest hours
- Directive 89/391 on the improvement of safety and health at work
- Directive 98/55 on the application of the IMDG code in the European ports
- Various directives on passenger ships (98/18…)
- Directive 2000/59 on the installations of reception of ships' waste in European ports
- European directive 99/35 on the control of certain ships

If the International Conventions define the conditions of ships trading on international voyages, European regulations and directives specify complementary measures which can go as far as the

implementation of international measures to ships, trading only on a national manner. For example the ISM code applies now to the national maritime shipping trade via regulation 336/2006.

b) For the other countries
The other countries know these European directives but do not apply them. TURKEY must apply them entirely for its candidature for the Union. The regulation 336/2006 which imposes the ISM code for any form of shipping for ship of 500 GT or above, should not handicap too much these states in their configuration all around the Black Sea where purely national navigation is quasi non-existent. This regulation and these directives are not too constraining and could thus be easily included in the references of the safety and security management system suggested.

Except TURKEY, all the countries of the circumference of the Black Sea have lengths of coasts relatively reduced and thus a low number of ports. The differentiation between international or national navigation does not have any sense for these countries. In one word, the shipping carried out along their coast is only "international".
For TURKEY the problem arises for the coastal traffic. The European regulation 725/2004 allows an exemption of the obligation of the ISPS code for certain ships carrying out only on national trade provided that does not compromise the total level of security of the state. In the context of the circumference of the Black Sea, such an exemption would deprive these same ships of the possibility of coasting with the borders countries. Taking into account specific internal operations like port services ships, all national navigation > to 500 Gross should be under the requirements of the ISPS Code.

Case of the Port State Control
All the countries of the project take part in the MOU corresponding to their coasts.
The PSC allows controlling the foreign ships in a port of a participating State in the regional MOU.
The fact of belonging to a process of obligatory self-regulation within the 5 participating countries in the safety and security management system like the BS SASEMAS deserves a lightening of the visits of the PSC in the ports of the participating countries. Once the system is operating in the 5 countries, they will not inspect anymore the ships of the participating countries within the framework of the M.O.U. The existing "memorandum" will be used only for the ships of the foreign States to the TRACECA TENs Corridors group. It should be relatively easy to amend the M.O.U in this direction.

Attention
Such an agreement should encourage the Member States of the European CHANNEL/ NORTH SEA and BALTIC MOUs to do the same.

In Conclusion:
Integration of safety and security management systems for Ships

The systems of management for safety or security have all the same framework including: Policy and objectives, Organization, Implementation, Internal verifications and continuous improvement.
Managing safety and security at the same time on a ship is done quite naturally and it is also among the philosophy of IMO.
This is already the case, more or less, in the Maritime Administrations of the 5 countries of the project. An integrated common SMS would improve the organization of safety and security of ships and would also improve the internal verifications of operation of the safety and security management systems of member states shipping companies and ships.

5 Safety and Security of Port Facilities

5.1 General

Safety of port operations was traditionally in hands of the Port States. Gradually the ILO has proposed International Conventions on labour which have obviously included the port works. Today if a code for safety of ports does not exist like the management of ships' safety, some guidelines have been published by ILO (safety and health in ports/ ILO code of practice 2005) which recommend to apply them and to take into account the other IMO instruments (various codes for handling specific cargoes for example) and some guidelines from the maritime industry (ISGOTT and SIGTTO); ILO recommends that their implementation to be carried out via a management system for safety and health at work as proposed in ILO-OSH 2001.
Regarding security of operations of ships while in ports, the port areas are not normally under the responsibility of IMO. Indeed if the references of security of shipping trade and the ships relates to it, safety and security of port belong to the port State or…the Port operator. However a concept of interface was taken into account for shipping trade security and its definition has been specified in SOLAS Chapter XI-2 as well as the definition of a Port Facility. These two definitions pose some problems everywhere in the world and also for the countries involved in our project.

NB: The ISPS Code imposes measures to the port facilities or terminals… which certainly are not accustomed to follow such an international mandatory Code!

If safety of passengers, handling of dangerous goods carried by sea, prevention of pollution, and health of workers in general have been taken into account by European directives, global regulation on Safety in port operations like Security regulation 725/2004 or directive 65/2005 still does not exist. It could be a miss which will be filled up later, but we still must work mainly according to "recommendations" only instead of "regulations".

5.2 Safety of Port Operations

ILO directives on port operations referred above seemed little or not known by our interlocutors from all countries (they all expressed the intention to get the book), on the other hand the ISGOTT of the OCIMF and those of SIGTTO were well known as well as the various codes of IMO (BCH, etc.).
The safety of port operations in general are well ensured by the operators as they are still state owned or already private. Container terminals also benefit from safety measures required by the operator or the major carrier (MAERSK, CMA CGM, MSC, etc.)

The safety measures are thus in general described in national rules and codes, the tendency being nevertheless that the terminal operator applies its own guidelines which are obligatorily superior!

While the traffic of containers is still predicted to have a progression within the 5 years, the measures required or applied in the private or public container terminals tend to be harmonized and made mandatory. The tendency is good and the possible privatization of terminals will increase the harmonization expected. An accident in the port area is not regarded as ineluctable anymore and risk reduction measures are automatically taken today. However the speed requested from the operators for containers movements can become the enemy of port workers' safety… vigilance is still necessary!
This vigilance is already taken into account in the project of privatization of port facilities of all countries of our project. For example for the Bulgarian Ministry of Transports; the "fitness" claimed for the future operators, includes safety and health of port workers.

A harmonization via a common management system in each port is thus possible while taking as reference codes:

- ILO guidelines for safety and health in port operations
- ISGOTT of OCIMF for oil terminals
- SIGTTO for gas terminals
- IMO relevant codes for certain specific terminals.

5.3 Security of Port Facilities

Even if port security is improving, the gap between the airport security is still very significant. It is a global obviousness that in almost all countries attempts to level up port security run up against the generated costs.
However, if we want effective and protected sea traffic between the partners of the Black Sea, like elsewhere, it is necessary to envisage to levelling up all the ports to a minimum security level.
It is what the code ISPS and the European regulation are trying to do.

The implementation of the ISPS code
The ISPS code intelligently started to require preventive measures against illicit acts in port facilities i.e. terminals. Indeed the security risks are not the same between a passenger terminal, a container terminal or an ore terminal!

However the ISPS which cannot take into account the whole port (reminder: IMO has no influence, no capacity on the port itself), the international authorities have, on one hand, proposed security measures for the ports in "IMO/ILO guidelines on Port Security" and finally the European Union has required security measures in ports in the directive 65/2005 (NB these European requirements are very close to the IMO/ILO guidelines)

General assessment on the implementation of these various measures (IMO/ILO/EU)
In spite of clear definitions, the interpretation of the Member States of the concept of "port facility" is very different from one state to another including between neighbours. IMO should have felt the trap upon the departure but as the United States of America themselves which have made the first false interpretation of this term, many of others, helped or not by the USA, have proceeded in the same way.
Indeed, the definition appearing in SOLAS Chapter XI-2 defines: "A port facility is a location as determined by the Contracting Government or the designated Authority, where the ship/port interface takes place. This includes areas such as anchorages or waiting berths and approaches from seaward, as appropriate ".
This definition is not self explanatory because we could understand also a port with its approaches and its waiting or mooring areas! But it was not the matter of the writers because on different occasions in the ISPS code itself, the Port Facility/Terminal version appears more clearly in Chapter A 16.5:"the port facility security plan can be combined with or be part of the port security plan or any other port emergency plan or plans" and A 16.9:"Contracting governments may allow a port facility security plan to cover more than one port facility if the:

- Operator
- Location
- Operation
- Equipment, and
- Design

of these port facilities are similar… "

After reading the code like that there is, theoretically, no more ambiguity!

Indeed in some ports in the world and some European ports also, the difference between "Port Facility" and "Port" was not made in accordance with the ISPS Code. So we can find "Port Facility" identified as such in the IMO/GISIS data base which includes most of the port or the entire port or almost. By analyzing the situation of these "Port Facilities" we can realize that: the operator is perhaps the same one, but the site, the operation and the corresponding equipment or the design are not "similar". We could conceive that with the same operator (a state, autonomous or private operator) can consider a

basin or a whole of close piers carrying out operations of various goods as only a port facility but not two distant areas of the port including a passenger terminal, two specialized containers terminals, loose cargo specialized quays etc!. Such identification was transmitted to the IMO for entry in the data base at the same time as other port facilities well separated from their operations or their situation.
That does not facilitate the comprehension of companies and ship's captains when they consult the security information in GISIS data base concerning a port, new for them!

To our knowledge, IMO has not decided on the subject and post only in GISIS data base the conditions communicated by the Member States. Indeed without the capacity to decide, IMO can count only on Members States to rectify these anomalies.

In any way we have found two different situations in the visited countries:
Some have chosen a very broad identification of the Port Facility by joining together for example. If other specialized terminals are well differentiated, in this case the Port Facility is compliant to the ISPS Code.

The PFSOs (Port Facility Security Officers) can be the same person when the circumstances allow it (A 17.1). However when a terminal is operated by a private operator and the PFSO is a member of the Port Authority, there is doubt about its authority on the security of the terminal and the necessary resources allocated.

During our visit, the information appearing in the IMO/GISIS data base was found not up dated. In general, where it was possible, they were rectified rapidly following our interrogations.

If the implementation of the ISPS code and the European regulation 725 were carried out in the ports of new European members (BULGARIA and ROMANIA), it is not the same for the directive 65/2005 for member states or "IMO/ILO guidelines on Port security" for the others. Indeed the port security plan may exist but the Port Security Officer is not clearly appointed in some visited port.

In our opinion, there is a total incomprehension from Administrations of the logic of a PSO covering all the PFSOs included in the port organization.

This incomprehension starts with the bad interpretation of the Port facility concept and its PFSO compared to the entire port and the PSO. The situation is not easy but a common management system will help to clarity these provisions.

Indeed the rapid privatization, which prevails in the States of the project, will help to rectify these anomalies; it is desirable that the contracts of concessions do not forget this aspect of things. The schedule of conditions for the private operator or "concessionaire" will have to incorporate the obligation of the assumption of responsibility on safety and security and, in particular, the realization of the port facility security plan.

The requirements for Port safety and security should not disturb the way of tender for privatization. However they cannot be forgotten but deferring the load of security on the port itself and the significant risk of lack of means to put and keep conformity with the two international and European requirements or the common management system.

For certain countries (Romania, Ukraine) the situation is clearer for the simple reason than the Authorities have understood very well the concept of Port facility

The number of Port facilities is, for example, 64 in CONSTANTZA, 12 in ODESSA and 9 in ILLICHIEVSK with all of them:

-An approved security plan and a contact point.
-At risks port facilities are enclosed and guarded in an adequate way (we have tested several).

The application of the ED 65 was taken into account in the two new European Member States (Bulgaria and Romania), it was not possible to me to check if a port security plans were existing.

Turkey seems to be satisfied with the state of ISPS Code implementation measures, but it remains to be proved that the internal audits are carried out.

Ukrainian ports, according to the law of the country, have a port security plan. It was not possible to me to evaluate these plans but the organization and the visit of the port convinced me that they were of a good quality.

In Georgia, perhaps because of certain atavism, port security is ensured in a total way with a Port Security Officer which is unfortunately called Port Facility Security Officer. However it is visible that the security of the port and the operations are ensured in a serious way. The internal audits are apparently carried out with also all the necessary seriousness.

5.4 Status per Project Country

Bulgaria

1-for **Administrations in charge** of shipping and Ports safety and Security
A safety culture for shipping and port operations exists.
International regulations on safety or security are applied
As a member of the European Union, BULGARIA applies also the European regulations. An inspection on shipping and port security has been carried out by the European Commission referring to regulation 725/2004.

2- Port of BURGAS
The Maritime Administration Office in BOURGAS ensures Flag and Port State controls in conformity with the IMO and Paris/Black Sea MOUs. Its structure is well fitted to ensure these tasks and the operations are apparently correctly carried out.
Safety of port operations (procedures, training) is apparently well carried out despite the ILO guidelines (2004) are not known
The implementation of the ISPS Code is still to be improved: there is still confusion about Port facilities and Port itself, the directive 65/2005 is not completely implemented.

3- Port of VARNA
The Maritime Administration is apparently following the international standards for flag State and port State control concerning safety and security of ships.
Safety of port operations is in the culture of this port as it is in the Port of BOURGAS.
Security of Port Operations is apparently compliant with the ISPS code. As usual the European directive 65 has not been well understood: there is still confusion between security of port facilities (inside a port) and security of the relevant port itself.

Conclusion for BULGARIA: In the State Administration and within the Administrations in charge of safety and security the project of a common management system for safety and security of the shipping industry is workable and welcomed.

Romania

1-For **Administrations in charge** of Safety and Security of Shipping and Ports :
Safety of Romanian ships is apparently well controlled. Shipping and Port Administrations have taken into account the International and European regulations on security of ships and ports facilities;
Security of Ports facility in compliance with the ISPS code is apparently well implemented and managed.
The security of ports is the way to be in conformity with European directive 65/2005.

2-Port of CONSTANTZA
Safety of Shipping and PSC, in hands of RNA in CONSTANTZA, are apparently well carried out despite the Romanian flag is on the PARIS MOU Grey list.
Safety of Port Operations is apparently well organized and controlled. All visited port facilities were in compliance with standard safety requirements. The ILO guidelines could be easily implemented in the Port.
PORT of CONSTANTZA has followed the ISPS code for the numerous facilities and the process of implementation of the European directive 65/2005 is still under process.

Turkey

1-Administrations in charge of safety and security of shipping and ports are fully aware of the international regulations. The European regulations do not apply but Administrations in charge want to apply them: the implementation of a common management system will be made easier. There is a general lack of updating of information in the IMO security data base.

2- Port of Haydarpasa
Safety of operations is basic: sometimes minimum safety measures as PPE for port workers and visitors are not applied. Safety rules exist but they are not implemented and no verifications are apparently carried out. ILO guidelines for Port health and safety are not known.
Security measures exist and the security plan has been approved but some requirements are not implemented as drills or exercises.
No investment has been planned yet for improvement.

3- Port of Derince
Safety of operations is not acceptable: works without the elementary PPE, physical state of working areas for examples.
Everybody seems to wait for privatization.
Security of the port is basic but the Port Facility Security plan has been approved.
Reviewing of safety and security is necessary.

4- Port of Hopa
There was no traffic in the port during my visit, but apparently the private port follows internal procedures for health and safety of Port workers.
The security of the port is apparently well organized and the security plan followed (drills, and assessment carried out).

Georgia

1- Administrations in charge of Port and Ships safety and security are centralized in BATUMI where Capt PAATA is managing verifications within the Maritime Transport Department (MTD). Safety and Security of ships are apparently well carried out by this entity. MTD estimates that 90% of the European regulations are applied by Georgia.
The ILO recommendations on safety of port operations are not known but the MTD estimates that these recommendations are fully followed.
Security of ports is very confidential in this country but is apparently at least in conformity with the ISPS Code.

2-Port of Poti
The port is ISO 9000 certified. This is good for Safety of port operations: verifications are conducted apparently in a competent manner.
Security of the port is well organized and security officers are well aware of the effective operation of the security plan.
The border police is well equipped and seaside controls seem to be effective.

3- Port of Batumi
The port is ISO 900 certified which is good for health and safety of port workers; for example safety PPE is worn by all personnel.
Security of the port area has been organized for a unique facility. Security measures are apparently of a good level.
Border police is well equipped and control of the seaside is apparently performed.

Ukraine

1- **Administrations in charge of Safety and security** of Ukrainian SHIPS and Port State control are conducting the right verifications.
These Administrations are aware of the ILO port safety guidelines and declare to follow them at a minimum when following the national requirements.
In general, to follow the European regulations or directive will be not a problem in UKRAINE.
UKRAINIAN Administrations are upset by the absence of RUSSIA in the project.

3-Port of Odessa
Safety of port workers measures and security of accesses are well implemented. Internal verifications are carried out periodically.
Continuous training of port workers is effective.
Increasing of space in the container terminal will improve the safety of operations
The port of ODESSA has a Port security Officer which controls all the 12 facilities security officers. IMO/ILO guidelines on Port security or equivalent are apparently followed.
State of port and port facilities security seems very good.

4- Port of Illiychevsk
Safety of port operations is apparently effective. Training courses for port workers are periodically carried out.
Under UKRAINIAN law there is a Port Security Officer and each facility (9) has its Port facility Officer.
Drills and exercises are periodically organized but the ship's captains are not invited to participate.
Seaside security is apparently well organized.

Conclusion

Managing safety and security of shipping and port operations in a unique system is fully welcomed. Some persons are a little bit sceptical about the effective implementation. Specific training of internal auditors is paramount.
It is a common agreement that workshops on the creation and operation of a common management system will be necessary.
Training for Port safety and security is also necessary and refreshing course should be organized every 5 years.

6 Conclusion

Global assessment
Maritime and Port safety and security are of a good level in all the countries visited and can be considered in conformity with the ISPS Code. However the management and the follow-up of port facilities and ports security plans could be improved particularly in TURKEY.

Individual evaluation corresponding assumptions
Regarding safety of port facilities, they will have to be, one day, in conformity with an international standard (ILO code of practice for safety and health in ports for example transformed into an obligatory code via International Convention?) it is inescapable! These guidelines could be usefully used and already like a reference for all ports facilities and ports of the 5 countries of the project.
In order to ensure the application of these guidelines, a management system should be created and its operation ensured by a participation of representatives of the 5 countries.

Prevention for security incidents set up in the ports of the five countries are of a good level while seaward protection remains under the responsibility of the Navy and/or Border police force. Such a protection ensured by national units relates to territorial waters and then the whole of the ports (seaward protection carried out by a Port facility itself does not exist for the moment and seems not necessary). This is not an obstacle for a harmonization provided that the operations of monitoring the seaward and the means used are effective.

NB For historical reasons these countries have a maritime police force which remains consequent comparing to the rest of Europe. It is not unreasonable to think that these fleets and these control centres can be, one day, gathered in a common body which could be called BLACK SEA COAST GUARD. However, considering the existing difficulties in Western Europe it appears that the decision and the installation of such an identity could take a certain time!

Data base
The IMO GISIS data base became an essential element for security of maritime transport: this is the only reference for companies and ships' captains.

An effort is essential in all visited countries; Few GISIS information were up to date and it occurs that this information had been communicated to IMO in time in 2004 and that no correction has been carried out since this date! But, as we saw, the provided information is insufficient to be aware of the security of the port itself.

If the elements corresponding to the Port facility security appear in the GISIS data base, the information concerning the security of the ports themselves, which could be of a great utility for companies and ships, appears only on the web sites of the ports and in a form a little bit too brief.

Certain information concerning security is of course confidential, but the information gained is always basic! So we could create, as per the ISPS code, a security data base for the ports themselves.

The following information will be gathered for each port:

- Name of the port
- Latitude, Longitude
- Statute of the port (international, national trade, private, state owned)
- Information on the port: number of port facilities, navy or fishing port, shipyards, etc… physically included in the port area
- Has the port a seaside security protection? (VTS, patrol and interception fast tenders)
- Name and contact point of the PSO

We could dream that the general safety of the port operations could also appear in this database in condition to impose the same measures as for the Port facilities.

In summary:

- Create a SECURITY data base for ports
- Work for the requirement of an international safety code for port operations, mandatory for both port facilities and ports (we could start with the European ports), and
- Create the corresponding data base under the control of IMO or ILO or the European commission.

Regarding safety of port operations, one day they will have to be in conformity with some international standard (via a new ILO convention/code for example). After, there would not be too many difficulties to supplement the GISIS data base by the information on the compliance of the facility with such a convention or code.

Opportunities of creating a common management system

All these activities could be gathered within a common management system which would ensure, for the 5 Member States of the project, the implementation of safety and security standards and the control of their operation.

Improvements concerning protection of the environment and quality of services could be easily added to the system later.

7 Part 2: Identification of opportunities and hard points

General
A management system is an internal organization of implementation and operation of requirements gathered in one or more references frames which can be about security, safety, environmental or quality. The reference frame can be a code or a whole of directives or rules.
The system ensures conformity, then operation and finally a continuous improvement.

Today it is not necessary to have several systems, a single one can integrate all the reference frames referred above.
It is thus possible to envisage a single system integrating:
- Maritime Safety: operation and control of ships and their operations for conformity with the international regulation
- Harbour Safety: Equipment, operation and control of port operations (facilities and ports themselves)
- Maritime Security: operation and control of prevention measures installed on the ships concerned
- Port security measures of prevention and control of the port facility and port access

It remains agreed that the reference frames will remain the minimum level of requirements. Each country will be able, as it intends, to require more significant measures for the ships of its flag and Ports located on its territory… but will not be able to require these same measures for the ships of the other participating States!

Working language
The working language will have to be common and it appears that English and Russian will be suitable.

Bottlenecks in maritime safety
The international regulation (IMO/ILO) exists it is easy to apply it. The accent will be given on conformity with the ISM Code which contains conformity with the totality of the international, and particular, requirements on safety.
It is clearly understood that the code will apply for ships of more 500 gross, never mind the type of trade (international or national). The reference will be thus regulation of the European Union.
Only one hard point: a common safety & security management system (BS SASEMAS) would guarantee the respect of applicable rules so the ships of the group of participating States would not be subjected to PSC when calling at ports of the countries involved in the project. Indeed the PSC would become useless because of the audits set up by the BS SASEMAS.
Such an exemption will request an amendment to PARIS MOU and BLACK SEA MOU; what will certainly not be easy to obtain because of non co-operation of the Russian Federation to the TRACECA system

Bottlenecks in port safety
Even if the national regulation on work takes into account the port occupational safety; there is no harmonization on standard levels and the verification measures vary a lot from one country to another.
At the time when privatization of terminals is growing up in an exponential way, it is urgent to define a standard which will be imposed to privatized, or not, port facilities.
The standard could be composed of:
- Code of practice for health and safety in ports (ILO 2005)
- ISGOTT
- SIGTTO
- IMO regulation (IMDG, INF, BLU, BC, OSV etc…)

Bottlenecks in maritime and port security
The standard could be the EUROPEAN regulation 725/2004 supplemented by the IMO/ILO Code of practice on security in ports (2003).

Each country preserves obviously its capacity to determine the maritime and port security level of its ships/ports and fix corresponding measures if necessary.

Confidentiality of security assessments and plans

The main problem concerning security is the confidentiality of information being able to act directly on the defence of the territory.

For a ship there are a few sensible points even if the security plan and the security assessment include some confidential information.

For the ports it is mainly about the position of the restricted zones and their protection. This information is confidential but except for some rare exceptions, it is not "CONFIDENTIAL DEFENCE"! A solution is to regard them as "SECURITY CONFIDENTIAL" and to define measures less constraining than those being able nevertheless to affect the “DEFENCE of the country” which requires a State agreement.

To evaluate the conformity of a PFSA or PSA or the operation of a security plan (knowledge of the plan, audit reports or exercises etc…) it will be necessary to be agreed to consult documents and recordings. Such an agreement could be defined within the common integrated management system.

8 Part 3: Concept of the integrated Safety and Security Management system

General
A modern way to manage safety and security requirements is to set up a management system which could be in our case, an integrated safety and security management system applicable to all shipping companies and their ships under their national flags and in all the ports of the 5 participating countries i.e. BULGARIA, GEORGIA, ROMANIA, TURQUEY and UKRAINE.

We propose to call it: The **B**LACK **S**EA **SA**FETY and **SE**CURITY **MA**NAGEMENT **S**YSTEM or **BS SASEMAS.**

Objectives of the BS SASEMAS
The objectives of this management system will be to facilitate and improve the shipping and port industry in and around the BLACK SEA.
Facilitation and improvement of shipping trade require:

- Harmonization of safety and security conditions in the internal shipping trade and in port operations. This harmonization should start with setting up this regional industry at the same safety and security level. Due to international regulations this level should be, at a minimum, in conformity with the mandatory requirements when they exist and in conformity with commonly accepted international recommendations or guidelines
- A continuous improvement of these conditions
- This management system will also ensure harmonization of mandatory documents, verification and reviewing tools or methods by issuing guidelines and models. The BS SASEMAS will work as an internal management system limited to the participating countries. The results of the system will remain confidential as long as the countries decide to publish the results as a marketing tool for the BLACK SEA area.
- This system will be headed in a common manner by a steering committee made of representatives from the governments of the 5 participating countries while the operational aspects will be ensured by designated persons coming from the 5 countries also.
- These DPs will work for their own country but a cross verification system will be used to ensure harmonization and also benefit from the benchmarking.

Operating Sectors of the BS SASEMAS

-Safety of shipping (port movements included)
-Safety of port commercial operations (loading/unloading of sea going ships)
-Security of shipping & ships
-Security of ports and port facilities

Remarks
a) When shipping and ports are fully compliant with rules & regulations and take into account all codes or guidelines from the industry, a common integrated management system has only routine verifications to perform and can concentrate more on improvement.
Unfortunately the situation is not so ideal: even with all the tools issued for external or internal verifications, 100% conformity with requirements seems not yet ensured in shipping and in ports inside the Black Sea.
Conformity verification tools already exist; On the one hand the VIMAS (Voluntary IMO Members States Assessment) program launched by IMO concerns only the IMO regulations for safety and the implementation of European security regulations is verified by the European Commission inspectors. The results of these inspections have been published recently - the implementation of directive 65 has apparently taken some delays - on the other hand safety and security European regulations apply only to EU members!

b) Steering committee members are designated by the government of each participating country. Conditions of competences will be defined in the system. Substitutes will be also designated in the same manner as the titular and level of competences or training will be equivalent. A procedure will define the level of intervention for the substitutes.

c) The internal audits are intended to ensure that the reference frames are applied in a common way. The auditing procedures are defined, the objective being to rectify nonconformities but especially to define pro-active measures to avoid their occurrences.
The auditors are chosen by the steering committee among volunteers of each participating country. These auditors are trained within the system in order to ensure a common level of quality in auditing process. A procedure of evaluation of the auditors is set up.
The key for quality of audits resides in the quality of auditors. This quality will be ensured only by a continuous high level training. This training will not be the ISO AUDITORS training which is not very well adapted to the management of safety and security in the shipping and port industry.
Specific training for internal auditors will have to be set up with control of acquired matters. A certificate will be delivered; a periodic revalidation of this certificate will be ensured via a formal revalidation of competences. Training centres should be agreed by TRACECA.

d) Shipping companies and ports will have time to implement, modify or improve their internal management systems.

e) This common management system can be implemented in other specifically limited shipping regions.

Conclusion
Built as a practical common improvement tool the BS SASEMAS will ensure an improvement of the safety and security culture of our industry in this region.
This continuous improvement will facilitate and increase the efficiency of the shipping trade and port operations for the best benefit of the participating countries.

9 Part 4: The BS SASEMAS

Introduction
The Black Sea SASEMAS was introduced and explained during the five country safety and security workshops held within the framework of the project in the period November 2008 – February 2009.

A summary and outline of SASEMAS was submitted to the TRACECA National Secretaries in the beginning of March 2009, with the question to comment on the SASEMAS proposal during the projects' Completion Seminar (Sofia, Bulgaria, 26 March).

During the regional completion seminar, representatives of the five countries gave their opinion about Black Sea SASEMAS.

This part includes a summary of Black Sea SASEMAS, the outline of SASEMAS, the comments from the recipient parties on SASEMAS and the proposal of a Road Map for implementation of SASEMAS in the Black Sea region.

Summary of the Black Sea Safety & Security Management System
This system will be headed in a common manner by a steering committee made of representatives from the governments of the 5 participating countries while the operational aspects will be ensured by **D**esignated **P**ersons (DPs) coming from the 5 countries also. These DPs will work for their own country but a cross verification system will be used to ensure harmonization and to benefit from benchmarking.

International Tools for Managing Safety and Security
Safety and security of shipping are well organized thanks to IMO and ILO international conventions.

If security of port facilities operations are covered by international regulations, management of security in ports themselves apply only to EU members (Bulgaria and Romania).

If we want to harmonize the conditions of safety and security for our industry, the same regulations should be required for Non-EU members (Georgia, Turkey and the Ukraine).

Present Situation
When shipping and ports are fully compliant with rules regulations and take into account all codes or guidelines from the industry, a common integrated management system has only routine verifications to perform and can concentrate more on improvement.

Unfortunately, the situation is not so ideal: even with all the tools issued for external or internal verifications, 100% conformity with requirements seems not yet ensured in shipping and in ports in the Black Sea region.

Conformity verification tools already exist: On one hand the VIMAS (Voluntary IMO Members States Assessment) program launched by IMO concerns only the IMO regulations for **safety**, while the implementation of European **security** regulations is verified by the European Commission inspectors. The results of these inspections have been published recently - the implementation of Directive 65 has apparently taken some delays - on the other hand the safety and security European regulations apply only to EU members!

Safety of Shipping
International requirements for safety of shipping and port operations exist:

- The ISM code is the main suitable tool we can use for ensuring the conformity with the applicable international rules, because this code requires to have, in companies and on board all SOLAS

vessels, a safety management system which ensures the conformity with rules and regulations as a minimum; and…that guidelines, codes or recommendations from IMO, Classification societies or other organizations of our industry are taken into account

- This code can be applied also to non-SOLAS vessels through a European regulation (336/2006)

Safety of Ports Operations
In fact, there are no international mandatory tools to implement safety in ports. However European regulations covering some sectors and suitable recommendations or guidelines from ILO or professional organizations covering the rest exist (i.e. ILO Code of Practice for Safety and Health in Ports, ISGOTT, SIGTTO guidelines).

We propose these European regulations and these internationally accepted guidelines as SASEMAS referential.

Security of Ships, Port Facilities and Ports
Security in shipping has the advantage to be driven by a complete set of international rules and guidelines born in 2003:

- The ISPS code defines all mandatory requirements for SOLAS ships and port facilities. Security guidelines for non SOLAS ships have been proposed by a recent IMO (Dec. 2008)
- Port security rules have been also proposed by IMO/ILO guidelines (for the rest of the world) and the European regulation 65 (for EU members).

Operational Structure of the BS SASEMAS
The BS SASEMAS will be driven by a STEERING COMMITTEE. This committee will be made of official representatives from the 5 participating countries. This group will be responsible for the operation of the system. The group will meet regularly, as a management board, in order to review the system and ensure its efficiency. For the country representatives this is a part time job.

To operate the BS SASEMAS, competent persons should be designated in each country. These **D**esignated **P**ersons (minimum two of each country) will work on a full time basis.

These DPs will ensure the verifications of conformity and operation of all systems required by the SASEMAS. In addition, the role of the DPs will be also a consultancy assignment in the view of assisting companies and ports to reach the standards commonly defined and to improve the safety and security culture of this industry.

This job is particularly critical and the persons should be selected from their knowledge, understanding and proficiency both in shipping and port operations. They should be able to advise ship owners and ship captains, Port Captains and port operators in safety and security standards and possible actions to reach and keep the conformity to referential and propose ways in order to get a continuous improvement of the safety and security culture of all the actors of this shipping and port operation industry in and around the Black Sea.

Verification Tools of the BS SASEMAS
The DPs will ensure the traditional tool of a management system; i.e. inspections, audits, correctives propositions, accident enquiries, feedback and preventive actions and reviews.

They will ensure also the necessary advice on training needs for improvement of the safety and security culture of the sector.

Outline of Black Sea SASEMAS presented during the workshops

Introduction
Herewith follows the introduction for a **SA**fety and **SE**curity **MA**nagement **S**ystem (SASEMAS) for the maritime sector to be implemented in the 5 Black Sea countries: Bulgaria, Georgia, Romania, Turkey and the Ukraine, in order to create continuous improvement of maritime safety & security.

Origin of the system
- Compliance with the international rules on safety and security requires a **will** from the National Administration of flag and ports.
- The level of conformity can be different from one country to another, and this will reduce the velocity of the shipping interfaces.
- The best way to facilitate the shipping business is firstly to be fully compliant with the rules and then to ensure this conformity via a common management system.

Definitions
- The **group**: is the group of participating countries.
- Group representatives are the 5 governments' representatives.
- **Designated Person(s)** one or more person (DP) in charge of the SASEMAS in each country (proposed by each participating country and accepted by the steering committee).
- The job of DP has to be described (see further on).

Creation of the SASEMAS
- The SASEMAS **will ensure** that all companies, ships, port facilities and ports are in conformity with applicable international and national rules.
- The system will engage companies and port operators in their shipping activities in the Black Sea.
- The system will be operated by a group made of representatives from the 5 Administrations.
- The system does not need any certification.

Mixing Safety and Security
- Safety and security have the same objectives which are protection of human lives, environment and properties.
- Safety and security can be linked together in the same management system.
- Then, safety and security will be managed at the same time, when possible, to reduce loss of time and money.
- Verification of compliance will be made in a cross check manner to realise the most possible fairly assessment.
- Personnel in charge will be trained to do so.
- Results will be communicated to all parties involved only and so during review meetings.

Contents of the System
1- Objectives and performance indicators
2- Safety and Security Policy
3- Structure to manage the SASEMAS
4- Designated person(s) in each country
5- SASEMAS standard for management of human resources
6- Referentials for shipping and port operations
7- SASEMAS requirements for state and companies organisation for emergency situations
8- SASEMAS internal accident enquiry system
9-SASEMAS referentials documents format (Safety management manuals or ship/port security assessment and plans)
10- SASEMAS internal verifications (inspections and audits)
11- SASEMAS periodical management reviews
12- SASEMAS continuous improvement

Objectives and performance indicators

The SASEMAS objectives are:

- Protect workers and seafarers' lives by ensuring safety and security of shipping and port operations: Zero accident will be the ultimate target.
- Facilitate operations in reducing port state or flag state controls by ensuring a visible, true, verifiable and well-known compliance with international, regional and national rules.
- Helping countries to create and maintain the safest possible working environment
- Increase the safety culture of our industry in the region.

Performance indicators

1- Number of accidents is decreasing regularly in %
2- Risk assessment is systematically included in all activities
3- Accident and near misses are analyzed in a formal manner
4- Feedback is systematically analyzed in order to issue preventive measures
5- Internal audits and management reviews are performed as required and planned
6-Incident, non-conformity or personnel suggestions are analysed and taken into account when suitable
7-In companies, port facilities and ports, emergency drills and exercises are realistic; reports are evaluating effectiveness of means and proposing improvement
8- Company, facility or port crisis cell exist and are regularly tested
9-Continuous assessment of safety level is carried out via part or global reviews
10-Integration of safety and security activities is under process

Assessment Marks

- Assessments are performed during internal audits: The marks are between 1 and 5.
- « 0 » does not exist because all the items are mandatory.
- The mark is the decision of the auditor group.
- Note: The auditors are to be independent of the sector audited.
- The sum of marks will define the level of the safety culture of the area audited.

Safety and Security Policy

- Issued by the SASEMAS, a common S& S policy is published.
- It is signed by all the steering committee members (5 government representatives in charge of flag administration, Port state control, Port administration).
- This policy will include the nomination of the Designated Persons (DP) in charge of running the SASEMAS in each country.

Policy

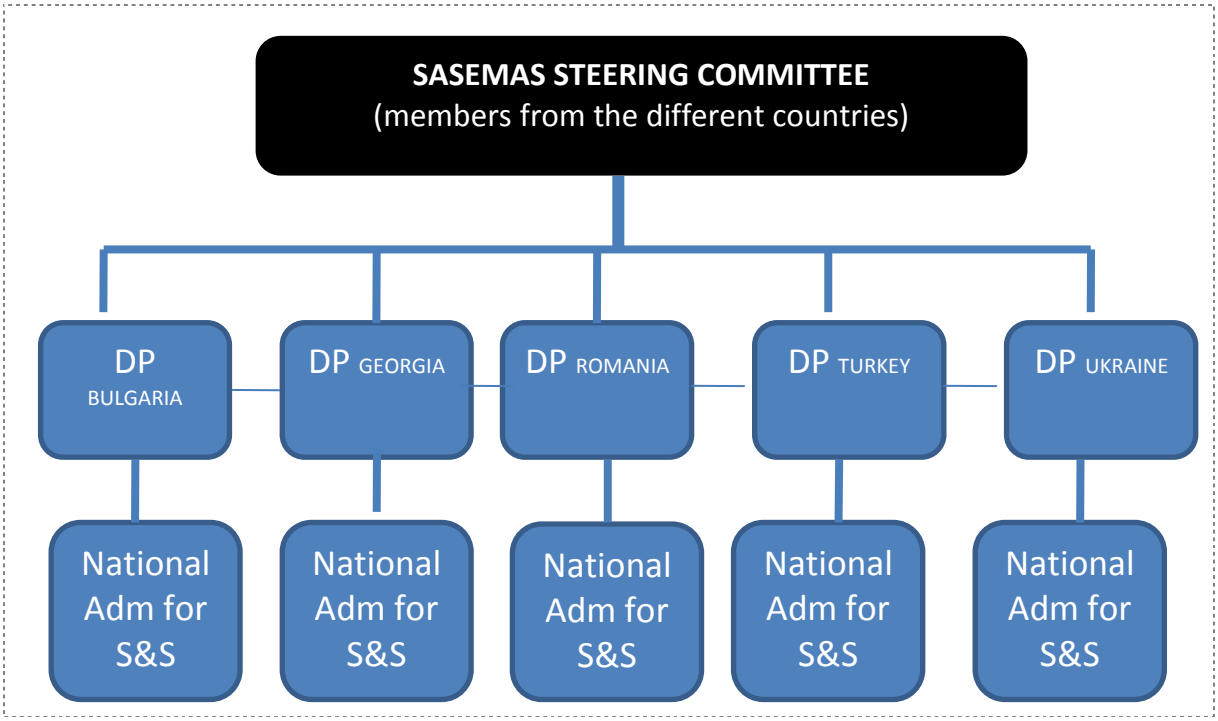
- ***Black Sea Region S&S Policy*** is designed for the management of all shipping and ports activities through a strategic Safety and Security management plan founded on commitment and accountability from all personnel involved.
- The group of undersigning governments has the responsibility for the implementation of our standards via a steering committee.
- The group has agreed and established **safety, security management standards and appropriate training levels** to deal with S&S issues and performance measurements based upon the requirements of the safety of life as specified in International Conventions, regional regulations, flag or coastal States Administrations taking into account the recommendations of IMO, ILO, other Administrations, Classification societies including other competent organizations.
- The principle is to view the safety aspects of any work activity to be of equal importance to commercial performance targets.
- They have designated a representative in the SASEMAS steering committee.

Our objectives have been defined and the state of achievement will be continuously verified.

To achieve that:

- The group has to designate one (or more) persons in each participating country to **ensure mutually the operation** of the SASEMAS;
- They have the responsibility and organisational freedom to **monitor** the safety and security aspects of shipping and port operation in the 5 countries, and;
- These persons have, at all times, the right **to contact the steering committee** for any issue on health, safety, security or environment.
- All Administrations, members of the group, have the responsibility to implement the present policy

Structure of BS SASEMAS



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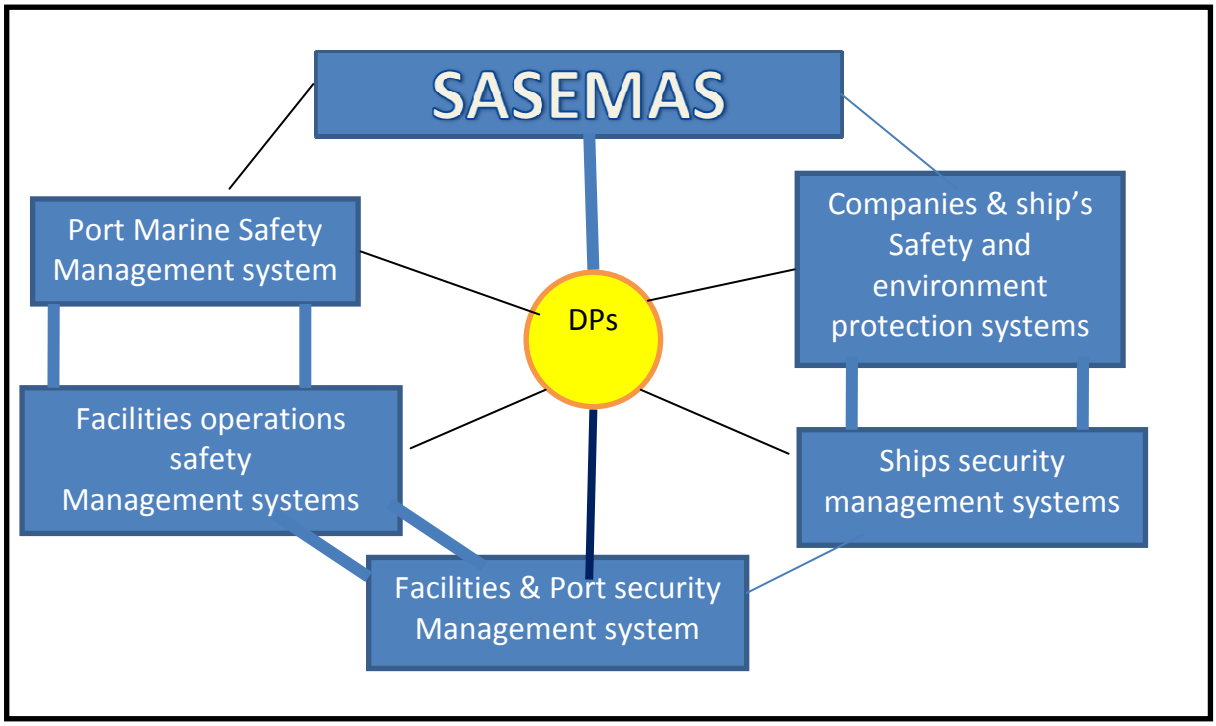
SASEMAS Flow Chart



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DP job description

The DPs job description is as follows:

- Report to the steering committee
- Ensure implementation o the SASEMAS in his country
- Ensure monitoring of safety and security management systems in companies, on board ships, in port facilities and ports consisting mainly in following the results of ISM and ISPS certification by flag and port administrations
- Ensure internal inspections and audits (see internal audit process)
- Ensure transmission of results and propose corrective actions to the steering committee
- Conduct or participate to internal investigation teams
- Prepare national reviews to the steering committee
- Implement the changes decided by the steering company
- (see specific outline on this key job)

Management of human resources

Human resources include knowledge, understanding and proficiency (KUP) of workers:

- Initial training of workers including certificates of competency
- Familiarization on arrival or when it is a new work, new ship or new equipment (change management)
- Periodical assessment and continuous training for personnel
- Requirements of state organization for verification of medical fitness for workers

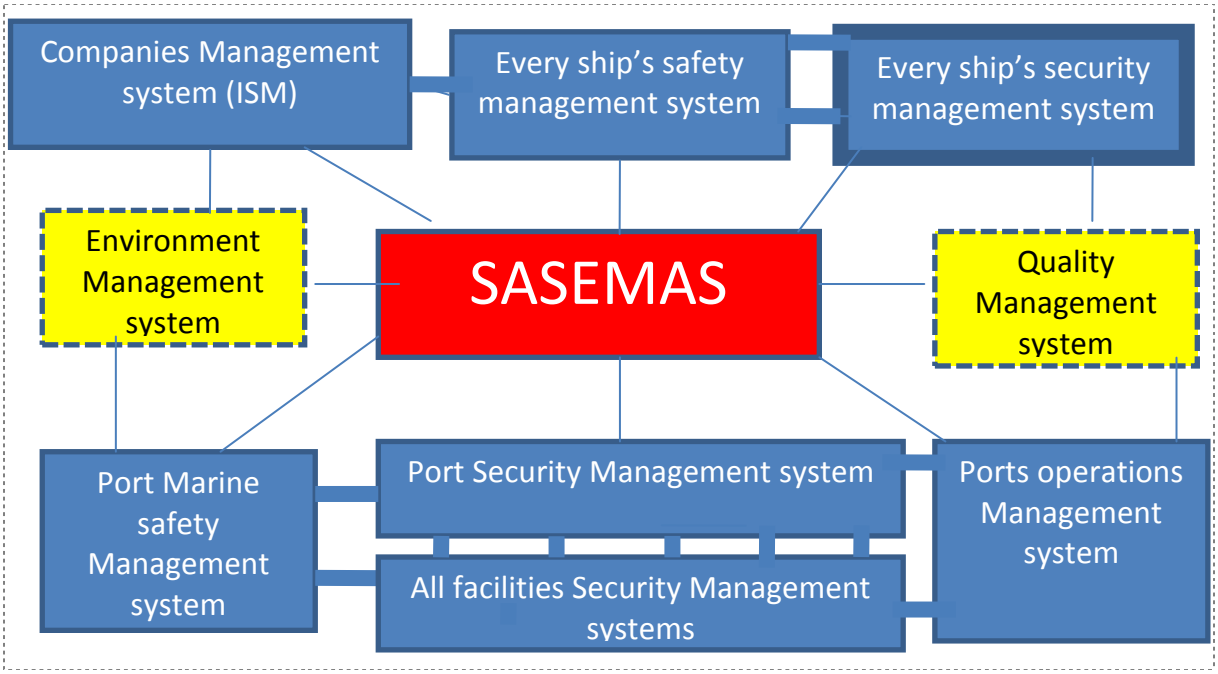
Referential
Referential taken into account for operations are coming from:

- - International rules and regulations
- - International guidelines or specific codes issued by competent organisations
- European regulations
- National regulations (which apply only to the corresponding state)
- Recommendations from the steering committee

Management systems inside SASEMAS:

- Customer Companies & ships have mandatory safety & security management systems under ISM Code and ISPS Code
- The port has national or local regulations for marine operations (as Port Marine safety code). It covers these regulations via a Management system
- Facilities have safety of port operations requirements from the port state; they can cover that via a management system (compliant with ILO-OSH 2001 code for example)
- Port and Port facilities have security requirements under the ISPS code via European regulation (725) and directive (65)
- Non mandatory Quality and Environment management system could be integrated in the global system of the shipping company or the port and consequently in the SAEMAS if decided

Management Systems flow chart



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Referentials for shipping and port operations

- The SASEMAS must define the referential as basic or enhanced requirements for all parts of the system:
- NB The national regulations apply and especially when there is a lack of international management system
- For safety of shipping the referential will be the **ISM Code** through the European Parliament Regulation 336/2006
- NB safety of specific operations will be conducted by industry recognized standards as ISGOTT(oil), SIGTTO (gas)
- For safety of Port operations, the referential will be the **ILO guidelines** on safety and health in ports (2005)
- For Security of Ships and port facilities, the referential will be the ISPS code through the European regulation 725/2004
- For security of ports themselves, the referential will be the European Commission directive 65/2005
- In general the European regulations apply (they usually emphasize IMO or ILO rules & regulations)

SASEMAS Propositions for Safety

- SAFETY of shipping: systems in compliance with the ISM Code + taking into account the recommendations of IMO and ILO or other competent organizations (OCIMF, SIGTTO, IADC, etc.)
- Safety of Port Marine activities: Port Marine Safety Code of UK
- Safety of Port operations: Management system close to ILO-OSH 2001 taking into account the Specific European regulation (Pax, IMDG) or international codes from IMO (bulk, gas) or others (ISGOTT)

SASEMAS propositions for Security

- Shipping: European regulation 725/2004 (which is ISPS A + some parts of B)
- Port facilities: regulation 725/2004 (which is ISPS A + some parts of B)
- Ports: European directive 65/2005

Integration of management systems

- SASEMAS will propose to companies, facilities and ports to integrate safety and security as much as possible
- The security activities could be integrated in the facility management system for safety
- Security assessment and plan already exist; we will integrate only the activities generated
- DP will be an advisor for this integration

Organisation for emergency situations

- The SASEMAS must include a participation to verify the emergency national organization in place in the ports (in conformity or not with the UNEP/IMO programme APELL):
- SASEMAS will ensure that necessary information, internal communication, training and necessary coordination between the local services are provided to protect people in the event of an accident in a port
- SASEMAS will also ensure that SAR equipment are sufficient at the local level and will verify and promote the cooperation of SAR organizations of all countries involved in case of an accident at sea

Accident reports and investigations

- Immediate correctives actions to protect persons and assets are the responsibility of the state (Port or flag)
- Information will be communicated to the SASEMAS'DP.

- If necessary, a safety alert will be communicated to other company or ports via the designated person of the state
- Any accident will be analyzed through a ***formal internal enquiry*** carried out by competent persons. MSC/MEPC.2 circular3 could be followed
- The causes of the incident will be researched including the human element and feasible preventive measures proposed to prevent their recurrence (feedback system).
- The final preventives measures will be decided by the steering committee
- Internal investigations reports will be carried out on a SASEMAS format
- The number of incidents which occur in the industry (by sectors) will be communicated to all personnel
- The results of all enquiries will be communicated to the personnel concerned and to other parties as appropriate

Documentation

- To facilitate the control of conformity, it is obvious to require the same format for all mandatory documents (manuals, check-lists, reports, logbooks etc…): SASEMAS will propose these formats to the shipping and port industry
- The renewal of documents could be the best moment to modify existing documents
- All documents (hard or software) will have to be renewed every 5 years

Internal verifications

Internal verifications can be Inspections or Audits.

What are inspections?

- We have maintained inspections in the SASEMAS
- Inspections are a formal state of fixtures without any investigations on causes
- They can be quick visit in companies, on board ships, in facilities or ports to notice the visible state of safety or security
- Immediate corrective actions could be issued when needed
- If an internal audit is planned, the inspection can be sudden and not planned
- Inspection reports will be carried out on a SASEMAS format

Internal audits

- The success of such a common management system will be in the results of the internal audits.
- These audits are completely apart of external certification audits
- The secret of a good working management system is in the quality of internal verification instead of external verifications
- Always external audits are concentrated in conformity with a referential while internal audits are set up to evaluate the performance, detect the weaknesses and find solutions to correct and improve the safety culture of partners involved
- Internal audit for companies, port facility operator or port themselves are much more efficient than external audits.
- Always self-assessment and self solutions of improvement have been paramount

What is an internal audit?

- An internal audit is a periodical action to determine whether the Safety and Security Management system and its elements are:
  - In place
  - Adequate, and
  - Effective in protecting safety of workers and preventing accidents
  - An internal audit cover all the SASEMAS or only a part
- The internal audits are carried out by competent persons independent of the audited sector

- Internal audits reports will be carried out on SASEMAS format in order to harmonize the process and help the steering committee to evaluate

Advantage of internal audits

- Will be the secret of the efficiency of our common management system
- The results will not be public and will stay internally in the group of participating countries
- The correctives or preventive actions will be proposed by the steering committee
- The National Administrations will have the responsibility to implement these actions in time

Management reviews

The national DP will prepare the annual management review which will content, at a minimum, the following items:

- Evaluate effectiveness of follow up actions from former management reviews
- Evaluate the completion of all corrective or preventive measures
- Provide the feedback gained for continuous improvement
- Evaluate progression towards objectives and completion of actions
- Evaluate the over strategy of the system to determine whether it meets planned performance objectives
- Evaluate the ability of the system to meet the needs of the stakeholders including workers and authorities
- Evaluate the need for changes to the system

Continuous improvement

- The system will operate in a continuous improvement policy:
- Analysis of results will be carried out during the periodical management reviews at the steering committee level
- Amendments or new propositions will be issued in order to improve the safety culture of our shipping and port industry
- Reports will be issued and communicated to the national administrations and published when suitable

Designated person (DP)

The Designated Person is the key of success for SASEMAS.

A DP should be also an ISM and ISPS advisor for SASEMAS participants

DP assignment

- To ensure the success of the SASEMAS and consequently the improvement of the safety culture in the area
- The role of the DP can't stay only in the usual limits of an inspector (another one!) or even the limits of an internal auditor
- Internal audits include usually a part of training or transmission of knowledge
- For me, an internal audit is not only a control of compliance it is also a training (for compliance) of auditees: company managers, masters, facility or Port Manager, Port captains

KUP of the DPs (Knowledge, Understanding and Proficiency)

- A strong and deep knowledge of the subjects:
- Basics: ISM and ISPS + ILO guidelines
- Implementation skills: training or experience in implementation of both safety and security in companies, ships, facilities and ports
- A knowledge of management system principle
- The will to integrate safety and security as much as possible

The Basics: ISM and SMS & ISPS and SA/SP

ISM Code
- International Safety Management Code
- Code worked out in 1993 by the International Maritime Organization as a recommended standard for management of maritime safety in shipping companies and on board ships
- Then, 10 years ago, introduced into the SOLAS convention for a mandatory application to SOLAS ships (more than 500 GT and practicing international trade)
- Implementation between 1998 and 2002)

SMS
- Or Safety Management System to follow the requirements of the code
- System including at least the requirements of the ISM Code, can contain more
- Management System, specific to a shipping company and being able to be certified in conformity with the ISM Code by the flag Administration or its representative (RO)
- System implemented on board all ships of a Company

Risk
- Quantitative evaluation of the probability of an accident or damage
- Reaction which should be natural for any human operator when he feels a threat to himself, the ship, the port, the facility or the environment
- Mandatory systematic analysis before any human operation in our industry

Safety and Security
- **Maritime safety:** concerns prevention and management of accidents relating to ships, persons on board (crew and passengers), facilities and ports or marine environment. Accidents are in an involuntary matters
- **Maritime security:** concerns prevention of illegal acts against persons and assets on board ships or in ports. They are of a voluntary matter

For the DP, the approach will be the same in all cases
- Conformity with the referential which contains the necessary and sufficient requirements for a good safety management and prevention of accidents and marine pollution
- The management system in the shape of SASEMAS model proposition
- Advice on implementation of changes, internal verifications or management reviews

Helping a new company
- Advice on the model of Safety Management system proposed by SASEMAS
- Propose a pre-audit before the interim certification
- Propose complementary measures to ensure compliance with the ISM code

Assessment of an existing SMS
- A SMS assessment proceeds like a conformity or operation audit but includes proposals for conformity or improvements
- On this occasion the DP will ask for a minimum of improvement of the safety management system
- Proposed corrective actions will be discussed and an..
- Action plan will be worked out for the improvement of the SMS under the SASEMAS model

Assessment audit by the SASEMAS DP
- The assessment audit is carried out like an initial audit with the same tools:
- Documents review using a personal checklist which follows the requirements of the ISM Code
- Remarks or proposals are presented on this checklist which will be indeed the major element of the audit report
- Remarks and proposals for an improvement are presented directly to the company management

Practical methods

- All ISM code items are required in the SMS
- The evidence of operation will have to be shown
- When the observations or proposals for an improvement are significant, they are developed in an individual record sheet where persons in charge will be able to deliver their opinion
- We often find most of all the requirements of the ISM Code more or less well expressed but some are not understood
- On the other hand, it is impressive to realize how many significant requirements of the code are only notified but not applied at all: risk identification, critical equipment, experience feedback, etc.
- These missing requirements are often most difficult to apply and they are the principal SMS weak points all over the world

The DP is acting as an internal auditor

- Contrary to the external auditor who cannot advise the Ship-owner or the Master, the DP as the DPA will be able to propose improvements of the company's SMS by using his SASEMAS experience
- He will apply his own experience feedback after each mission in order to improve the application of the ISM Code

10 Part 5: Results of the workshops

10.1 Feedback during Safety & Security Training Workshops

The consortium has organized 3-days Safety & Security training workshops in the project countries and during those workshops the BS SASEMAS was introduced and explained.

Schedule of safety & security training workshops

2008	**Place**	**Dates**
S&S Training workshop Bulgaria	Burgas	4 - 6 Nov.
S&S Training workshop Turkey	Istanbul	25 - 27 Nov.
S&S Training workshop Ukraine	Odessa	16 - 18 Dec.
2009		
S&S Training workshop Georgia	Batumi	3 - 5 Feb.
S&S Training workshop Romania	Constantza	17 - 19 Feb.

In principle, all participants of the workshops were enthusiastic about SASEMAS and could see the benefits for maritime safety and security in the Black Sea region when SASEMAS would be implemented.

During the workshops, the following feedback was given by the participants.

1-Is the system proposed for the first time?

> **Answer**: Yes, as far as we know this kind of internal common management system between countries having the same interest of improvement of safety and security of shipping and port operations in their region is unique. If we can demonstrate the efficiency of this system it might be introduced in other countries/regions with a similar situation (Caspian Sea, Baltic Sea, North Sea, Red Sea, Persian Gulf, etc.)

2-One of the main benefits of this system will be to speed up the calls of ships in ports by ensuring best practices in port operations.

3-The BS SASEMAS will work in parallel with the existing system or regional cooperation systems as: SAR, Pollution, flag state controls including PSC (MOUs).

4-Verification of conformity of shipping companies and ships will be technically easy but the flag state Administration will have to help the DPs in their assignments.

5-The DP will be normally recruited and … paid by his own country (however, other funding sources might be possible).

6-In fact, this kind of common management system is a European Commission idea …. It should be normal to ask for a contribution from the budget. If yes, the EC will ensure the supervision of the system. But, this is our personal feeling only!

7-Why Europe has not implemented yet such a system around other part of the Union?

Answer: This is a new idea and the priority of today seems to be the transport network from EU towards ASIA. **An attempt in the Baltic area is made to manage commonly safety and pollution prevention between the neighboughring countries but at the moment not any common management system includes security. It seems that security of shipping and ports is a particular subject. We have proved during these workshops that security can be integrated in the management of safety. Commercial shipping and port are not "secret defense" normally. We think that the situation will evolve in the following years and the integration of security measures with safety and pollution prevention measures will be effective .**

8-To control safety and security of shipping in and around the BLACK SEA a BS Coast Guards organization may be the solution? If yes, why the European Coast Guards do not exist yet?

Answer: the answer is not easy. Each country has its own Coast Guards. Which can have different tasks (for example, in France the Navy on one side and the Customs on the other side, claim to be called the effective French Coast-Guards). The aim is gathering means of control and interception. After a first attempt, the subject is delayed … until sometime! In fact , Europe is not ready many conditions have to be equalized first like intervention in economic or territorial waters, same command unit, same language etc… But, in our opinion, the ECG will exist for sure!

9-The BS SASEMAS must be accepted by the 5 countries, this acceptation/agreement can take some time… maybe we can start with two countries.

Answer: if the agreement of all countries takes some time, it could be a solution to start with the first signing countries. This will be a good test for the others.

10-The involvement of IMO in this project could be searched.

Answer: IMO is an international organization where only members can propose participation. So the EC or any participating country can issue a proposition of IMO participation (TCP- technical Cooperation Program for example).

11-The BS SASEMAS will have to be presented to Shipping companies and Port operators.

Answer: of course yes. But in our project we were verifying the feasibility and seeking the State agreement first. Secondly, we believe the private sector will be interested by this new cheap tool aiming at helping them to reach the conformity level and to improve their safety culture. Audits and advices performed by the DPs will cover the entire sector during a 5 years program for example.

12-What will be the time table for this project?

Answer: When the project is accepted by the countries and funding is made available, the schedule could be:

a) Set up of the system by a consultant

b) Designate steering committee members from the different Maritime and Port Administrations of participating countries
c) Recruitment of DPs and substitutes in the participating countries by the steering committee acting as an employer
d) Train DPs in maritime and port safety and security/ training centers must be carefully selected in order to ensure the DPs' KUP corresponding to our project
e) Start the first Safety and Security audits (conformity and operation) in companies/ships and facilities/ports by a couple of DPs (two DPs minimum, two countries) on a basis of one audit/report per week per country
f) Start the national reviews after one year of audits (prepared by the national DPs for his country) and analyzed by the steering committee.
g) Organize (seminar) first "BS SASEMAS review" and propose corrective and preventive actions decided by the committee.

13-DPs agreements should be clearly defined by the participating governments; the DPs must have the possibility to consult all documents (manuals, plans, recordings) on safety and security even those classified "SECURITY CONFIDENTIAL" like some parts of Ships, facilities or ports security plans. NB: Agreement must be limited to "RESTRICTED" and "SECURITY CONFIDENTIAL';" CONFIDENTIAL DEFENSE" is excluded.

14-Communication of results will be a sensible thing if we expect some efficiency (politically correct is not our target). Conditions of internal communication will be carefully defined except when the results are used as a marketing tool.

15-After some years, when the BS SASEMAS has proved its efficiency, the ships from the participating flags will be excluded from the local MOU for PSC. So the MOU should be amended to authorize this exclusion.

16-Results from SASEMAS will be strong recommendations which will be discussed and finally approved in a common manner. Approved corrective or preventive actions will become requirements with an actions plan /deadlines mutually accepted.

17-Safety and security audits could be performed at the same time and Audit Reports could be on the same document: this is an integrated management system. If necessary, national regulation should allow that.

18-Guidelines for harmonization of safety and security management systems in shipping companies, facilities and ports will be issued. They concern also contents and format of corresponding documents.
19-The BS SASEMAS activities will not interfere with Administrations or RO/RSO activities. It is a supplementary tool mainly to help companies and port to comply first and to improve the S&S culture after. In fact the quality of the works done by Administrations and RO/RSO will be practically analyzed and assessed…. This assessment will be one of the most important results of the BS SASEMAS. Without this permanent assessment, the system will stay as another non efficient tool!

20-No fines or other threats will, exist except the internal publication of results in a confidential manner inside the group of responsible persons!

21-Any internal management system in facilities or ports can be connected to the Port Community System. The BS SASEMAS in a common management system and could be operated via a very simple software to reduce paper stuff burden.

10.2 Comments on SASEMAS during the Completion Seminar

At the Completion Seminar of the project in Sofia, Bulgaria on the 26th of March 2009, the Black Sea SASEMAS was explained and the Ministries of Transport / TRACECA National Secretaries of the 5 project countries were asked to give their view on SASEMAS.

Introduction
After having proposed a summary of the BS SASEMAS to the 5 country representatives, an introduction to the philosophy of the BS SASEMAS was presented to the completion seminar participants.

All participants presented their method to ensure the required level of safety and security of shipping and port operations in their country and expressed rapidly their understanding of the BS SASEMAS.

Results of comments from national representatives (Some comments were in their presentations, other comments were made during discussions):

Not any country is against a common management system to operate and improve this industry.

One country (Georgia) is strongly in favor because it sees the occasion to allow the participating countries to improve their implementation of the international conventions and, at the same time, to ensure a continuous improvement of the safety culture of the region thanks to a common helpful tool.

Another country (Romania) is in favor but needs more information on the practical side of the BS SASEMAS

Two countries (Ukraine and Turkey) propose to seek elements to prove the cost-benefit of the BS SASEMAS which is in addition of all existing tools.

The fifth country (Bulgaria) proposes to study the results of such a system in European countries and economic interferences before accepting them for the Black Sea group.

Analysis

1. The BS SASEMAS is a new concept of management as defined in the Terms of Reference of the project. This concept can be seen as very ambitious but seems quite natural in the scope of the European TRACECA project.

   But, unfortunately, as far as we know, not any comparable management tool exists, all over the world; so, the European experience is definitely not available on this subject while the concept can be also implemented in comparable regions involving the EC (Mediterranean or North Seas).

   In the objective to improve the industry, the basic idea to harmonize the conditions of sea and port trade is quite evident and seems the most modern solution.

2. To ensure conformity with international standards, the already existing national or international monitoring tools have, unfortunately, proved their limits. They are mainly based on external verification tools (EC, VIMAS, and PSC). Not any sovereign country in the world likes to be assessed and fined by another one or even by a special body of a union of countries! This is a

normal human attitude. Maybe it is the time to try another one which should be in addition of the others!

The modern way of operation management is based on an internal verification system to assess conformity to referential and simultaneously to propose correction and improvement. The assessment of state of conformity and the objectives are based on internal decisions which have more chance to be performed than any other coming from an external body!

In our industry, this modern way is represented by the famous ISM code (International Safety Management code) required by the SOLAS convention. Although the implementation of the ISM code is still needing some improvement (see the BS MOU last report), this ***internal management*** system has proved its efficiency.

The BS SASEMAS is based on an ***internal*** verification system aiming at ensuring compliance and improvement. Accepting the BS SASEMAS, some of our countries have automatically agreed to be continuously assessed by the group where they are part of. This system is one of the best chances to link the Shipping industry and Port Administrations or operators of the participating countries in a common and trustful way to improve their industry in the common area.

TRACECA and TENs corridors improvement is an EC project conducted by a team of experts. In that scope another European body, the EMSA (European Maritime Safety Agency) could help the five countries to create and implement the BS SASEMAS.

3. The budget is not defined: Effectively, not any budget has been studied for the BS SASEMAS (it should be done during another phase of the project). But as everybody can see the system is very light and employs only a few personnel: DPs and suppliants (2 or 3 persons in each country). The running costs are not very important and are based on temporary assignments in the other countries.

   Moreover a complementary study could be planned to have a more accurate outline of the budget.

   This study could be funded by EC, the participating countries could ask for a complement to the project.

4. Many explanations on the BS SASEMAS have been provided during the workshops while elements of harmonization have been proposed as examples. As the common management system called BS SASEMAS is quite a new concept, a regional seminar could be organized for presenting it again to the future participants. Such regional seminar could be funded as a complement of the present project.

   Note: The country representatives will have to represent the entire industry (like the representatives of shipping companies for example).

The following comments were given during the seminar on the proposed Black Sea SASEMAS.

Bulgaria

- BS SASEMAS concept and the current BS maritime S&S framework: why introduce “an integrated S&S management system”, a.k.a. SASEMAS?

- Concept justification (as per Summary / Outline):
  * stated: facilitate & improve shipping and port industry in and around Black Sea through:
    (1) harmonization of S&S conditions, and
    (2) continuous improvement of these conditions
  * implied (arguably):
    (3) better way to manage S&S requirements,
    (4) ensured verification of conformity and operation, and
    (5) better governance (government assistance to industry to help it comply).

- BS SASEMAS Concept Downside:
  * harmonization of S&S conditions – partial, doesn't include a major player in the region (Russia);
  * harmonization of S&S conditions and their continuous improvement – depends on national political will that:
  - is framed differently due to the multidimensionality of and variance in potential member states;
  - the proposed group is not an independent body with no teeth and no clear potential to go beyond IMO- / ILO- initiated improved S&S requirements, so:
  (1) improvement is to occur only in the implementation of international agreements, and
  (2) improvement will have to pass through the usual mechanisms of national legislation and regulations;
  - for some of the 5 countries, at least, SASEMAS doesn't introduce a new & significantly better management system, improvement in comparison with existing national maritime S&S management system can be identified only in the introduction of manuals, referentials where still not extant, focused reports, pre-audits of new companies, regular assessments of ship and port operators;
  - the introduction of SASEMAS involves significant costs related to new structures, review of existing national legislation and drafting and passing of changes in national laws and regulations and internal rules of procedure, development and approval of manuals, referential, new procedures, etc.

SASEMAS Concept Introduction Prerequisites

- DETAILED Outline of SASEMAS (incl. full list of SASEMAS documents to be developed, SC and DP job descriptions, detailed operation chart that refers to DP interactions, documentation flowchart and preliminary budget estimates).
- Cost-benefit Analyses by country of the introduction of SASEMAS based on the Detailed Outline.
- Review of National Legislation by country based on the Detailed Outline and co-ordination on national level of necessary changes.
- HIGH-LEVEL MEETING of representatives of interested countries to review a draft agreement / operational arrangement
- SIGNING and COMPLETION OF INTERNAL PROCEDURES for entry into force of the agreement

Georgia

The Georgia United Transport Administration fully supports this project as it believes that safety of navigation and security of sea going vessels and ports can be achieved only by joint efforts with consideration of advanced experience and traditions of "good seagoing practice".

Legal aspects:

- It is necessary to consider that our States are signatory parts of the major UN and IMO Conventions, and a certain system has been developed and this is confirmed by numerous IMO and other international experts' reports.
- However, while working at this project we will encounter a lot of issues conditioned by the traditions and law systems already existed in our States, and we will have to determine which issues do not comply with the safety and security purposes, and where there are differences between our systems and EC system

Our proposal – In EC expert group's reports there are references to some EC directives, and we find it useful to get the texts of these Directives at our disposal in order to use them in our work.

IMO aspect:

- Voluntary IMO Member State Assessment audit scheme (in accordance with IMO Scheme) has been mentioned in the project, however this document, in our opinion, directly concerns the fleet and indirectly, almost insignificantly concerns shore infrastructure.
- At the same time we would make clear that in principle, when starting the project realization, we actually deal with two major components: (a) – shipping infrastructure (shipping companies, crewing, maritime institutions, classification societies, vessels); and (b) shore infrastructure (ports, terminals, ships agents, customs office, immigration authorities and other private companies), therefore IMO audit scheme does not fully cover this section.

Our proposal - it would be useful to develop a similar scheme for shore infrastructure,

Industry aspect:

- It goes without saying that ISM and ISPS Codes are excellent documents and their obligatory application is unquestionable. However, we believe that they are not enough, some other regulations are necessary – SIGTTO guidelines and ISGOTT – they would be useful, although a problem may occur regarding their recognition as standards by the industry.

Our proposal – it would be expedient to confirm in our recommendations the mandatory character of these instruments.

Satellite project:

- In 2008 we were concerned with two projects - regional VTOPIS and regional SAR Operation Coordination Centre - which the Russian Federation tried to take under their control, using different regional organizations and conferences for this, and we have taken a strict negative position regarding these issues and would like to clarify our position. We have no objections towards the projects as they are, however we cannot agree that Russian Federation tries to implement these project under their aegis and control.

Our proposal - We believe that VTOPIS would be an excellent supplement to maritime safety and marine environment protection, if it is included in BS SASEMAS system.

Human resources:

- In our opinion availability of the appropriate recourses – and in particular human resources - is vital, we have certain doubts that a wide range of matters subject to implementation by Maritime Administrations of our States can be implemented having 5-7 persons in the staff. Support in specification and improvement of a network of the establishments, engaged in sea affairs, with accurate definition of duties is required to some countries-beneficiaries.

Our proposal – therefore the estimation should be concentrated to operative sectors of administrations, i.e. on the organization, structure, the personnel and procedures, there should be imperative conditions in the project recommendations regarding increasing of the staff and their qualification.

Administrative aspect:

- This system (BS SASEMAS) will be headed in a common manner by a Steering Committee made of representatives from the governments of the 5 participating countries while the operational aspects will be ensured by **D**esignated **P**ersons (DPs) coming from the 5 countries also.

Our proposal – It is expedient to develop procedure of work of the given committee and to fix obligatory character of recommendations; otherwise the work will be senseless.

Additionally:

- Safety of navigation cannot be provided, if some questions connected with the organization of navigation are not solved- for example, car and passenger RO-RO ferries work on a line between ports Trabzon and Sochi, these ferries passing through the Georgian SAR region, do not submit official reports in accordance with "GeoRep" systems as it is demanded by the SOLAS convention and till now have no SAR coordinated plan with us, we tried to solve this question by means of our colleagues in Turkey but while the result is not present.
- Responsibility of Captains of ports is not defined and in general is not clear that occurs to ports - refuges on Black sea, whether their status is established???
- Maintenance with exact weather forecast, in east part of Black sea today we consider as the most reliable - the Turkish weather forecast, it gives the forecast in the integrated large scale, but it is necessary to have the exact local forecast, and it is a serious problem

Romania

The Romanian Naval Authority is very interested by the concept BS SASEMAS. So, in addition to the workshops and seminar, they ask whether if it could possible to provide more information about the new concept in order to study it and decide which are the first measures that should be taken.

Turkey

No specific comments on SASEMAS were given during the seminar by the Turkish delegation.

Ukraine

For the implementation in Ukraine of the Common Integrated Black Sea Safety and Security Management System (SASEMAS), on the basis of an information available us, it is necessary to study in details the European experience, to make an analysis of this activity, economic calculations, and only after that to make the decision on expediency of introduction of the system in the ports of the Ukraine.

10.3 Road Map for the Implementation of BS SASEMAS

It became obvious during the country workshops and the regional seminar that all participating countries were interested in improving their maritime safety and security. The introduction of Black Sea SASEMAS as a tool to reach such was also welcomed.

However, within our project we were limited to take the first steps:

- To evaluate the present maritime safety and security standards in the 5 project countries
- To define the framework of a common integrated management system for maritime safety & security
- To introduce and explain the proposed management system through country workshops and a regional seminar.
- To adjust the proposed framework based on the feedback during the workshops and
- To propose a Road Map for the implementation of the proposed management system.

Road Map
How to come to the eventual implementation of SASEMAS in the Black Sea region?

1. General acceptance of Black Sea SASEMAS

   The principal subject is that all the five countries see the benefits of SASEMAS and have the wish to implement this common integrated management system in their countries in order to improve the safety and security standards in the maritime sector.

   The key bottleneck for the acceptance of SASEMAS by the five countries will most probably be the finance of the project. So if funding is identified and secured, the actual implementation can start off.

   The five countries have, in principle, embraced the idea of SASEMAS and see the benefits of the system.

2. Official endorsement of SASEMAS

   The five Black Sea countries should officially endorse Black Sea SASEMAS and commit themselves to the Road Map for implementation of SASEMAS.

3. Funding

   Finance should be secured for the next phase: preparation of the implementation of SASEMAS.

4. SASEMAS Working Group

   A SASEMAS working group should be established. This working group is to prepare the implementation of SASEMAS.
   The members of this Working Group should have enough authority to make binding decisions.

5. Workshops

   In all countries additional SASEMAS workshops should be organized, in order to increase the understanding of the system and the benefits of it, and to create support in the complete maritime sector (public and private) for the eventual implementation of SASEMAS.

   These workshops should also be used for point 7 (detailed SASEMAS).

6. Cost-benefit analysis SASEMAS

   The Working Group is to prepare a CBA of SASEMAS.

   Based on the results of the CBA, the Working Group is to decide on whether to implement SASEMAS or to stop the project.

At the same time:

7. Black Sea SASEMAS: detailed
   The SASEMAS Working Group should evaluate the herewith proposed framework for SASEMAS, adjust the framework when found necessary, develop a detailed SASMEAS and prepare an action plan with timeframe.

If the decision is taken to implement SASEMAS:

8. Start the implementation of SASEMAS

9. Monitor the implementation of SASEMAS

Note:
Basically, the BS SASEMAS could be implemented in every country individually (though this undermines the principle of the creation of a level playing field regarding safety and security of the 5 Black Sea countries), or it could as a start be implemented in 2 countries (e.g. EU members Romania and Bulgaria), where the other 3 countries could follow later on.

The' BS SASEMAS is created as a practical and useful tool covering all sectors of our industry (other tools are covering only part of the maritime industry)
NB The BS SASEMAS will not prevent the state authorities to be volunteers for the VIMSAS program led by IMO.

And as we have said many times during the workshops and seminars the BS SASEMAS will be an internal system to improve conformity with international and/or local regulations and, at the same time, ensure a good implementation and operation of these rules. The final result will be a realistic improvement of the safety culture of the area.

The way to create, install and operate the BS SASEMAS proposed takes into account our solid experience of managements systems implementation and operation. Conditions of launching of this common management system are detailed and we think there is not another way to carry out this original and ambitious project.

We should have preferred to get a formal written acceptance from all the countries involved but we had not the opportunity to officially interrogate the states.
To solve this problem, we believe the EC can interrogate officially every state involved about their intentions and involvement before launching the BS SASEMAS inside a new project

However, there is another possibility noticed already in the report by starting the BS SASEMAS with only two countries (the most involved like Georgia and Ukraine or Romania). This trial could be launched for a period of one or two years and the other countries continuously informed of the progress of the system and the effective first results.
NB It is intended that the way to prepare, install and carry out the system does not change from the proposition shown in chapter 10.3.

11 Part 6: GUIDELINES for the SHIPPING INDUSTRY

Introduction

In order to install a common management system for Safety and Security of shipping in the Black Sea area (BS SASEMAS), common referential must be used. Due to applicable international regulations, Safety and Security of operations can be managed at the same time even they need different documents and a certification (of conformity) process.

The present guidelines are published in order to help the shipping companies to implement or review their own safety management system.

The objective of the SASEMAS is not to impose a format for the companies SMS but to propose a model which companies can use in the aim of harmonizing actions taken and documents issued to reach the conformity with the ISM Code.

The main referential required in this industry are the SOLAS Convention and all other codes or guidelines proposed by IMO, ILO and ship-owners or classification societies associations.

Contents

SAFETY of Ships
SECURITY of SHIPS

Safety of Ships

The most important tool issued by IMO is the ISM Code (SOLAS Chapter X). This code was issued in the late nineties and can be implemented in all companies and on board all ships.

1-Origin of the ISM Code

- In order to ensure safety at sea and prevention of human injury or loss of life and avoidance of damage to the marine environment, a code for management of safety and pollution prevention has been set up and made mandatory to the shipping industry but it is limited to shipping companies and ships.

- The application of the ISM Code support and encourage the development of a ***safety culture*** in shipping.

- In force for almost 15 years it has been recognized as a good tool for improvement of safety in our industry

2-Basic requirements

- A safety management system (SMS) must be created and implemented in any company working in international trade and on board any ship of more than 500 Gross (in a word : SOLAS Ships)

- Such management system has to be in conformity with the ISM Code… which is issued in general terms … and, unfortunately, authorize some interpretations. The system proposed by the BS SASEMAS takes into account all the recommendations of the IMO.

3-Safety Management System or SMS

- If the objectives and the requirements of the code are better known and understood to-day, there is no official model form yet for a Safety Management System. The BS SASEMAS propose here a model which is issued from a long experience in the subject and which take into account the last amendments of the code (issued in 2007) and which will ease our internal verifications.

- Summary of the model: 12 subsystems

  1- Objectives of the SMS
  2- Safety and environmental protection policy of the Company

3- Structure of the system including company and Master's responsibilities and authority
4- Designated Person(s) ashore (DPA)
5- Management of Human Resources
6- Management of ships operation including occupational Safety and health at work
7- Emergency preparedness of the company and the ships
8- Reports and Enquiries
9- Maintenance of the ships
10- Documentation
11- Management of Internal verifications
12- Management of a Continuous improvement

4-Contents of each sub-system

4-1 Objectives of the SMS
They should be as §1.2.2 of the ISM code with a focus on safety culture of the company and personnel. They should be measurable by issuing performance indicators. These performance indicators will be checked or issued, when necessary, by the BS SASEMAS DPs.

4-2 Safety and Environment policy
Issued by the top management, dated, signed and posted, it is describing how the objectives will be reached mainly by designating persons in charge (DPAs), by proclaiming the Master's discretion for safety /security and ensuring an allocation of sufficient resources for improvement.

4-3 Organization of the company and each ship

- Job description in the entire company personnel and crew members on every ship (authority, responsibility, line of command or report)

- Description of the ISM structure including the DP line of report and responsibility. The role of the ISM DP (or DPA –designated Person Ashore) is a corner stone of the safety culture of the company and its crews, so a specific development is provided down below.

- Detail of the Master's authority and responsibility in the safety and security of the ship during his command.

4-4 Designated Person(s) Ashore (DPAs)
A key role, as identified by the ISM Code, in the effective implementation of a safety management system is that of the Designated Person. This is the person based ashore whose influence and responsibilities should significantly affect the development and implementation of a safety culture within the Company.

DPAs tasks
The designated person should verify and monitor all safety and pollution prevention activities in the operation of each ship. This monitoring should include, at least, the following internal processes:
1communication and implementation of the safety and environmental protection policy;
2 evaluation and review of the effectiveness of the safety management system;
3 reporting and analysis of non-conformities, accidents and hazardous occurrences;
4 organizing and monitoring of internal audits;
5 appropriate revisions to the SMS; and
6 ensuring that adequate resources and shore based support are provided.

To enable the designated person to carry out this role effectively, the Company should provide adequate resources and shore-based support. These include:
1 personnel resources;
2 material resources;
3 any training required;

4 clearly defined and documented responsibility and authority; and
5 authority for reporting non conformities and observations to the highest level of management.

The Designated Person(s) should have the qualifications, training and experience to effectively verify and monitor the implementation of the safety management system in compliance with the ISM Code. Recommendations on the qualifications, training and experience of these DPAs have been issued in IMO MSC-MEPC.7/circ 6 in October 2007

4-5 Management of Human Resources
The SMS must ensure that the personnel has adequate Knowledge, Understanding and Proficiency for their job. In case of change in operations, a management of the adaptation should be organized
Shore and shipboard personnel must be familiarized with the SMS on arrival and this training must be periodically refreshed. Each ship must be manned with qualified, certified and medically fit personnel
Information must be provided in language understood by the personnel. A common working language must be defined ashore and onboard
Personnel ashore or on board involved in the management system must be adequately trained. Any training which may be required in support of the SMS must be provided to the personnel concerned

4.6 Operations of the Ship
- They include shore and shipboard operations and Procedures must be established with check-list as appropriate
- A risk management procedure (assessment and issuance of reduction measures) must be set up for any operation involving safety of personnel or protection of the environment
- All shipboard operations including port operations must be constantly analyzed in the aim of improvement

4-7 Emergency Preparedness
- All possible emergency situations which can occur on board the ship must be identified and analyzed in order to prepare preventive or corrective actions
- A crisis cell is prepared ashore in order to help the Captain during emergencies
- The personnel involved in the crisis cell must be trained
- Periodical drills and exercises must be organized and planned as per corresponding regulation. A corresponding annual plan should be communicated to the personnel

4-8 Reports and Enquiries
- A reporting system should be issued in order than the top management is aware of any dysfunction of the SMS. This could be done via internet
- Internal enquiries must be carried out by competent persons in case of accident or near-misses, the aim is to get a feedback in order to improve the safety culture of the company
- This personnel must have been trained taking into account the IMO guidelines
- Report and enquiries are part of management master's or company's reviews

4-9 Maintenance of the Ship
- A planned maintenance of the ship and her equipment must be organized using preferably an adequate software

- An identification of critical equipment must be studied in the scope of the risk assessment analysis (preventive measures will be defined in order to reduce the risks for the ship and her personnel or passengers
- Equipment in stand-by should be considered as critical equipment; maintenance and test should be planned accordingly

NB The maintenance of the ships is paramount and his one of the best manner to reduce risks in our industry

4-10 Documentation

- Any management system needs documentation: policy, procedures, check lists, recordings etc...
- A control of this documentation must be organized to ensure that they are issued by authorized personnel and are updated
- Today a computerized data base should be used via a simple software

4-11-Internal Verifications

- The key point of a management system is the internal verification.
- An internal audit system must be set up for periodical audits covering all parts of the SMS
- These audits must be carried out by competent persons trained in this matter. The auditors must be independent (having no responsibility) of the sector audited
- Any non conformity discovered must provoke a corrective action which will be followed by the auditor himself

4-12 Continuous Improvement

- A Periodical analysis by the master and the company's top management must be carried out via reviews
- The master's review must analyze the operation of the SMS on board his ship
- The top management reviews must analyze:
  - The continuous conformity of the system to applicable rules (results of conformity audits and new rules)
  - The global operation of the SMS in the entire company and on board its ships
  - A strategic plan to correct non-conformities and improve the safety culture of the company and its personnel

5- Examples

Examples of safety and security policy (annex 1) and SMS contents (annex 2) is given hereafter in

Security of Ships
The most suitable tool for managing the security of the ships is the recent ISPS (International Ship and Port facility Security Code

1-Origin of the ISPS Code
In the aftermath of 9th eleven, IMO received the task to prepare mandatory tools to protect the shipping industry from terrorism.
Having a power limited to ships and their interface in the ports (the facility), the Organization has prepared a prevention tool, the ISPS Code, which has been implemented on board all SOLAS ships and in all port facilities working with them.
In addition, Ports themselves and non SOLAS ships have been required (EU) or recommended to apply the ISPS code or equivalent security measures**.**

2-Basic Requirements
All ships concerned must have implemented a Ship's Security Plan (SSP). This plan gathers all preventive measures which the ship will take at the 3 security levels defined by the code. These measures must cover all the treats evaluated in a formal Ship's Security Assessment (SSA) approved by the flag state or their representative.
The SSP must address, as a minimum, the following items:

1- Measures to prevent carriage and use of weapons or dangerous substances on board
2- Measures to prevent unauthorized access to restricted areas on board
3- Measures to prevent unauthorized access to ships
4- Procedures for responding to security threats
5- Procedures for responding to instructions from governments may give at security level 3
6- Procedures for evacuation of the ship in case of security threats
7- Security duties of shipboard personnel
8- Procedures for auditing the security activities
9- Procedures for security training (Initial training, drills and exercises)
10- Procedures for interfacing port facility security
11- Procedures for reviewing the SSP
12- Procedures for reporting security incidents
13- Duties of the Ship Security Officer
14- Duties of the Company Security Officer
15- Procedures for maintenance of security equipment
16- Frequency of testing and calibration of security equipment
17- Identification of SSAS activation points
18- Management of Ship Security Alert System
19- Recording of security activities must be confidentially kept on board

The SSP must be protected from unauthorized access; however, if flag or port state officer have clear grounds to believe that the ship is not in compliance, some parts of the SSP can be shown by the master but some particularly confidential parts cannot subject to inspection unless authorized by contracting governments concerned.
To follow all these requirements, the SSP must be operated via a Security Management System which ensures conformity with all code requirements as:

- Security policy in the aim of acquiring a security culture
- Confidentiality of documents and operations
- Security Organization of the ship and her operations
- Control and recordings of security activities

3-Ship Security Plan
The ship security plan could be divided in two parts:

- Restricted part (1st part)
- Confidential part (2nd part)

3.1: Restricted part

This part can be shown to port state control officers, external auditors, port facility or port security officers. It includes:

- Company Security Policy emphasizing the Captain's discretion for security
- Organization of the company and ship's security
- Company instructions to the Captain for management of security at sea and in ports
- Security Operational procedures including the DOS procedure
- Security Training procedure including a plan for drills and exercises
- Logbook N°1 which includes only facts of security activities

3.2: Confidential part (2nd part)

This part should not be consulted by unauthorized persons. Only company's managers, CSO, Captains, SSOs and internal auditors have access to this document. Demands for consultation must go through a formal manner to the contracting governments concerned.

This part contents:

- Applicable ship's security measures at the three security levels
- Procedures for access to the ship and the restricted zones
- Duties of the crew in the plan
- SSAS: location, activation, tests and maintenance
- Restricted Areas procedure including keeping of emergency exits
- Procedure to react in case of threats or breach of security
- Ship's Security Assessment (SSA)
- Logbook N°2 which includes:
  Security incidents, drills and exercises, audits, reviews reports, Communications recordings
  DOS and acknowledgement receipts
  Feedback analysis cards
  Security assessments of ports and port facilities

4- Examples

The following examples are provided:

- Summary of Ship's security assessment
- Summary of Ship's security plan 1st and 2nd part

Company's Safety Management Manual (example)

TABLE OF CONTENTS

9-2		Bunkering Procedure	"	2	14.03.08	2
9-2.1		Bunkering and state of capacities CL	30.1.08	2	14.03.08	2
9-3		Waste management Procedure	Nov 07	2	14.03.08	1
9-4		Ballast management Procedure	"	2	14.03.08	1
10	**7-11**	**SYSTEM for Management of ISM DOCUMENTS**	Aug 08	3	14.03.08	5
10-1		Documents flowchart for ISM compliance	"	2	14.03.08	1
10-2		List of publications on board the ship		2	14.03.08	6
10-3		List of publications ashore in company office		2	14.03.08	2
11	**4-12**	**VERIFICATION & REVIEWS System**	"	2	14.03.08	3
11-1		**Form**: ISM Internal audit report	30.1.08	2	14.03.08	3
11-2		**Form:** Master's review	30.1.08	2	14.03.08	3
11-3		**Form:** Management review	30.1.08	2	14.03.08	3
GLOS		Glossary of terms	NOV 07	2	14.03.08	2
DEF		Definition of terms used in this manual	"	2	14.03.08	5
Ann 1		Safety card	30.1.08	2		1
		TOTAL				**140**

Ship's security assessment

SUMMARY

N°	SSA ¶	ISPS ref	Rev Date	Rev	Pages
1	**Cover**				**1**
2	**Summary**				**1**
3	**Conformity grid with ISPS code**	**ISPS code**			**1**
4	**I-Foreword**	**ISPS**			**3**
5	**II – General Information on the Company and the ship**	**B.8.2 /7 A 8.4.1**			**2**
6	II-1 Ship's particular	**DNV**			**1**
7	**III- ASSESSMENT**				
8	III-1 Method of assessment used	**B 8.2**			**3**
10	III-2 Assessment of physical security of the ship	**B 8.3 & .5**			**6**
11	III-3 Assessment of security threats	**A 8.4.3 & B 8.9**			**16**
12	III-4 Assessment of key operations to be protected	**A 8.4.2 B 8.3 /10**			**5**
13	III-5 Existing security measures	**A 8.4.1**			**2**
14	III-6 Identification of weaknesses	**A 8.4.4**			**1**
15	**IV- Results:** Recapitulation of measures which could be taken on the three security levels	**B 8.12**			**3**
16	**V- VALIDATION of the SSA**	**B 8.13**			**1**
21	**VI- AMENDMENTS to the SSA**				**NA**
23	Consultant having carried out the SSA	**A 8.3**			**1**
	Certificates of competency of the consultant	**B 8.4**			**1**
	TOTAL				**48**

Ship's security plan 1st part

N°	ITEM	Ref SOLAS	Rev Date	Rev	page
1	**Cover**			**0**	**1**
2	**TABLE of CONTENTS**	**ISPS code**		**1**	**1**
3	**LIST of SECURITY DOCUMENTS**			**0**	**1**
	Master's discretion for safety and security	**XI-2 Reg 8**		**0**	**1**
5	**COMPANY/SHIP SECURITY ORGANISATION**	**B 9.2**		**1**	**6**
6	**Instructions to the Master for PSC**	**XI-2 Reg 9**		**0**	**2**
7	**Company Security Officer (CSO)**	**A 11 & 9.4**		**0**	**2**
8	**Ship Security Officer (SSO)**	**A 12 et 9.4**		**0**	**2**
9	**Training, drills and exercises**	**A 9 4.9**		**0**	**3**
10	**Planning of drills & exercises**	**A 13.4**	**Yearly**	**NA**	**1**
11	**Types of security drill or exercise**	**B 8.9**		**0**	**1**
12	**SECURITY LEVELS**	**A 9.1**		**0**	**1**
13	**Ship relationships**	**B 9.2**		**1**	**2**
14	**INTERFACING with Ships, Port Facilities & Port**	**A 9.4.10 &A5**		**1**	**3**
15	**DOS PROCEDURE**	**A 5 et B 5**		**0**	**2**
	SECURITY OPERATIONAL PROCEDURES				
16	TELEPHON CALL	**Industry**		**0**	**2**
17	BOMB THREAT ALERT	**Industry**		**0**	**1**
18	SEARCH Plan	**ISPS § 9**		**0**	**2**
19	Closing of doors in case of MARSEC 2 or 3	**ISPS § 9**		**0**	**4**
20	STOWAWAY PROCEDURE after a port call	**IMO recom**		**0**	**1**
21	PROCEDURE for EVACUATION while in PORT or DRYDOCK	**A 9.4.6**		**0**	**1**
22	DOS FORM	**A5/B5**		**0**	**1**
23	Posters (SSO, RAZ)			**0**	**2**
24	SSO certificates	**A 12**		**NA**	**NA**
	TOTAL				**43**

Ship's security plan 2nd Part

N°	ITEM	Ref	Rev	Pages
1	**Cover of SSP Part 2 and SSA**	**cover**	**0**	**1**
2	**Cover of SSP 2 part**	**cover**	**0**	**1**
3	**Summary**		**0**	**2**
4	**SECURITY MEASURES APPLICABLE TO THIS SHIP**	**A 9.4.1**	**0**	**6**
5	Access points to the ship and control measures in port	**B 9.9 to 9.17**	**0**	**1**
6	Identification required to board the ship	**A 9.4.3**	**0**	**1**
7	Specific measures for authorities, pilots or emergency teams	**IMO cir**	**0**	**1**
	MEASURES to be taken at the different security levels			
8	Measures to be taken at security level 1	**B 9.2.4**	**0**	**1**
10	Measures to be taken at security level 2	**B 9.2.5**	**0**	**1**
11	Measures to be taken at security level 3	**B 9.2.6**	**0**	**1**
12	**SECURITY DUTIES OF THE SHIPBOARD PERSONNEL**	**A 9.4**	**0**	**1**
14	Security muster list	**A 9.4.7**	**0**	**1**
17	Security patrol	**A 9.4.7**	**0**	**3**
18	**SHIP SECURITY ALARM SYSTEM (SSAS)**	**XI-2 Reg 6**	**0**	**1**
19	**RESTRICTRED AREAS OF THE SHIP**	**A 9.4.2**	**0**	**2**
20	**PLAN OF THE RESTRICTED AREAS**	**B 9.4.17**	**0**	**2**
21	**KEEPING OF EXITS AT EACH SECURITY LEVEL**	**A 9.4.6**	**0**	**2**
22	**PROCEDURES FOR RESPONDING TO SECURITY THREATS or BREACHES of SECURITY, including PROVISIONS for MAINTAINING the SHIP OPERATIONS or the SHIP/PORT INTERFACE** **1. Activating the SSAS** **2 Calling for EMERGENCY STATIONS** **3. Emergency SHUT-DOWN of ship's prop** **4. Procedure for informing contracting GOVERNMENTS (Flag, Coastal or Port State) of a SECURITY INCIDENT** **5. Acting on instructions given by the governments at LEVEL 3** **6. SEARCHING** **7. SMUGGLING** **8. HI-JACKING** **9. IN the event of Military Action**	 **A 9.4.18** **A 9.4.4** **A.9.4.4** **B 9.4.4 9.2.7** **A 9 4.4** **B 4.24** **A 9.4.4** **A 9.4.4** **A 9.4.4** **A.9.4.4** **A.9.4.4**	**0**	**3**
		TOTAL		**30**

12 Part 7 Guidelines for the Port Industry

Introduction
In order to install a common management system for Safety and Security of Port Operations in the Black Sea area (BS SASEMAS), common referential must be used.
In the Black Sea countries, Safety of port and port operations are governed by National or European rules; suitable recommendations are also available from international organizations (ILO) or industrial forums (OCIMF).
If international mandatory rules exist for the Security of Port Facilities, only recommendations exist for the security of the port itself.
Safety and Security are managed each of them via management systems and we propose to link both systems in order to save readability, time and money
The present guidelines are published in order to help the ports and port-facilities operators to implement or review and improve their own safety and security management systems.
The objective of the SASEMAS is not to impose a format for the Safety and Security management systems but to propose a model which ports facilities and ports can use in the aim of harmonizing actions taken and documents issued to reach the conformity with rules or recommendations.

Referential
The main referential required in this industry are the SOLAS Convention and all other codes or guidelines proposed by IMO, ILO and ship-owners or classification societies associations.

Contents

SAFETY of Port and Port facilities
SECURITY of Port facilities and Ports

Safety of Port or Port Facilities

As the industry has published its own rules for some specific operations (ISGOTT for oil terminals for example), the most important tool for port safety has been recently elaborated by ILO in 2005.This code of practice on “safety and health in ports” replaces former ILO publications issued in the 1970s.
This code of practice is not a legally binding instrument and is issued to provide guidance for the port industry and has the objective to improve the global situation.
BS SASEMAS propose to take this code of practice as referential

1-Contents of this Code of Practice
-Definition of responsibilities of all actors of the port industry including those of the port workers
- Guidance for management of safety and health within a ILO-OSH 2001 management system
- Guidance on safety of infrastructures, plant and equipment of the port
- Guidance on use of lifting appliances and loose gear
- Guidance on operations on shore
- Guidance on operations afloat
- Guidance on operation of dangerous goods
- Guidance on health of workers and welfare facilities
- Guidance for emergency arrangements
- Guidance on environmental issues

The port operations have to be managed for the goods they handle and the operations they perform. The BS SASEMAS will take the ILO-OSH 2001 as a referential for management of safety and health in all the facilities and ports of the five participating countries

2-Basic Requirements of the Guidelines on Occupational Safety and Health Management Systems in Ports or Port Facilities

- An occupational safety and health management system (OSHMS) must be created and implemented in any port and port facility.

- Such management system has to be in conformity with the ILO guidelines on occupational safety and health management systems ILO- OSH 2001 adapted to this industry.
- The management system will take into account the guidelines proposed in the code of practice.
- The OSH management system should be compatible with or integrated in other management systems in the port (Mainly: security, environmental protection and quality)**.**
- NB this system has been adopted by many governments and recently adapted to be auditable

3-Occupational Safety and Health Management System or OSHMS: contents 12 sub-systems

1-Objectives of the OSHMS
Consistent with the OSH policy and based on the initial or subsequent reviews, measurable OSH objectives should be established, they are:

- specific to the port and appropriate to, according to its size and nature of activity;
- consistent with the relevant and applicable national laws and regulations, and the technical and business obligations of the port with regard to occupational safety and health;
- focused towards continually improving workers' OSH protection to achieve the best OSH performance;
- realistic and achievable;
- documented, and communicated to all relevant functions and levels of the port personnel
- periodically evaluated and if necessary updated.

The selection of performance indicators should be according to the size and nature of activity of the port and the OSH objectives. The results must be used to determine the level of the safety culture of the port.

2- Safety & Health Policy of the port which includes the participation of the personnel as a key element; this policy should be:
-specific to the port and appropriate to its size and the nature of its activities;
-concise, clearly written, dated and made effective by the signature or endorsement of the employer or the most senior accountable person in the port
-communicated and readily accessible to all persons at their place of work;
-reviewed for continuing suitability; and
-made available to relevant external interested parties (sub contractors, clients, market),

This policy should include, as a minimum, the following key principles and objectives to which the port is committed:
-protecting the safety and health of all members of the port by preventing work-related injuries, ill health, diseases and incidents;
-complying with relevant OSH national laws and regulations, voluntary programs, collective agreements on OSH and other requirements to which the port subscribes;
-ensuring that workers and their representatives are consulted and encouraged to participate actively in all elements of the OSH management system; and
-continually improving the performance of the OSH management system.

3- Structure of the system where managers and employee's responsibilities and authority are defined, communicated and accepted by all personnel of the port. These requirements can be issued as Job descriptions.
The managers should provide appropriate resources to ensure that persons responsible for OSH, including the safety and health committee, or the persons in charge of implementation and verifications, can perform their functions properly;

4- Some Designated Person(s) –DP- appointed with responsibility, accountability and authority for the development, implementation, periodic review and evaluation of the OSHMS, and ensuring periodic

reporting to the senior management on the performance of the OSHMS and promoting the participation of all members of the personnel

5- Management of Human Resources (recruitment, training and continuous improvement of competences)
All personnel must be medically fitted and have the Knowledge, Understanding and Proficiency (KUP) for the work they are intended to perform.
A familiarization program must be in place to allow new employees to be accustomed to safety and health issues specific to the port.
Assessment of competences of port workers must be conducted periodically in order to detect needs for training and arrange accordingly at no cost for workers and should take place during working hours, if possible.

6- Management of operations by identifying and assessing risks related to the specific operations of the port in order to issue risk reduction measures including arrangements, procedures and instructions for work. Change management should also be taken into account

7- Management of Emergencies: prevention, preparedness and response arrangements should be established and maintained. These arrangements should identify the potential for accidents and emergency situations, and address the prevention of OSH risks associated with them.
The arrangements should be made according to the size and nature of activity of the port**.**

8- Reports and Enquiries: Investigation of the origin and underlying causes of work-related injuries, ill health, diseases and incidents should identify any failures in the OSHMS and should be documented. Such investigations should be carried out by competent persons, with the appropriate participation of workers and their representatives.
The results of such investigations should be communicated to personnel for corrective and preventive actions, included in the management review and considered for continual improvement activities

9- Maintenance of the port infrastructure and equipment: a maintenance plan should be implemented with the aim to maintain the equipment in order. Tests must be conducted taking into account the national rules or the recommendations of the builders

10- Documentation: all relevant documentation on referential and bylaws, instructions or guidelines on equipment constantly updated will be displayed to managers and workers. In the other hand record must be issued and accessible to workers and auditors

11- Management of Internal verifications: Arrangements to conduct periodic audits are to be established in order to determine whether the OSHMS and its elements are in place, adequate and effective in protecting the safety and health of workers and preventing incidents. Propositions for correction should be issued.
Internal auditors must be independent of the audited sector. The audit results and audit conclusions should be communicated to those responsible for corrective action.

12- Management of a Continuous improvement: reviews of the OSMMS should be conducted in order to correct or improve the system in the objective of continuous improvement of the safety culture of the port

Security of Port Facilities

The most suitable tool for managing the security of the port facilities is the mandatory ISPS (International Ship and Port facility Security) Code

1-Origin of the ISPS Code

In the aftermath of 9th eleven, IMO received the task to prepare mandatory tools to protect the shipping and port industry from terrorism.

Having a power limited to ships and their interface in the ports (the facility), IMO has prepared a prevention tool, the ISPS Code, which has been implemented on board all SOLAS ships and in all port facilities working with them.

In addition, Ports themselves and non SOLAS ships have been recommended to apply equivalent security measures (IMO/ILO security guidelines for ports and MSC circular 1283).

2-Basic Requirements for Port Facilities

All facilities concerned must have implemented a Port Facility Security Plan (PFSP). This plan gathers all preventive measures which the facility will take at the 3 security levels defined by the code. These measures must cover all the threats evaluated in a formal Port facility Security Assessment (PFSA) approved by the port State.

The PFSP must address, as a minimum, the following items:

- Measures to prevent carriage and use of weapons or dangerous substances in the facility or on board
- Measures to prevent unauthorized access to the port facility, ships moored or restricted areas of the facility
- Procedures for responding to security threats
- Procedures for responding to instructions from governments may give at security level 3
- Procedures for evacuation of the port in case of security threats
- Security duties of port facility personnel
- Procedures for interfacing with ship security activities
- Procedures for reviewing the security plan and updating
- Procedures for reporting security incidents
- Identification and duties of the Port facility Security Officer
- Measures to ensure security of information
- Measures to ensure effective security of cargo and equipment
- Procedures for auditing the port facility security plan
- Procedure to respond to a ship security alert system
- Procedure for facilitating shore leave of ship's personnel and access of visitors
- Training, drills and exercises shall be carried out periodically
- Recording of security activities must be confidentially kept

NB: The PFSP must be protected from unauthorized access;

To follow all these requirements, the PFSP must be operated via a Security Management System which ensures conformity with all code requirements as:

- Security policy in the aim of acquiring a security culture
- Confidentiality of documents and operations
- Security Organization of the facility and its operations
- Control and recordings of security activities

3-Port Facility Security Plan

The ship security plan could be divided in two parts:

- Restricted part (1st part)
- Confidential part (2nd part)

3.1: Restricted Part (1st Part)

This part can be circulated within the port facility organization and external auditors. It includes:

- Port Facility Security Policy
- Organization of the security in the facility
- Government or Port Authority instructions for security

- Security Operational procedures including the DOS procedure
- Security Training procedure including a plan for drills and exercises
- Logbook N°1 which includes only facts of security activities

3.2: Confidential part (2nd part)

This part should not be consulted by unauthorized persons. Only facility managers, PFSOs, PSOs and internal auditors have access to this document.

This part contents:

- Applicable ship's security measures at the three security levels
- Procedures for access to the facility and the restricted zones
- Duties of the personnel in the plan
- Restricted Areas procedure including keeping of emergency exits
- Procedure to react in case of threats or breach of security
- Port Facility Security Assessment (PFSA)
- Logbook N°2 which includes:
  Reports of Security incidents, drills, exercises, audits and reviews, Communications recordings
  DOS and acknowledgement receipts
  Feedback analysis cards
  Security assessments of calling ships

4- Examples

The following examples are provided in annex:

- Summary of Port Facility Security Assessment
- Summary of Port Facility Security plan 1st and 2nd part

Summary of a PFSA

SUMMARY of a PFSA

Recordings of consultation		**Review**	**x**
Table of contents		**0**	**1**
Conformity grid to referential (ISPS part A)	**ISPS**	**0**	**3**
PREAMBULE with referential used		**0**	**2**
1 – General Informations on the facility (Title)			
1.1. Description of the facility - Port and terminal plans	**Port**	**0**	**4**
1.2. Operation of the port	**PA**	**0**	**2**
1.3. Operations carried out in the facility	**Fac**	**0**	**2**
1.4 Security measures of the Port	**Port**	**0**	**2**
1.5 Security measures of the company in charge of the facility + Access plans	**Fac**	**0**	**4**
1.6 Safety measures of the port and facility	**Port**	**0**	**2**
2 – Security Information (Title)			**1**
2-1 Historical and present security situation of country, region or area	**B 15.4**	**0**	**2**
2-2 National recommendations	**XI-2 r 3**	**0**	**1**
3- Security Assessment (Title)	**ISPS**		
3-1 Formal method used		**0**	**3**
3-2 Persons having performed the Security assessment	**A 15.3**	**0**	**1**
3-3 Identification and evaluation of important bassets and infrastructures it is important to protect ; Measures proposed to reduce the risk to a tolerable level	**A 15.5.1**	**0**	**2**
3-4 Identification and evaluation of possible threats to the assets and infrastructures and the likelihood of their occurrence. Proposition of security measures to reduce the risk	**A 15.5.2** **B 15.11**	**0**	**20**
3-5 Identification of weaknesses, including human factors, in the infrastructure, policies and procedures	**A 15.5.4** **B 15.16**	**0**	**1**
4 – Results of the assessment (Title)	**A 15.5.3**		
4-1 General countermeasures proposed	**«**	**0**	**3**
4-2 Countermeasures proposed for MARSEC 1	**«**	**0**	**1**
4-3 Countermeasures proposed for MARSEC 2	**«**	**0**	**1**
4-4 Countermeasures proposed for MARSEC 3	**«**	**0**	**1**
4-5 Possible temporary measures which are recommended	**B 16.6**	**0**	**3**
5- Validation of the PFSA (Title)			
5-1 Review of the PFSO	**A 17.2.1**	**0**	**1**
5-2 Measures decided by the facility and implementation calendar	**B 15.14**	**0**	**1**
6- Verification and Approval (Title)			
6-1 Advice of the Port Authority	**65Art 5**		**x**
6-2 Advice of the Port Security Committee	**Code of**		**x**
6-3 Report and approval of the Designated Security Authority	**A 15.2.1**		**x**
7- **Revews and amendements to PFSA**	**A 15.4**		**x**
8- **Glossary**		**0**	**1**

Summary of a PFSP 1st and 2nd part

PFSA	Ref	Revue	Pages
Recordings of consultation			x
Table of contents		0	1
Conformity grid to referential (ISPS part A)	ISPS	0	3
PREAMBULE with referential used		0	2
1 – General Informations on the facility (Title)			
1.1. Description of the facility - Port and terminal plans	Port	0	4
1.2. Operation of the port	PA	0	2
1.3. Operations carried out in the facility	Fac	0	2
1.4 Security measures of the Port	Port	0	2
1.5 Security measures of the company in charge of the facility + Access plans	Fac	0	4
1.6 Safety measures of the port and facility	Port	0	2
2 – Security Information (Title)			1
2-1 Historical and present security situation of country, region or area	B 15.4	0	2
2-2 National recommendations	XI-2 r 3	0	1
3- Security Assessment (Title)	ISPS		
3-1 Formal method used		0	3
3-2 Persons having performed the Security assessment	A 15.3	0	1
3-3 Identification and evaluation of important bassets and infrastructures it is important to protect ; Measures proposed to reduce the risk to a tolerable level	A 15.5.1	0	2
3-4 Identification and evaluation of possible threats to the assets and infrastructures and the likelihood of their occurrence. Proposition of security measures to reduce the risk	A 15.5.2 B 15.11	0	20
3-5 Identification of weaknesses, including human factors, in the infrastructure, policies and procedures	A 15.5.4 B 15.16	0	1
4 – Results of the assessment (Title)	A 15.5.3		
4-1 General countermeasures proposed	«	0	3
4-2 Countermeasures proposed for MARSEC 1	«	0	1
4-3 Countermeasures proposed for MARSEC 2	«	0	1
4-4 Countermeasures proposed for MARSEC 3	«	0	1
4-5 Possible temporary measures which are recommended	B 16.6	0	3
5- Validation of the PFSA (Title)			
5-1 Review of the PFSO	A 17.2.1	0	1
5-2 Measures decided by the facility and implementation calendar	B 15.14	0	1
6- Verification and Approval (Title)			
6-1 Advice of the Port Authority	65Art 5		x
6-2 Advice of the Port Security Committee	Code of		x
6-3 Report and approval of the Designated Security Authority	A 15.2.1		x
7- **Revews and amendements to PFSA**	A 15.4		x
8- **Glossary**		0	1

Security of Ports

As noticed above, the ISPS code is limited to port facilities. Due to this lack of guidance, on the one hand, in association with ILO, IMO has also published a code of practice on SECURITY in PORTS. On the other hand the European Parliament has issued a directive (65/2005) on enhancing port security which is dedicated to implement security measures in the ports themselves through a Port Security Plan. IMO/ILO code of practice and the European directive are similar. Today many countries have adopted the IMO/ILO directive when two countries in our project have to follow the directive 65.

1-Objectives of the Code of Practice

- Introduce community measures to enhance security in ports
- Create implementation mechanism for these rules
- Ensure compliance monitoring tools

2-Ports Concerned: all ports in which the ISPS code applies

3-Basic Requirements:

- A security policy must be set up inside a security management system
- Limits of the ports must be defined
- Access to the port must be controlled
- Implementation of ISPS code is ensured for all port facilities concerned
- A port security Authority must be designated; It will take care of security assessment and plan
- A port security assessment should be carried out; it has to include adjacent areas which have a possible impact on the port security
- A port security plan should be developed, maintained and updated
- Security levels must be defined for ports or part of ports. In fact they are the same 3 security levels defined in the ISPS code
- A Port security committee must be put in place. It has an advisory role and shall include all parties involved in port security
- Coordination between security measures of ships calling and facilities included in the port must be ensured
- A Port security officer must be designated to ensure a 24/7 contact availability. He has the responsibility to implement and maintain security measures addressed in the plan. He ensures the liaison with the PFSOs.
- Personnel must be trained by initial specific training, drills and exercises

4- Contents of the Port Security Plan

As for a facility plan, the PSP should address the following for each security level:

- Identify persons designated to receive security-sensitive information
- Measures to prevent unauthorized entrance in the port of weapons or dangerous substances
- Measures to prevent any unauthorized movements of goods or equipment in the port
- Identify restricted areas
- Procedures for response to security threats
- Defined security measures to be taken for the 3 security levels and to follow the state instructions for level 3
- Procedures for evacuation of the port if considered necessary to protect lives
- Duties of the personnel involved in the port security
- Procedures for interfacing with port facilities security activities
- Procedures to periodically audit and review the PSP
- Procedures for reporting security incidents
- Measures to ensure the security of relevant information contained in the plan
- Measures to facilitate seafarer's routing from port to facility and vice versa

5- Examples of:

- Port Security Assessment (PSA)
- Port Security Plan (PSP)

Summary of a PSA

PSA	Date	Review	Pages
1 – General information on the port	Title	0	
1.1. Presentation : situation, UN number, limits (extract from a marine chart) Drawings of the Port with the administrative limits		**0**	
1.2. Operation of the port: type of activities, personnel, work organization , port regulations		**0**	
1.3. Included Port facilities having an approved security plan		**0**	
1.4. Included port facilities not having an security plan			
1.5. Other parts of the port not identified as port facilities			
1.4 Activities of port facilities (passengers, ro-ro, containers, oil terminals, etc…)		**0**	
1.5 Existing security measures in contingency plans Prevention or response measures		**0**	
2 – Security information	Title	0	
2-1 Security measures taken at the national level		**0**	
2-2 Security measures taken at the port level		**0**	
2-3 Historical security of the country, the region or the port		**0**	
2-4 Recommendations for the Port State government		**0**	
2-5 Existing measures for control of access		**0**	
4- Port security assessment	**Title**	**0**	
4-1 Formal method used		**0**	
4-2 Persons having carrying out the security assessment		**0**	
4 –3 Identification and evaluation of critical assets and infrastructures that it is important to protect .		**0**	
4-4 Identification of threats to assets and infrastructures in order to establish and prioritize security measures		**0**	
4-5 Identification of weaknesses, including human factors in the infrastructure, policies and procedures		**0**	
4-6 Identification of port perimeter protection, access control and personnel clearance requirements for access to the port and restricted areas			
4-7 Summing up of recommended measures		**0**	
4-8 Remaining vulnerabilities		**0**	
5 – Results of the assessment : measures decided by the Port Authority	**Title**	**0**	
5-1 General measures to be taken including implementation plan		**0**	
5-2 Security Measures for MARSEC 1		**0**	
5-2 Security Measures for MARSEC 2		**0**	
5-3 Security Measures for MARSEC 3		**0**	
6- Approval of the PSA	**Title**	**0**	
Report of approval		**0**	
Approved implementation plan of security measures		**0**	

PSP	Ref	Date	Rev	Pages
Distribution list				

Summary of a PSP (1st and 2nd part)

Integrated Management

Safety and security can be managed at the same time in an integrated management system.
In fact:

- Safety and security have same objectives which are safety of persons
- Structures of both systems are the same
- Training can be performed at the same time: initial training, drills and exercises

However, due to regulation:

- Documents are different (Safety Management manual on one side and Ship Security Plan on the other)
- Certificates are different: an effort is done actually to manage a simultaneous renewal of both certificates for the ships
- Recordings for traceability are different but can be manage via unique software.

The BS SASEMAS proposes to manage Safety and Security of ships in the same system.

General Conclusion

Implementation of maritime international regulation is based on the Contracting States responsibility (flag or port state).
It is obvious that this solution has its limits and international bodies are looking for means of incitation to states to improve their implementation of regulations they have ratified.
A lot of money is spent to help the countries having difficulties to ensure these responsibilities.
The solution to transfer the responsibility to Recognized Organizations is not without problems also as it was demonstrated after the last important maritime casualties.
The BS SASEMAS solution based on a common management system to countries having close interest in the same area is another attempt to find a solution.
Instead having a mandatory inspection regime (EC) or a voluntary assessment program (IMO) the BS SASEMAS, coming from a European Commission idea, proposes to try the internal solution.
The BS SASEMAS is light, cheap and discreet and it can be easily modified and improved.
The success of such a solution is based on the will of participating states and the quality of the persons in charge of the system.

The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

TACIS 117107

Improvement of Maritime Links between TRACECA and TENs Corridors

Bulgaria Georgia Romania Turkey Ukraine

Final Report Port Community Systems

May 2009

This project is funded by the European Union

A project executed by
Royal Haskoning,
NEA
BCEOM

This Project is funded
by the European Union

1 Report cover page

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors	
Project Number:	TACIS 117107	
Country:	Bulgaria, Georgia, Romania, Turkey, Ukraine	
Document Name	Maritime Links TRACECA-TEN draft Final Report	
	Client	Contractor
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Table of Contents

2 Introduction

A pilot scheme for efficient port communication and information system, which facilitates and fastens maritime transportation within the Black Sea region, is established and findings are disseminated.

That implies tracing of movements and handling of the ships in the ports, tracing and control of cargo-handling operations and information services of outer clients.

For the pilot scheme the port of Varna is to be envisaged, provided the information obtained in the review phase (please refer also to result 1) does not suggest otherwise.

REMARK:
It should be stressed that the objectives 'as specified above' could not be fully reached.

Reasons were - a.o.- the too generally described items/goals/aims/…:

- "….Tracing of movements and handling of the ships ***in*** the ports….", "….Tracing & control of cargo-handling operations…..", "….information services of outer clients….":
  - notwithstanding the remarks/questions by the key-expert[1] it was never clearly solved what ***exactly*** was meant by:
- Ship's movements/handling ***in*** the ports[2]?
- Tracing?
- Outer clients?
  - neither could be (unambiguously) explained the '***direct*** relation/relevance' between ".....efficient port communication and information system, tracing & control" ……. and 'Port Community Systems/services'
- too often was referred to SSN[3]
- "Port of Varna": it never became clear what ***exactly*** was meant[4]
  - '….the tracing & handling of the ships 'in' the ports'
- due to constantly changing of laws/directives it never was clear who was responsible for this follow up
- almost at the end of the project it became clear that the 'Bulgarian Ports Infrastructure Cy'[5] would take the role of 'Port Authority'
  - nevertheless a 'stand-alone' application was developed

[1] ***at the beginning of project***
[2] ***Only IN the ports?***
[3] ***It should be clear that SSN is/must be a part of a PCS (but never vv.)***
[4] ***As the project was initiated out of the Maritime Administrations of the 5 involved Traceca countries, it seemed obvious that by indicating 'Port of Varna' the 'Varna Port Authority' was meant (theoretically 'non-existing)***
[5] ***Also by integrating the VT(IM)S services of the Maritime Administration***

3 Definitions/Abbreviations used throughout the document

As already frequently stated in previous reports, working papers, MoMs, a.o., a lot of effort has to be put into the unambiguously defining of almost all issues; the most frapping being e.g.

- definition of (State/local) Port Authority, Port operator, Service provider, Competent authority, Maritime-, Port -, Naval administration, or
- defining univocal procedures & consequences
- etc…

For a list of definitions and abbreviations, reference is made to Annex 1.

4 General Introduction Project Result 4: PCS

This document contains (rather detailed) information concerning;

1. (public and/or private) organisation of ports, (ports' related) ministries, port communities,…

2. interrelation & communication, procedures,.. and

3. (non) existing automated systems/applications in the concerned TRACECA-countries.

It should be clear that this reflects a situation **on a certain date/time**[6] and **accordingly of what was told/shown** by local involved persons, parties, organisations, … and/or found out (e.g. via IN desk research) by the ICT key-expert (whether by checking the given information, whether through in depth search).

It was (sometimes) encountered that the information received from a local party (or parties) was contradictory to what was commonly understood and/or defined for that specific item/information; discussions led to nothing.

The most striking example is the (ambiguous) perception, understanding, interpretation of e.g. Port Authority[7], Landlord-, Service- & Toolport[8], Port Operator, Concession(s), Lease, Hire, Rent, etc…

It also must be noted that this report ***goes together with*** previously written (progress) reports, working papers, deliverables (of which the contents (findings/bottlenecks/etc., not have been repeated in this final report).

[6] ***Due to re-organisations (mostly political) a given situation nowadays defers from the situation at that moment***

[7] ***May be considered as the provider of a service of general economic interest. One should be aware of the fundamental distinction that exists between port services in terms of their nature and legal regime This authority or authorities may be public or private and may be responsible for one or more tasks and for one or more ports.***
It is clear that the traditional role of the port authority changes:
- With shipowners and terminal operators being globalised we must avoid that the port authority becomes marginalised as the only remaining local actor.
- Concession instruments are important governance tools which should be used in an intelligent way. The guidance on concessions provided in the Commission's ports policy communication is helpful to ensure a level playing field but we must now translate it into concrete terms.

[8] **** Landlord port I:Y S:N G:N***
PA is co-ordinating port development and manages only basic infrastructure
**** Tool port I:Y S:Y G:N***
PA is not only providing basic infrastructure but also some facilities to port operators
**** Service port I:Y S:Y G:Y***
Port operating company runs the port entirely (often established in mixed holding between public and private operators)

5 General Remarks and Observations

5.1 Our point of view and philosophy on PCS

"Creating a (almost) paperless and Secured Port Environment through 'one-time input' by the data-source owner/provider and **'one-stop-shopping'** by the other (authorised) port[9] community actors".

The main objective of Result Nr.4 (PCS) is to support the ports (as (very) important parts/actors/legs in the current and future logistics chains along the TRACECA corridors and incl. all port community involved actors) with their communication

- as well internally as externally,
- as well between authorities,
- as between private port actors
- as between the public- and the private sector &

with the analysis (& development) of (automated) information exchange tools/applications (of which a PCS is the main part)

UN/CEFACT-RECOMMENDATION No. 33: ESTABLISHING A SINGLE WINDOW[10:] To enhance the efficient exchange of information between trade and government. Within this context, a SW is defined as a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once.

- SINGLE DESK – SINGLE WINDOW – ONE STOP SHOPPING
  - information distributed to the right person,
  - in the right format,
  - at the right time and
  - without multiple data entry

One very important issue is the position of the counterpart

- The expert was each time confronted with a far too high hierarchical level (Ministry of Transport) and on the operational field with, in his opinion, the wrong (?) organisation(s)
  - Maritime (or Naval) Administration and/or Authority)
    - Only interested in the ship (mainly) for safety reasons -> VT(IM)S, AIS, LRTI, PSC,…
    - and hardly (even not at all) interested in this D2D, supply chain, ….issues
  - private (mostly 100% state-ownership) port operators
    - Only interested in 'goods'
    - and, even worse, presenting themselves as 'Port Authorities'

- In the 5 countries, the 'management' of the 11 ports resort under the Ministry of Transport instead of being individual, autonomous entities (cfr. W-European landlord (municipal) ports), jeopardising the talks/discussions
- Moreover, in most of the cases the Port's management is (thought to be) done by port operators (some being 100% state owned (Varna East/West, …), others partly (Illiychevsk) or completely private (Batumi, Poti))
- It should be clear that explaining the gains and cost/benefits of a PCS was/still is a time-consuming activity and only can be resolved through a pilot project

[9] ***Although the project, initially, only refers to 'Port Community Actors/stakeholders/services/systems' it should be clear that, during the project phases, it became obvious/clear that not all project partners/participants realised the impact and meaning of 'Port community'***

[10] ***See also ANNEX 2***

- As already several times mentioned the project concerns ports
  - The messaging from/towards/between ships, coastguard stations, MRCC/SARs and EMSA (concerning safety issues) is not a main target within a PCS
  - It should be an automatic result of the communication between the PCS, the VTS <-> MRCC/SAR (eventually a VTIMS) and the ship

5.2 General Statements

As the Traceca/Black Sea ports intend to attract new traffic/commodities, build new facilities and link with the TENs, enhancing current documentation flows it is necessary to guarantee future efficient throughput of containers and other cargo through the Traceca project ports (Odessa, Illiychevsk, Constantza, Varna, Burgas, Istanbul/Haydarpasa, Derince, Samsun, Hopa, Batumi and Poti).

Information about ships and cargo must be available before the berthing of the vessel.

The information must be available for all (authorised) stakeholders in the port in a appropriate matter, revealing the necessary information for each (authorised) stakeholder.

Today there are some administrative, legal and organisational obstacles for smooth flow of ships and goods through these ports.

- It should be pointed out that '**legal issues should not be an obstacle**'[11]
- Even existing administrative and/or organisational and/or procedural obstacles should be resolved/re-engineered

Since these ports are a main gateway to Central- & Western Europe on one side and to Middle- & Far East on the other side, transit of goods need to be facilitated in a secure, effective and efficient manner.

Border crossing and custom procedures need to be smoothened to allow fast and competitive transit transport.

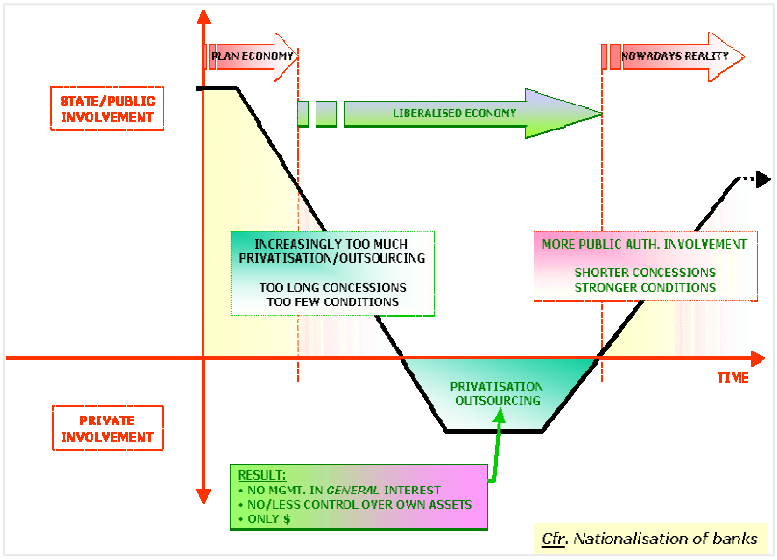
Before starting the roll-out of any automated solution set for these ports, it is important to understand the current situation, where three main actors[12] dominate the maritime trade:

- private companies,
- public authorities
- mixed

The problem in most of these ports is that there are, besides the many stakeholders in the ports environment (including border crossing, rail and road transit traffic), a lot of other (mostly public) organisations, departments, institutions are involved; each player with its own objectives and approaches who would like (?[13]) **to** contribute **to a** better management, marketing, workflow optimisation and security of the transport corridor but often are complementary, sometimes overlapping or even conflicting.

[11] ***Cfr. workshops***
[12] ***It should be clear that the definitions & procedures used by these Traceca countries sometimes differs from the W-European perception***
[13] ***Indeed, this question mark is at it's place 'the gap between 'doing', 'willing' and 'saying to be willing' is big***

Also to be kept in mind are the (still ongoing) results of the decline/fall of the 'plan-economy' approach. In some countries/ports it's called 'privatisation', others call it 'management by concessions', and still another part just 'loads/unloads' means of transport (without taking in account any unambiguous rules/procedures).



Due to the 'privatisation process'[14] there has been noted a 'hasty' action.

Resulting in (sometimes) too much 'outsourcing' (= privatisation) and authorities loosing all control/insight of even their own information (flows)[15].

Furthermore, different players each manage information that, combined, could be a very effective support in early pro-active actions such as for instance pre-clearances, controls (prevention and detection), tracking and tracing, etc.

This information is today scattered over different parties[16]. Port Community Services, set up for chain optimisation, are a sound base to support the workflow within the Port areas. They need however to be enriched with complementary security data (for risk management purposes) to become the Extended Port Community Services that serves efficiency, safety and security of the Harbour areas.

[14] ***or whatever name may be given to***

[15] ***Nowadays a reverse action is taking place: from de-centralisation back towards 'a kind of centralisation' (but without the ca. 100% state/region/municipal intervention***

[16] ***Each of these actors has partial data available in their own systems (virtual or physical). As a matter of fact duplication and decoupling of data is necessary in order to fulfil the Customs' requirements.***

- ***The future model to be put in place worldwide within the security context is more focused on 'shared service' applications, where vessel and cargo manifest data will be combined with business intelligence data and screened by information mining techniques (see picture below).***

5.3 Ports as a part of the transport chain

As ports are the nodal (and essential) point towards a secured transport system, a solution set (physical and administrative security) needs to be developed within their business environment.

EU Definition[17] of a 'Port or Sea Port':
An area of land and water made up of such improvement works and equipment, as to permit, principally,

- the reception of ships,
- their loading/unloading,
- the storage of goods,
- the receipt/delivery of these goods by inland transport,
- the embarkation/disembarkation of passengers

EU-Port services concern

- Management of port land and the provision of infrastructure and facilities,
- Technical-nautical services: pilotage, towage, mooring
- Cargo handling including: stevedoring, stowage, transhipment and other intra-terminal transport; storage, depot and warehousing, depending on cargo categories; cargo consolidation
- Passenger services : including embarkation/disembarkation

Ports have always been part of the maritime transport chain, but

- their full integration in supply chains is a recent phenomenon.
  - earlier chains were/are highly fragmented, uncoordinated and inefficient.
  - ports were/are important but weak links in the chain
  - and still seen as a 'necessary evil'[18]
- even today, ports are still considered to be responsible for a variety of social disasters; from the 'attack' on the environment over air pollution towards the noise hinders
- some ports became huge mega (financial) constructions
  - very often geographically situated within each other's perimeter, and
  - together with the ever growing transport, are forced to expand even more
  - therefore management, not only of these ports & their approaches, but of the whole chain is a 'conditio sine qua non'
- the successful functioning of ports is indistinguishable from the successful functioning of the entire supply chain (incl. the services provided)
- personnel: 'civil servant' mentality -> more commercial 'thinking/acting':
  - The central hypothesis put forward is that a successful port (authority), like a successful actor, must be prepared to constantly adopt new roles in order to cope with the changing market environment.
- Ports need to **integrate** with the supply chain if they are to understand the changing focus of shipper selection.
  - Maritime supply chain:
    - producers/shipper/consignor -> port of loading/origin

[17] ***!!! Notwithstanding several attempts to mutually agree on some definitions, it should be noted that in fact this 'definition of a port/harbour' still is in its proposal phase.***

[18] ***Even within the EC (only since some 10 years ago) 'ports' changed from the 'necessary evil' status towards a viable part of the D2D.***

- (via pre-carriage -> warehouse, groupage, stuffing/…)
- loading into vessel -> maritime transport (incl. all necessary services (pilots/mooring gangs, tugs, VT(IM)S, bunkers,..) -> port of unloading/destination
- discharging out of vessel -> consignee/customer
  - (via warehouse (destuffing, groupage,…on-carriage)

- Current and past thinking had been focussed on a ports standalone physical attributes - such as geographic location, service provision and efficiencies - but research[19] found that ports can no longer be measured on independent attributes or in isolation from the supply chain system in which they are embedded"

- Clearly ports can no longer expect to attract cargo simply because they are natural gateways to rich hinterlands. Major port clients are now likely to choose ports not simply on their efficiency and location but rather on the quality and reliability of the entire supply chain.

- In such context, the question of how a shipper chooses a port is an important issue not only for shippers but also for port managers, shipping lines and policy makers.

- The successful functioning of ports ***is indistinguishable from the successful functioning of the entire supply chain***

- In their day-to-day operations, commercial companies as well as non-profit organizations provide their products to their clients.

- These products are goods, services, money or information.

- The clients are other companies and organizations, departments of organizations, or private persons.

- Within logistics, goods are distributed and transported by using several modes of transport like rail, road, air, and sea. Information regarding the location of the goods is relevant to both the shipper and the consignee of the goods. These goods represent an economic value and are part of their stock. In some cases, the seller gets paid only after the assembly of his products in the final product of the buyer.

- To initiate and to control the product provision process, information exchange is required between all parties involved in international multimodal transport chains.

- The information can be exchanged by paper documents, telefax, telephone, electronic messages, or other media.

[19] ***very important research was done by 'Port Strategy' for port executives:***
'Supply chain synchronisation'
http://www.portstrategy.com/archive/2007/october/in_focus_port_modelling/port_modelling
In the paper, the authors explain that with the progressive integration of ports in supply chains, it has become clear that shippers are no longer choosing a port per se, but rather a supply chain – a bundle of logistics services; a pathway to markets – in which a port is just an element albeit an important one of the system. Clearly, shipper's influence on port choice decisions is diminishing, particularly now that a single shipping line, a third party service provider or supply chain integrator may control the freight from the origin to the final destination using various transport arrangements and multiple alternative pathways, designed to minimise the total logistics cost and maximise value for both the customer and the supplier.

- Advantages[20] of using electronic information exchange, also called EDI (Electronic Data Interchange), can be found in various studies/publications and they are a.o.

  - better service (-> added value with regard to competitiveness),
  - standardisation,
  - less costs (e.g. in the reduction of stock),
  - improvement of market share, and
  - visibility of the product flow across boundaries of companies and non-profit organizations.

Additionally, the role of the customs will be vital for its success[21].

Currently, apart from an ambiguous situation[22], the majority of the custom procedures are still carried out with physical documents[23].

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[20] ***The author stresses that proving the (financial) advantages of electronic data interchange is not as obvious as one might be imagined.***
In W-Europe the biggest profit will be in personnel savings(expensive costs) through automatically input/updating of information in/out the own systems/applications (apart of the reducing of physical paperwork).
Which might not be the case in the Traceca countries; where proving gains/advantages/profits will be far more difficult.

[21] ***As mentioned several times 'Customs' were very poorly represented in the workshops, seminars , presentations. And when represented the attendee was not in a position to be able to speak out freely. (not invited?, not interested?, ….)***

Out of the scare information received from the Customs (or other stakeholders/port community actors/…) it should be noted that some Custom's services (especially at a hierarchical high level = national/regional) work with an automated application/system: ASYCUDA (either the basic/world-version, either the V2-version, either the ++-version <u>but</u> not one time this application was shown):

- ***is a computerised customs management system which covers most foreign trade procedures (manifests and customs declarations, accounting procedures, transit and suspense procedures).***
- ***developed in Geneva by UNCTAD, it operates on micro in a client server environment under UNIX and DOS operating systems and RDBMS Software)***
- ***generates trade data that can be used for statistical economic analysis.***
- ***takes into account the international codes and standards developed by ISO (International Organisation for Standardisation), WCO (World Customs Organization) and the United Nations.***
- ***can be configured to suit the national characteristics of individual Customs regimes, National Tariff, legislation,...***
- ***provides for Electronic Data Interchange (EDI) between traders and Customs using EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) rules.***

[23] ***And...even when being 'automated' (through e.g. ASYCUDA,...) law apparently prescribes that cargo only may be 'cleared' through a 'legal Custom's stamp' on a physical document***

This results in:

- slow information/documentation flows as the documents need to be physically moved
- mistakes and loss of documents
- inefficiency as a number of parties in the chain need to re-type (= re-keying) information, even from other customs
- Moreover, the lacking exchange of data between governmental bodies such as maritime administrations, customs, border police, etc. could be tackled within the same context as well as the upgrade of the current data mining applications used by the customs.

- It is strange to experience that in fact - same as in W-Europe - the customs hold on their monopolistic & hierarchical (high) status and '**say/pretend'** to be willing participating in common/integrated information systems/services, but remain solitary players within the supply chain.

    - Even in view of the new Customs' directive to come their interest in this project was 'poor' (whatever the reason might have been)

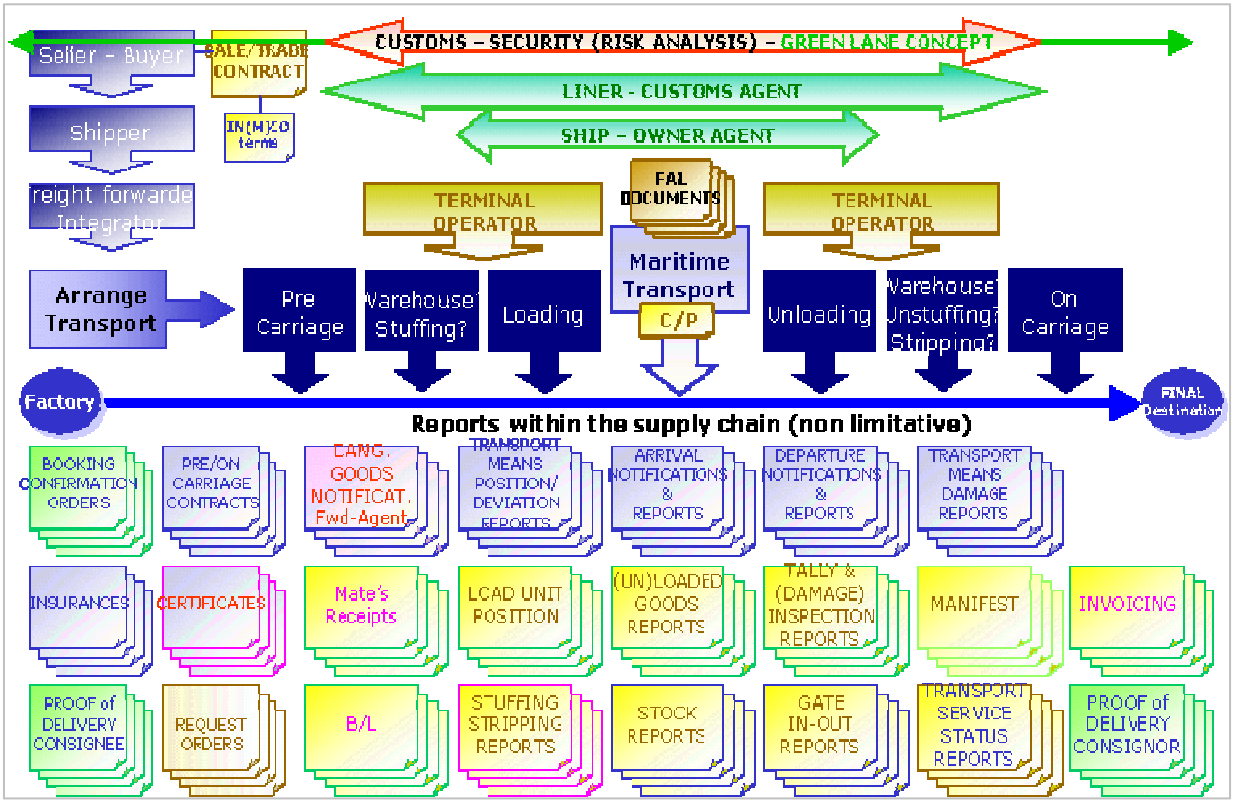
The new PCSs (and/or an overall Black Sea Portal[24]), needs to quickly process data from multiple public and private sector organisations.

Therefore it is a condition sine qua none that the business strategy of these Port Communities should be aligned with their own ánd common Traceca IT strategy.

The latter is crucial before the PCS specifications are outlined.

[24] ***the idea of an overall 'Black, Marmara & Azov Sea Portal' was initially presented by the PCS-key expert. It was withdrawn during a Brussels meeting (30/10/07) referring to the basics: 'Port Community System – see also ANNEX 3***

5.4 What information is needed and/or used? How?



Actors	Activities – doing what?	Has own info	Needs info	Uses & updates	Remarks
Seller/Vendor Buyer	Freight & transport contract	Y N	Y Y	N N	
Shipper Consignor/Consignee Forwarder Freight integrator	Mate's receipts, B/L Arranges transport (Accordingly contract)	Y Y Y Y	Y Y Y Y	N N Y Y	
Insurance Cies		Y	N	N	
Carriers	Pre/on-carriage Barge, Road, Rail	Y	Y	N	
Surveyors/tallying		N	?	N	
Terminal operator Warehousing	Loading/Unloading ? Stuffing	Y	Y		
Means of transport Ship owner, - charterer Master	C/P Notice of Readiness	Y Y	Y Y	N N	
Ship/liner/owner agent	Representing ship, shipping line, owner	Y	Y	Y	

http://www.unece.org/trade/untid/d08a/trmd/trmdi2.htm

Actors	Activities = doing what?	Has own info	Needs info	Uses & updates	Remarks
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Insurance Cies		Y	N	N	
Carriers	Pre/on-carriage Barge, Road, Rail	Y	Y	N	
Surveyors/tallying		N	?	N	
Terminal operator Warehousing	Loading/Unloading ? Stuffing	Y	Y		
Means of transport Ship owner, - charterer Master	C/P Notice of Readiness	Y Y	Y Y	N N	
Ship/liner/owner agent	Representing ship, shipping line, owner	Y	Y	Y	

http://www.unece.org/trade/untid/d08a/trmd/trmdi2.htm

What information is used?

In order to investigate what type of data is used and by whom, interviews were held with parties involved in shipping.
For this purpose 3 (three) categories of data users have been previously identified: 1. Shipping companies, 2. Customers, 3. National, Regional, Municipal (public) bodies.
A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request
Most authorities and/or ministries are in need of information; which nowadays they receive (urge for) because of their hierarchical status -> advantage of a PCS is obvious

What information do shipping companies use/provide?

Most shipping lines use a mixture of data sources, mainly because data is usually not available in an appropriate form; such as e.g. statistical data resources:

- Data and market analysis on specific markets provided on-demand by specialised maritime consultants (Dynamar, OSC, MDS Transmodal, Drewry, etc.);
- Maritime port-to-port transport data provided by ports;
- Regional (national) import-export data, such as the data provided by e.g. the Services of Foreign trade;
- Data gathered through internal research (market surveys regarding prices of road and rail operators to establish benchmarks for own tariff-setting, and among potential clients to assess volume possibilities on a specific shipping line);
- Data gathered through colleague agents in targeted origin or destination ports/regions;
- Price information, for example the data that are quarterly available in publication such as Freight trader, Shipping Gazette or cargo-specific magazines such as Oil & Gas journal or Bulk Journal (at charge);
- Information on cost structures of other modes is only available through non-regular research such as that of the EC and of the Dutch SSS organisation.

- EXAMPLES:
  A container line uses data for three purposes:
  - Determining cargo which can be containerised. this is done using trade statistics.
  - Determining market shares on various trade lanes, modes, port By port and transport statistics
  - Benchmarking. They care for its image regarding environmental issues and is hence interested in its own results compared to others in their sector. through environmental statistics
    - Mainly only official statistical sources are used, as it is considered that other sources unreliable or inconsistent.

Inland shipping companies have access to (some parts of) EDI systems such as BICS[25], DoRIS (SSS vessels can also connect to this system).

Data provisioning by shipping companies (shipping line operators & agents)?

- Except for the data provided through customs and harbours on daily operations, most operators do not collect/provide data to third parties (except for data provided to direct customers).
- However, when broken down and/or assembled adequately, the data delivered to customs should be sufficient to make aggregated door-to-door statistics.

[25] ***"BICS" (Shipping Information and Communication System) enables shippers to transfer information and data on load and ship electronically to the traffic management department of the Ministry of Transport. Waterway managers nowadays use more and more AIS-information Further, BICS can provide relevant shipping information (i.e. on water level, weather conditions, etc) by email to shippers..***

- Data provided to harbours alone is not sufficient for this purpose, because there can be multiple destinations/operators on one vessel.
- Shipping companies indicate that they do not know with which modes cargo is transported further into the hinterland, unless it concerns transported carrier haulage.
- They however suggest that terminals where deep-sea vessels are unloaded would be a good source for modal split figures of the hinterland cargo.

What information do customers use?

- For industrial users and shippers, data use can be split into two parts:
  - Data used in order to decide on the transport and the service provider;
  - Data used in order to follow-up cargo and evaluate the quality of the service provider.
- This also provides for opportunities of informing clients of the customer/recipients of the cargo with information on delivery times etc.
- Industrial users, or shippers, mainly require data on tariffs, frequency of services and transit times.
- Apart form these general data the degree with which other data is asked for and used, differs widely across companies. This difference can be attributed to the amount of control they want to have over their transport flows and to what extent they have confidence in the quality provided by the logistic service provider/shipping line.
- In more specific terms, freighters ask for more information on:

  - The amount of experience logistics service providers/operators have with their specific type of goods;
  - Presence of dangerous goods on board of the same vessel;
  - Routing of the vessel
  - Financial standing of the companies;
  - Empty containers on outgoing shipping lines (in order to know were goods fairs can be negotiated);
  - Location of the vessel at time of reservation;
  - Quality certificates they have acquired.
  - During transportation freighters ask to be informed on:
  - Changes in routing
  - Changes in time schedule;
  - Exact departure and arriving time of goods/vessels.

- Besides shippers, shipping agents & service providers can also be considered part of this group of users.
  - For them the above data are important, because they have to organise onward transport into the hinterland (or vice versa), plan and appoint resources, etc.

What information do (public) national bodies use?

- National bodies are not a homogeneous group, but some variety can be distinguished.
  - A transport ministry in a EU member state typically has a department for sea transport and separate departments for road, rail or inland waterway transport.
    - Sometimes there is a certain mix of these.
      - For example the department of Maritime Affairs of the Flemish Ministry[26] also covers a set of inland Waterways, although not all.

  - Ports (and waterways in port areas) are typically managed by Port Authorities, which usually have a certain independency from Departmental authorities.

[26] ***But: ports being Municipal Autonomous Port Authorities, the Flemish Waterways managers don't have any authority within the PA area***

- Hence each has its own responsibilities and also its own information use
- During the last years, most of the countries active in sea and inter-modal transport have established a kind of promotional body (i.e. the short sea shipping bureau), which promotes inter-modal transport in that country. This may be as part of a branch organisation or as an agent office of a governmental body, or a public private partnership.

- DATA TYPICALLY USED ARE:
  - Number of tonnes, TEU, ton-km, number of vessels to identify the market size.
  - Market share in terms of tonnes, TEU, ton-km to identify the relative importance of short sea shipping versus other modes.
  - Load factors and empty mileage to measure efficiency.
  - Volume growth figures based on the above mentioned figures to measure market growth and relative positioning against other sectors (changes in market share).
  - These types of data are used in order to:
    - Monitor sector developments (i.e. competitiveness);
    - Assess the effectiveness of the government's policies (i.e. modal shift potentials in certain transport relations);
    - Develop and appraise new policies and beneficial measures;
    - Support budgetary plans (port authorities).

  - Up to now, figures related to value, costs, prices or tariffs or capacity of a fleet have not been freely accessible.
    - One of the reasons is that companies are not willing to provide price data as it is considered commercial knowledge necessary for competition.
    - Only very recent, more attention seems to be given to value, prices, tariffs and the relative market position of inter-modal transport using short-sea versus other modes.
  - Figures on transport corridors are used to a small extent.

  - Port authorities in general collect their own data by registering vessels calling and loading/unloading[27].
    - Naturally, this is related to the port calling costs and handling costs that have to be paid to the port authority.
    - Available data are usually number of vessels calling, according to size (often measured in GT) and type (container, general cargo, dry or liquid bulk).
    - As various ports are in the course of being privatised, it is not clear whether this type of data will remain accessible for other users.

- DATA SOURCES USED
  - Although statistical sources (i.e. databases) from national and international statistical organisations form the most important data source for National bodies, they certainly do not limit themselves to such sources. Depending on the subject, they make use of public commercial sources such as sector magazines (Journal of Commerce, Containerisation International, Journal of Commerce, Shipping Gazette, Fairplay, etc. For most government employees, this is also a means to keep an eye on sector developments nationally and internationally.
  - Specific sources are consultants in the shipping sector. They are hired on occasions of specific studies and in that way they obtain specific data on a certain subject.
  - It appears that national statistical agencies and Eurostat remain the most important data source, even though it is considered limited.
  - Compared to shipping companies and customers, the need for up-to-date figures is less apparent in government fields, since policies are depending more on long-term trends than on short-term fluctuations.

[27] ***Attention: due to lack of correct legislation, definitions/procedures, some ports call themselves 'port authority' whereas in reality they are port operators (e.g. Burgas, Poti, Varna….); resulting in data of their own operations.***

- A specific source that is typically not accessible for shipping lines and customers are customs data.
- A governmental body in principle has access to customs data, which contain a very detailed set of indicators on cargo passing a port.
- In practice it appears that confidentiality legislation and the lack of staff are reasons for not utilizing the possibilities of this source.
- Other typical sources are the various Port Community systems (Porthus/Seagha, APICS, PortInfoLink, Enigma, Zedis,…) BICS system of the Netherlands, DoRIS and LIS system in Flanders.

- MAKING DATA AVAILABLE
  - As public bodies also collect data, and given their public responsibilities, they are usually willing to publish statistics to a certain level of detail.
  - This may differ between bodies, which is more often attributed to a lack of staff capacity or an outdated data system, than to the unwillingness of providing data.
  - A main concern however remains with the privacy legislation.

The most important questions to be answered, in this project were/are

- which are the various parties in the D2D-supply chain and which are involved in the 'Port Community'
- what are their main interests
- means of transport, goods, services,…?
- which parties possess (or buy) 'door-to-door data' and
- for what purposes are the data used? A typical, sometimes forgotten, reason is '***statistics'***
- do they want to share this information in exchange of other (missing) data)
- are the parties willing to collect and register those extra data?
- what are the implications in terms of workload/investments?
- which information/data are missing and what is needed to obtain those data?
- how can all these data be collected to establish a PCS?
- more reliable data have to be collected.
- via a bottom-up approach information had be gathered both on statistical needs of policy makers and data availability at supply chain parties.

5.5 Some elements within E-support

The main element(s) for this support is (are) an exchange (transfer) of know-how based on 3[28] basic approaches[29] through the Single window-One stop shopping concept (UN & EU)

- E-navigation (IMO): The international maritime organization promotes the development of **e-navigation** which focuses on service of and to the sea ships on the promotion of a more safe shipping movement.
- E-maritime (EU) : The European Commission on the other hand promotes **e-maritime**, a whole of services and systems with the aim its of preserving and/or of reinforcing role as leading sea-going nation.
- In European philosophy e-navigation is only one component of this e-maritime and includes also the so-called “one stop shopping (single window)” vision.

[28] ***Next (or within) to the general context of ‘E-commerce’***
[29] e-communication (data exchange): **curse or a blessing?**

Several users try to collect and share as much as possible data concerning ship, cargo, crew and passengers etc. without having to introduce or communicate them ***again***.

This concept assumes a far-reaching cooperation between the different governments / administrations / authorities and the (other) maritime actors concerned.

This far-reaching cooperation in the field of a 'common database' can call questions of confidentiality of data (privacy legislation), the dependence of working with computer systems, etc.

Moreover this concept demands also ***serious investments*** in the area what can lead to further process of enlargement at numerous actors.

Create ICT-awareness and prove the advantages through 'Objectives of a „***Maritime Port Community System/Application***":

- In the first place: Creating a 'Port's Portal'[30] able to provide general and specific data about the specific port
- In a second stage (in fact simultaneously; but using the same basic procedures, business cases/information flows/…) create the real (interactive) PCS
  - Creating a visit card of that port, able to be accessed by the Internet users from the country and abroad.
  - Presentation of the main advantages of the business in the port in order to attract potential collaborators, especially from abroad.
  - Presentation of the updated data about all companies and services they provide in that port Up to date presentation of specific data about (maritime) transport/navigation, such as
    - ships movements (and ***general*** cargo information)
    - (pre)announcements/arrivals, ships in port(s), shifting, departures,....,
    - oro-hydrographical information[31]
    - weather report.
  - Easy entry and retrieval of all the data needed to port community members in order to carry-out his business in good conditions via automated, interactive applications; such as single window web-application (or web-enabled) and/or fully EDIFACT-oriented applications.

5.6 Angle of view

It should be ***stressed*** that, depending the perspective[32] of the organisation involved, the ideas, views, believes, of the various used words, descriptions and/or definitions are (very) different and even resulted in (fierce) discussions.

Whereas it is the expert's view that 'port community actors' include all actors/stakeholders of the D2D (supply) inter/multi-modal chain; it has been experienced that not everyone shares the same view(s) - Examples are:

[30] ***A good example being the Constantza Port Portal:*** ***http://www.portofconstantza.com/apmc/***
[31] ***Not included in project***
[32] point of view – angle of view

Port Community *actors*

- Governments, public administrations, public organisations and public authorities do mainly only look into their own benefits out of information exchange (e.g. statistics, marketing of hinterland…)
    - Resulting in a difficult interaction between the information provider(s) (which is mainly the private sector) and the entity in demand of that specific info (mainly being a public entity)

- The view of a Maritime Administration (Waterway manager) and/or a PSC is merely ***only*** focussed on the 'means of transport' (the ship) -> safety -> VTS (radar, (d)GPS, AIS, LRTI, ..)

- A Port authority's view is more general and depends mainly of the port system in use and the organisation

    - landlord port, tool- and/or service port
    - private- or public port
    - centralised vs. decentralised (overall) management
    - degree of autonomous management capabilities
- Customs only are interested in the Good's part (-> risk analysis)
    - Security issues being the result of various information

- Border police only want crew-/pass. Information

- Waste collectors only are in need of waste information

- Etc.

Port Community *System* and Port Community *Service*

- Better service can only be given via good, reliable, real time and updated information exchange tools (systems)

Port operators' tools vs. Port/Maritime Authority tools/applications

VTS (Traffic planning/guidance) vs. VTIMS (traffic & information mgmt.)

the role of Harbour Masters, dispatcher/coordination centres, service providers,…

State owned parties (but working accordingly the principles of a private Cy/organisation) vs. purely private actors

And, very important, the kind of information to be exchanged; e.g.

- 'so called' Harbour Masters' messages
    - ship's characteristics, voyage/manoeuvre information, berth information, general goods/cargo information
    - dangerous goods information
    - waste disposal/retrieval information
    - crew/passenger information
    - ISPS information
    - goods information (Manifest, B/L, bay plan, …)
    - order exchange (very important within container handling)
    - etc.

6 EDI: In General

6.1 Why EDI?, What is EDI?, EDI/EDIFACT-messages,…

In general: For several hundred years, commerce has been based upon the movement of written documents.

- These documents contained the information that one company needed to convey to another company in order to do business.
- Over a period of time the documents started to take on standard names such as Invoice, Credit Note and Order.
- However, the documents were certainly not of any standard layout.
  - They did not need to be because the recipient was always a human being and humans have the ability to read, interpret and rationalise.
  - About all that could be said of an invoice document, for example, was that it would contain header information about the parties involved, detail lines about the products, quantities and prices, and finally some totalling information.
- In the early 1950s, computers started to be used by large companies for their accounting and payroll needs.
- Throughout the following decades, computers rapidly took over task after task until they were involved not only in accounting, but in production, administration and all other areas of commerce.
- But one thing did not change.
  - The computers still produced printed documents in various non-standard formats.
  - This situation was not too bad for those sending a document but was much worse for the receiver.
  - Many documents must be sent from one company's computer to their trading partner's computer.

- Computers cannot easily read written documents, and getting them to understand what they have just read is an almost impossible task, so the receiving company would have to employ personnel to re-key the information from the received documents into the company's computer system.

The time factor was also a problem.

- The company sending the document had printed it in a few seconds.
- It was placed in an envelope and then posted.
- The document would probably take several days to reach the final destination (always with the possibility of accidental loss) where
  - the envelope would be removed and the document presented for keying in to another computer.
- For a long time, managers had been thinking how good it would be to have "Just in Time" production techniques,
  - where a supply lorry would be able to arrive at the production line gates just in time to be unloaded and its contents taken directly to where they were needed on the production line.
  - they dreamed of an end to costly warehousing and stock control.
  - but these methods were impossible while the trading partners were still using the post.
    - Lorries would be arriving at the wrong times, or not at all,
    - causing the production lines to stop and chaos to reign,
    - all because of the delay in the information flow.

Part of the answer to these problems was computer communications and the need to make one trading partner's computer "talk" to another.

- Communications have been in existence since the early days of computers.
- A file can be transmitted from one computer to another, either over a normal telephone line or over a "Leased Line" that is continuously in use and dedicated to computer communications. Many commercial products exist that can move files in this way.

- Communications did not solve the whole problem though.
  - Once a file is received it needs to be understood by the receiving computer.
  - Items of information must be in the exact place that the computer is expecting them.
  - If just a single character is out of place, the whole file will become un-interpretable by the computer.

In the early days of communications, trading partners had to spend a great deal of time

- agreeing exactly where each item of information would be stored in the files that were transmitted.
  - these agreements were only active for one trading partner.
- start trading with another partner and the requirements would change slightly,
  - a larger product code would perhaps be needed, or
  - a different method of pricing,
  - but the whole negotiation and agreement process had to take place all over again.
- it kept the programmers busy but did little for the company profits.

The **solution was EDI**, Electronic Data Interchange, a standard method of transferring commercial information between computers.

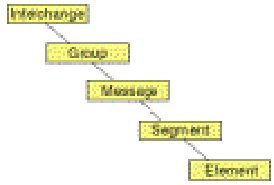
- EDI files contain information, in one of many possible formats, pertaining to commercial documents
  - a number of different standards bodies were created to define both methods of communications and
  - the layout of standard trading documents,
  - so that simple and cost effective electronic trading could take place.

- the main document standards with which we will be concerned are
  - EDIFACT (UN/EDIFACT (EDI for Administration Commerce and Transport)),
  - Tradacoms (UN/GTDI (General Trade Data Interchange), and
  - ANSI X12,

Paper process	EDI
Enter data	Enter data
Generate document	
Send via mail/fax	
	Send electronically
Process mail	
Record data	
Action	action

Basic requirements of EDI
Message structure standards
Implementation rules/protocols
Translation and communication software
Communication link (predominantly via a managed VAN network)
Trading partner agreements
Systems integration

	UNGTDI	EDIFACT	ANSI X12
Start of Interchange	STX	UNB	ISA
Start of Group	BAT	UNG	GS
Start of Message	MHD	UNH	ST
End of Message	MTR	UNT	SE
End of Group	EOB	UNE	GE
End of Interchange	END	UNZ	IEA



[33] ***by 'The National Institute of Standards and Technology'***

formatted data representing the documents may be transmitted from originator to recipient via telecommunications or physically transported on electronic storage media.".

- EDI can be ***formally*** defined as 'The transfer of structured data, by agreed message standards, from one computer system to another without human intervention'.
- Most other definitions used are variations on this theme.
- Even in this era of technologies such as XML web services, the Internet and the World Wide Web, EDI is still the data format used by the vast majority of electronic commerce transactions in the world.

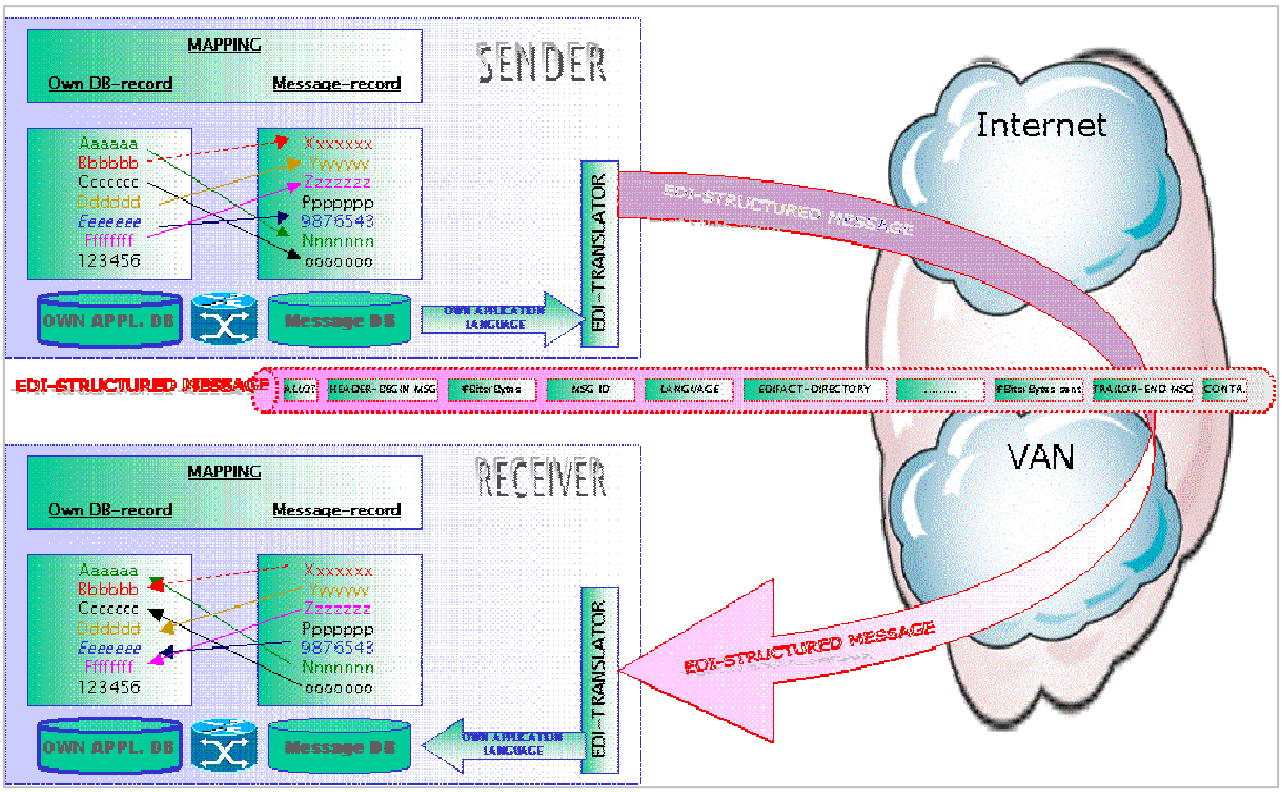
EDI, is more than just exchanging information in a structured way from one computer (system, application) – directly – to another computer (system, application)

- Apart from the agreeing/structuring/implementing/…. of EDI-EDIFACT/ANSIX12/XML/UML/… messages (accordingly specific MIGs, Directories, etc…) the

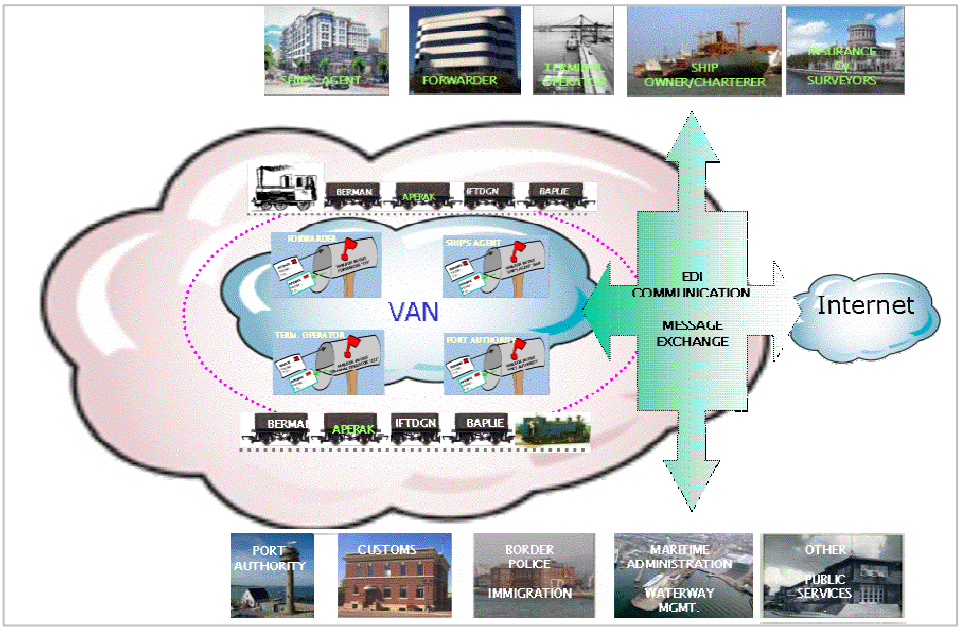
- '***Matching'*** or '***mapping'*** must be kept in mind:
  - Sender A has his/her own application standards/procedures (DB (structure/relations/…), programming/development language, etc…)
  - It is rather seldom that a receiver might have an exact copy of sender A's application.
  - To make the sending/receiving possible (and easy) accordingly the own specific ICT- requirements, 2 basic principles must be kept in mind:
    - Sending must occur under an EDI-standardised message type (EDIFACT/ANSIX12/…: BERMAN, IFTDGN, WASDIS, IFTMCS, PAXLST,…) meaning that ***translation*** is needed at both sides:
      - from the own language (SYNON, PL1, Java, Oracle, C++, SQL,….) towards structured EDI (accordingly specific EDI- & communication procedures/protocols) and
      - on the other side translation from structured EDI into the application language of the receiver's application
    - Matching/mapping: to take, automatically, the data out of the sender's DB, put it in a EDI-structured transfer form/file (and location) and vice-versa to put, once again automatically[34], the data into the receiver's DB, mapping (or matching) is necessary.

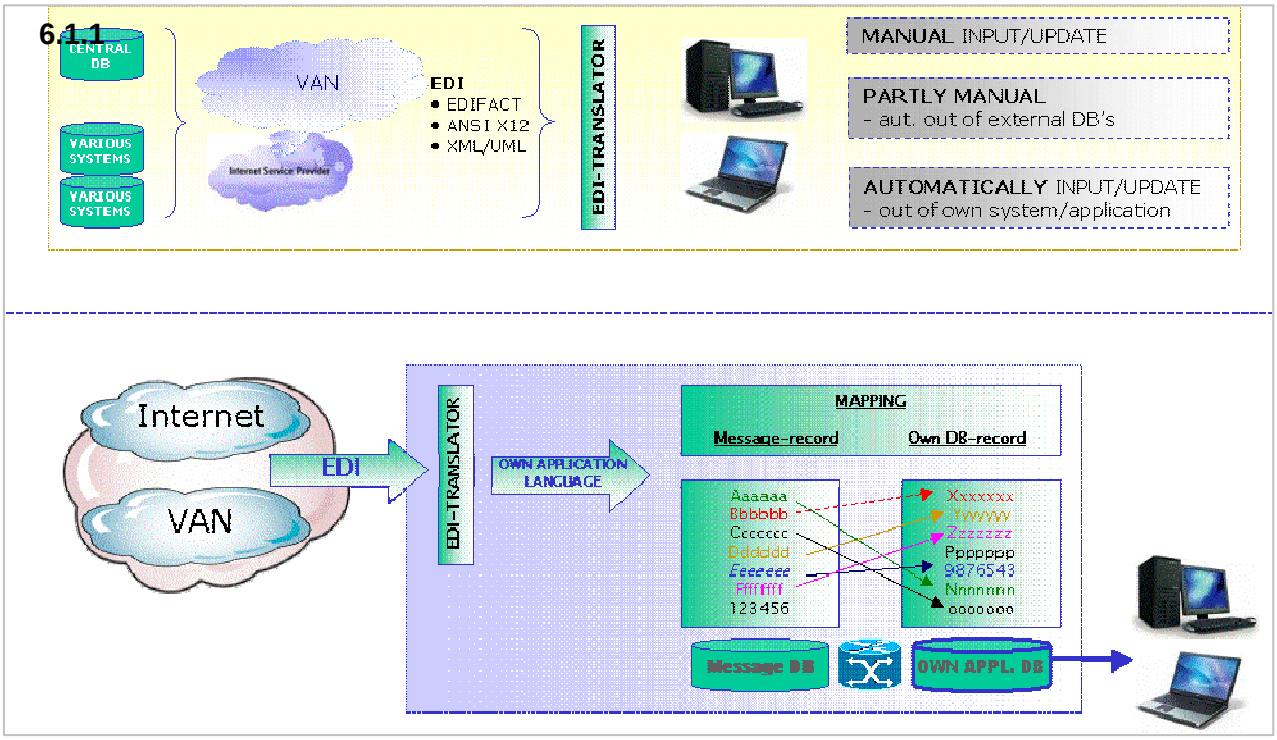
    - In the next figure one may see, schematically, how this extraction/put is done

[34] ***this is the big difference between sending/receiving unstructured data/records/files (by which re-keying is necessary) and sending/receiving structured data/records/files without manual intervention (except when specific 'acknowledgment/approval/check/…) is required)***

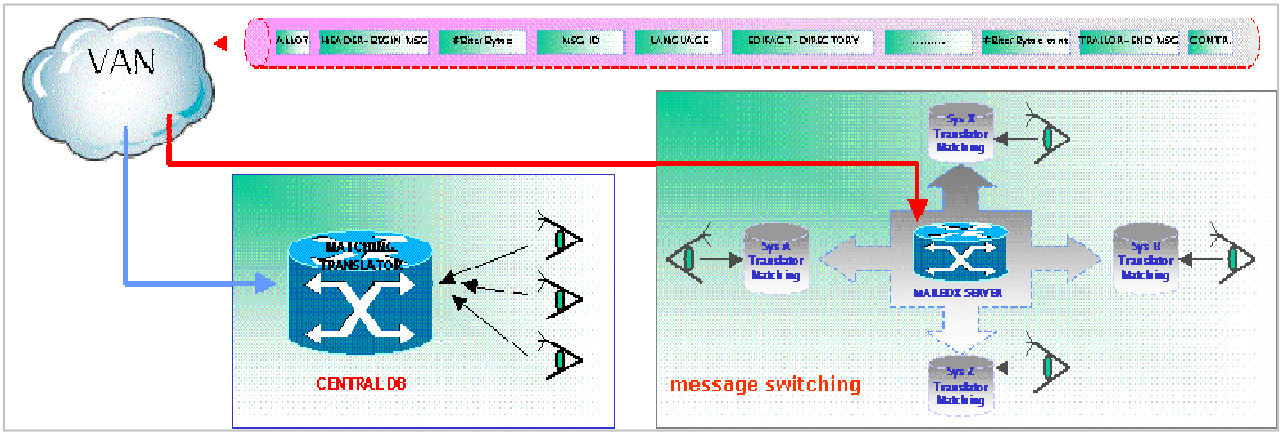


* Either automatically/either manually:
- Retrieve information/data out of SENDER'S 'own' application
- Map the data into a 'message DB'
- Translate the own-application language into an EDI structured message
- Either
    - Send the EDI-message
        - directly towards the receiver's system/application (cable, tel.line,….)
        - via a mail-exchange server towards the receiver's mailbox (mailbox principle)
        - information not available for everybody (only receiver(s) – if more destinations in header)
    - Send the EDI-message (via either a mailbox server, either directly), towards a central db and make the information available for any authorised port community actor
    - Use web interfaces

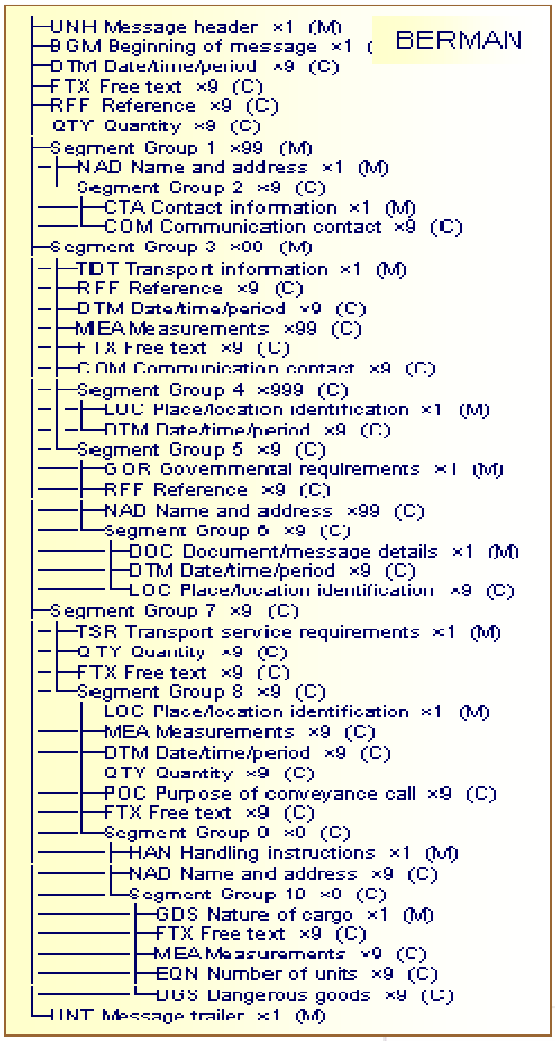

FORWARDER
SHIP
OWNER/CHARTERER
SURVEYORS
BERMAN
APERAK
IFTDGN
BAPLIE
VAN
EDI
COMMUNICATION
MESSAGE
EXCHANGE
Internet
PORT
AUTHORITY
CUSTOMS
BORDER
POLICE
IMMIGRATION
MARITIME
ADMINISTRATION
WATERWAY
MGMT.
OTHER
PUBLIC
SERVICES

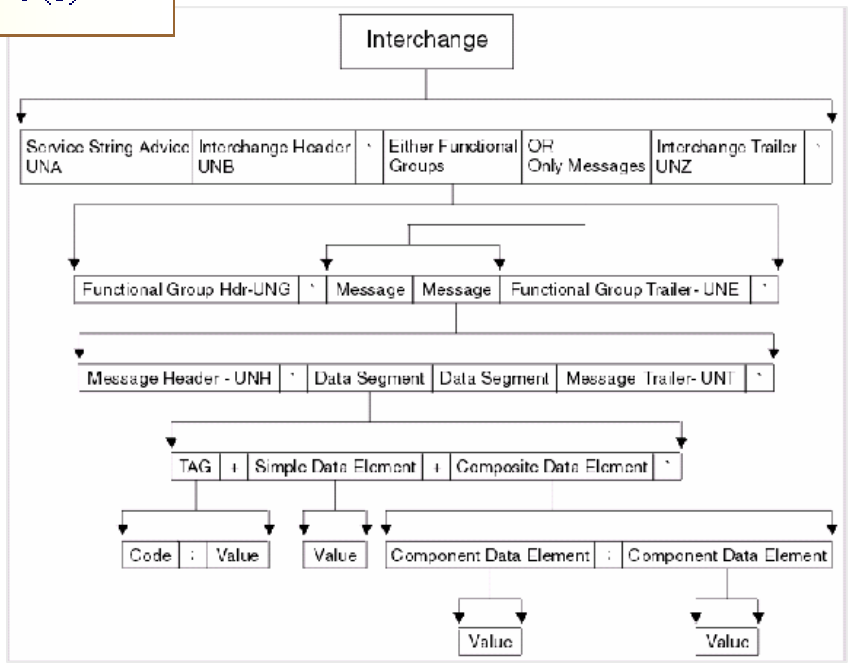

6.1.1
CENTRAL DB
VARIOUS SYSTEMS
VARIOUS SYSTEMS
VAN
Internet Service Provider
EDI
• EDIFACT
• ANSI X12
• XML/UML
EDI-TRANSLATOR
MANUAL INPUT/UPDATE
PARTLY MANUAL
- aut. out of external DB's
AUTOMATICALLY INPUT/UPDATE
- out of own system/application

Internet
VAN
EDI
EDI-TRANSLATOR
OWN APPLICATION
LANGUAGE
MAPPING
Message-record
Own DB-record
Aaaaaa
Bbbbbb
Cccccc
Dddddd
Eeeeeee
Ffffff
123456
Xxxxxxx
Yyyyyy
Zzzzzzz
Ppppppp
9876543
Nnnnnnn
Message DB
OWN APPL. DB


VAN
CENTRAL DB
message switching

EDI-message: example: see ANNEX 6





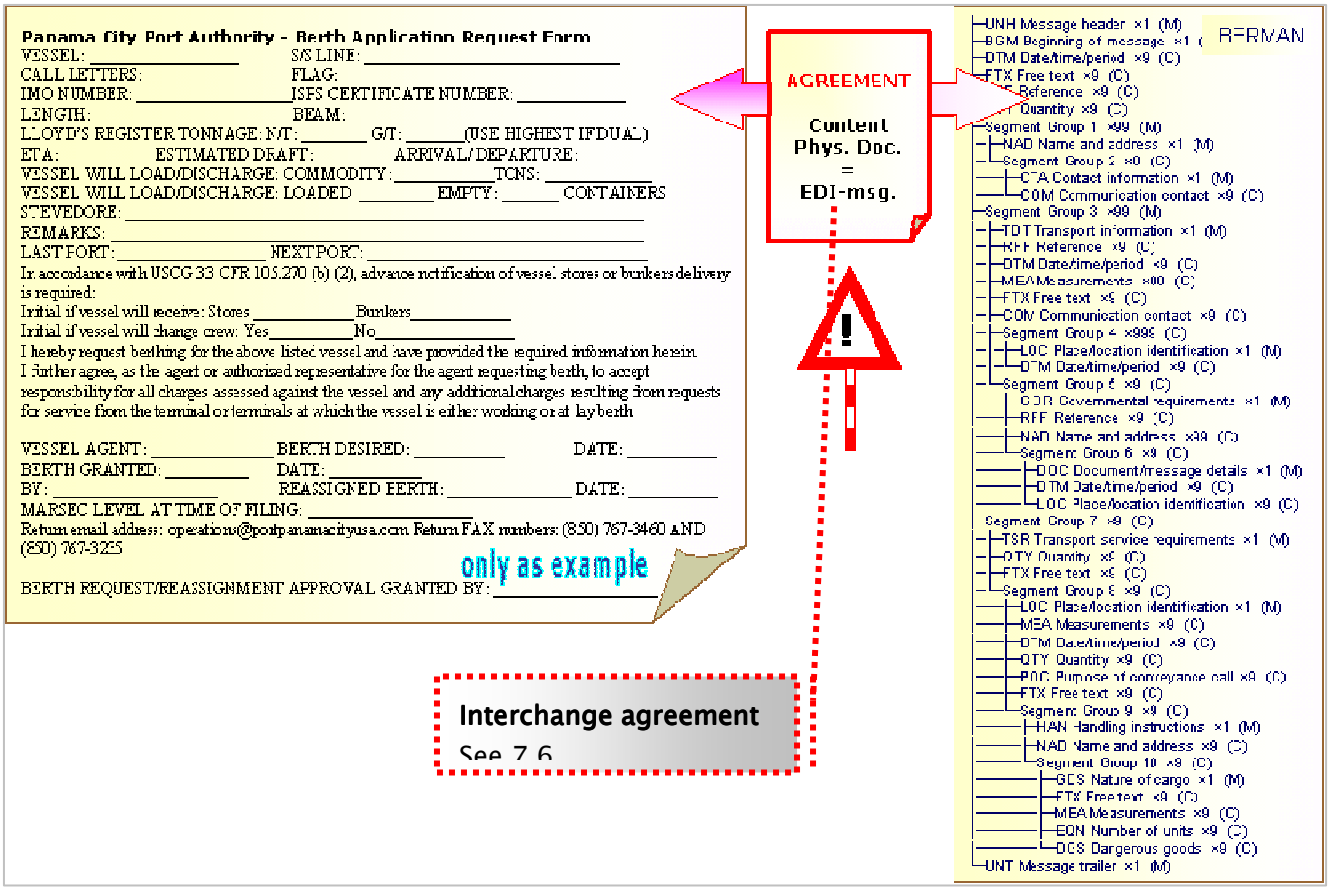
6.2 Maritime related EDI-messages

EDIFACT transmissions are broken up into pieces called

- messages,
- segments,
- elements.

The various encoded values are listed in code lists.

- EDIFACT and X12 are the most common and widely-used vocabularies of Electronic Data Interchange (EDI).



Mostly used Maritime EDIFACT-messages

See ANNEX 5

6.3 EDI-interchange agreement[35]

What is an 'interchange agreement'?

- An IA is made between trading partners setting out the rules they will adopt for using EDI[36]
- The agreement also details the individual roles and legal responsibilities of the trading partners for transmitting, receiving and storing electronical data.

- Because of differences which are involved with the use of EDI in commerce, addressing these topics as they relate to a new electronical trading environment reduces the legal uncertainty that electronic trading might raise and enhances the confidence with which the technology is employed.

Why should a company use an IA?

- In the absence of clear legal governing rules and principles, an IA provides a Cy with a readily available solution for formalising the EDI relationship between it and its trading partner.
- For example, the Model Agreement[37], when properly relied upon, seeks to provide EDI messages with a legal binding effect across different national legal systems.
- This goal is pursued by addressing all of the basic legal issues needing to be covered before a Cy uses EDI to communicate with its national or international trading partners.
- Thus, once a Cy decides it will use EDI, it will require agreement with its trading partners on at least the following issues, the priorities of which will vary upon the specific needs of that Cy
    - Selection of EDI messages, message standards & methods of communication
    - Responsibilities for ensuring that the equipment, software & services are operated and maintained effectively
    - Procedures for making any systems changes which may impair the ability of the trading partners to communicate
    - Security procedures a services
    - The points at which EDI messages have legal effect
    - The roles and contracts of any third party service providers
    - Procedures for dealing with technical errors
    - The needs (if any) for confidentionality
    - Liabilities in the event of any delay or failure to meet agreed EDI communication requirements
    - The laws governing the interchange of EDI messages and the arrangements of the parties and
    - Methods for resolving any possible disputes

[35] ***See example ANNEX 4***

[36] ***EDI is the electronic transfer from computer to computer of commercial or administrative transactions using an agreed standard to structure the transaction or message data.***

[37] ***For more details: http://www.unece.org/cefact/recommendations/rec26/rec26_1995_r1133rev1.pdf***

6.4 Costs & benefits of EDI

- Proving the 'benefits' of EDI is ***not an easy & obvious task*** and …
  - pure financially one even might have more eyes for the 'costs'
- One thing is for sure: the impact of the Internet is, irreversibly, shifting power from sellers to buyers.

- This one time event is highlighted by purchasers
  - who are equipped with powerful search engines to access data and seek alternative supplier bids and
  - meanwhile, perhaps to their detriment, suppliers are exposing to buyers more information on their host websites than they ever have before – terms, conditions, prices – it is all there.
- A major consequence of the power shift to buyers is that
  - tremendous pressure is placed upon supplier prices.
  - suppliers will no longer be capable of
    - protecting a niche market or
    - enjoying as large or long lasting profit margins as they have in the past.
- suppliers must now quickly react.

- When cost savings are indeed generated and realized, who benefits and pockets the money?
  - How are the cost savings to be shared? This will always be a thorny problem.
  - Collaboration has become one of the buzzwords of supply chain management.
  - Why? It is now recognized that it is no longer sufficient for a supplier to be agile and lean
    - they are dependent on their trading partners
      - their suppliers and customers – to also be agile and lean.
  - It has become supply chains competing against supply chains.
    - Fostering collaboration between buyers and sellers will take a mind shift
      - because for the last ten thousand years of mankind, this has been an adversarial relationship spiced with greed and aggression.
      - Fact-based data will be essential to discuss how to share the newly generated savings.

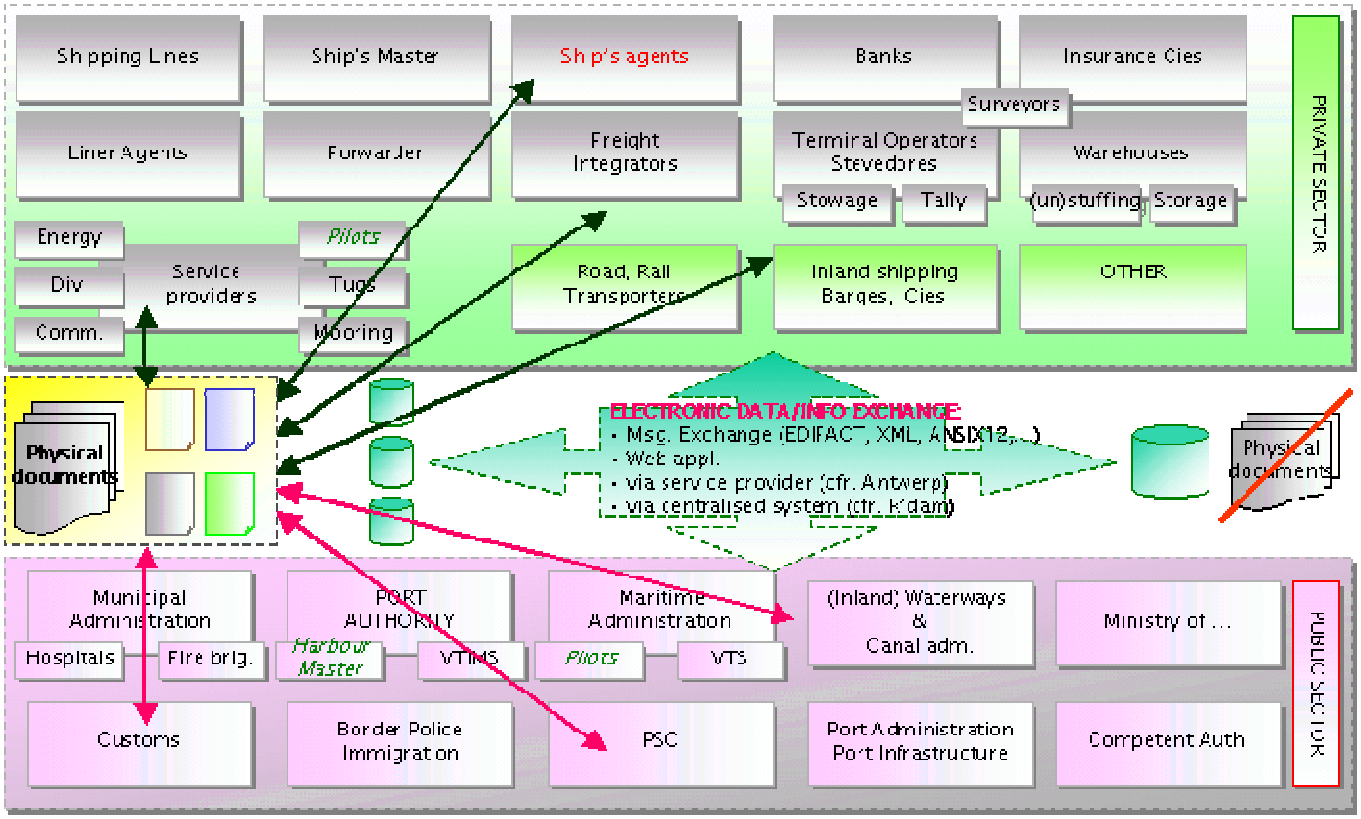
- Some ***deductions***: without counting the
  - copies to be send, in one or other way (even adapted) to administrations, ministries, etc.,
  - some special documents (e.g. project cargo, bank guarantees, warehousing,…)
  - ship's documents (exc. FAL),
  - at least ca. basic 25 (original) documents are needed within the commercial transport chain
  - Example 'Liner agency': Container vessel of ca. 4.000 boxes

    - = (at least) 4.000 booking (request) confirmations
    - = (at least) 4.000 loading orders
    - = (at least) 4.000 B/Ls
    - = (at least) 4.000 M/R
    - = (at least) 4.000 invoices
    - = either (at least) 20.000 physical documents
    - = either 4 standard messages (e.g. IFTMBF/IFTMBC,COPRAR, IFTMCS, INVOIC). updated automatically & sent out. to any party
      - either via a central DB
      - either via a mailbox exchange
      - either or taken out (drill down via integrator)

6.5 Port Community

What is PC? Who are the actors/stakeholders?

- all the (actively involved?) parties **within the port** of 'xxxxxx' **logistics chain**
  - as well the public,
  - private &
  - mixed parties involved
- remark: as a result of this definition/approach (and certainly in view of electronically data/information exchange a the leading partner role of a PCS), centrally managed and/or governed ports/administrations find it difficult to understand that – in fact – a ministry of TC is ***not a direct partner*** within the supply chain (almost all the ex-plan economically governed ports).

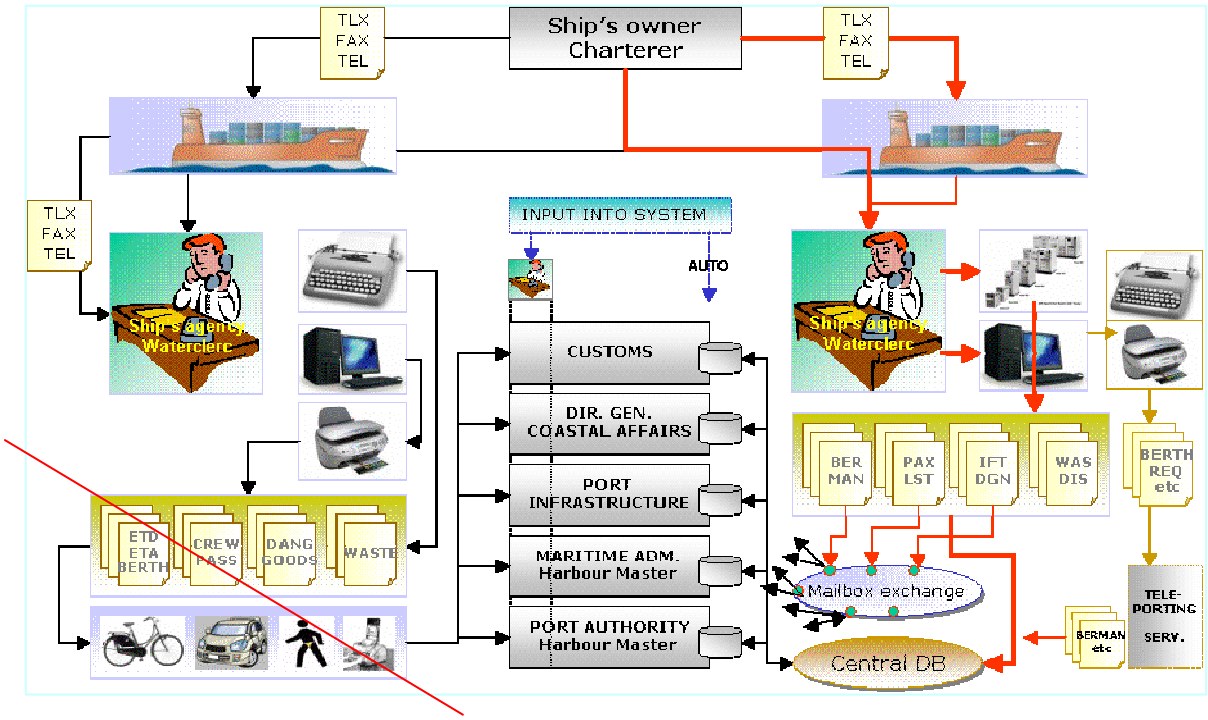


What is a Port Community System?

Very often PCS refers as well to a 'system' as to 'services' provided by

A PCS must link all port players[38] and

- Make the global logistic process reliable (export and import)
- Manage the physical, administrative and documentary flows of goods
- Cover 100% of containerised and general cargo transit (import and export)
- Exchange messages safely and confidentially



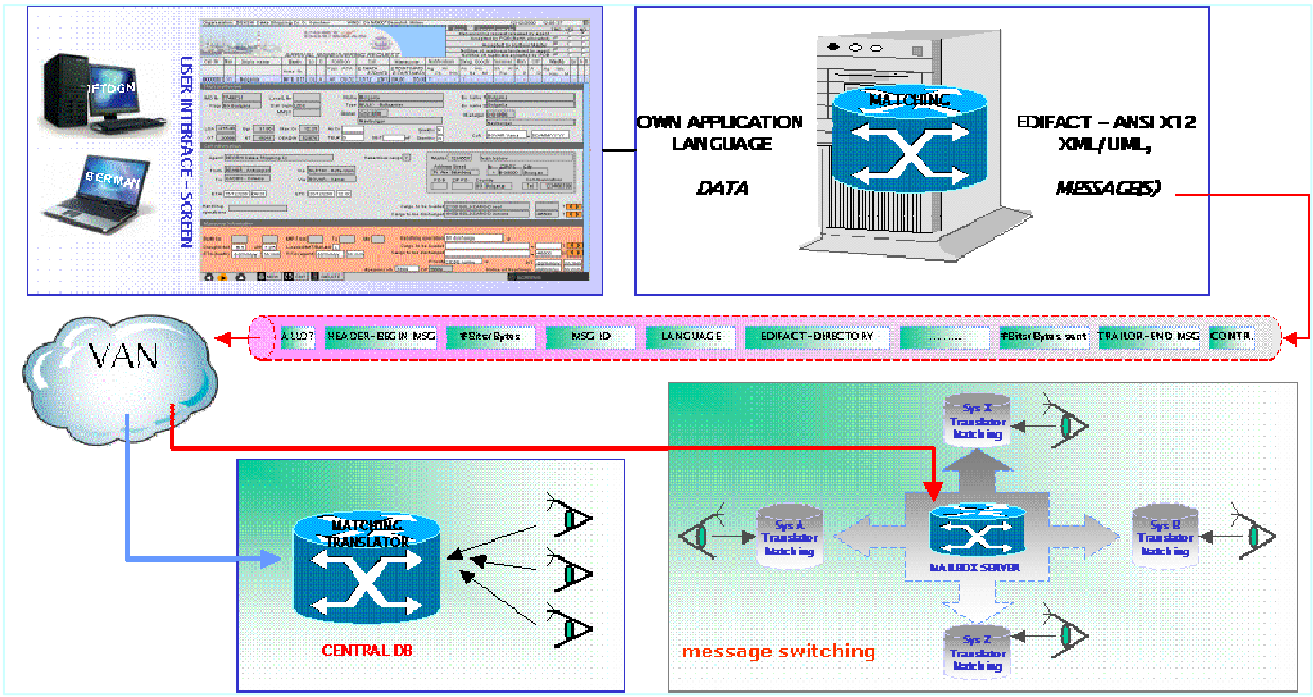
[38] ***interlink the port community actors***

There is a multitude of definitions for a PCS

- A system enabling the sharing of data with(in) the 'Port Community'
  - A PCS does not pruduce (basic) information (= which was not entered)!
  - QRY (on a central DB or separate application) may facilitate results
- A Single-Point-of-Contact 'Harbour Management System'
- A system to facilitate the exchange of vital information needed by each member from other members of the community
  - to perform their functions effectively and
  - to improve the overall efficiency of maritime trade and transportation cycle.
- Centrally operated or linked systems for the exchange of information
  - Providing value added services based on central data storage
  - Data and services available for all parties involved in "port logistics"
- An electronic platform that connects the multiple systems
  - operated by a variety of organizations that make up a (sea)port community
  - through a shared, evolving and heterogeneous installed base of ICT capabilities based on standardised interfaces

6.6 PCS: various basic systems

A PCS enables all the links within the port's logistics chain to efficiently exchange information with one another; there are **basically 3 kinds of basic systems**, mainly dependant the port's management model[39]:



[39] ***e.g. a 'landlord port' is generally speaking, only interested in, mostly non-commercial, information for it's own use. Only if the port community regards it as a 'competitive' tool, the leading party (mostly Port Authority) might consider information exchange as a challenge.***

Information input/update/output in central DB (e.g. PortBase (R'dam

PortInfoLink +A'dam PortNET), comprising 3 parts

- information and communication services;
- a platform that contains all the facilities that are commonly used for all the services;
- a central database where all the information that is exchanged through Port infolink by the customers (companies and government bodies) comes together = both: message switching & maintaining a central database facility (repository of information)

Information exchange via VAN-mailboxing - message exchange system (e.g. Antwerp APICS/Porthus/…)

- message switching i.e. enabling the exchange of standardized EDI messages from one partner to the other(s) through a centralized, intelligent message switching facility.

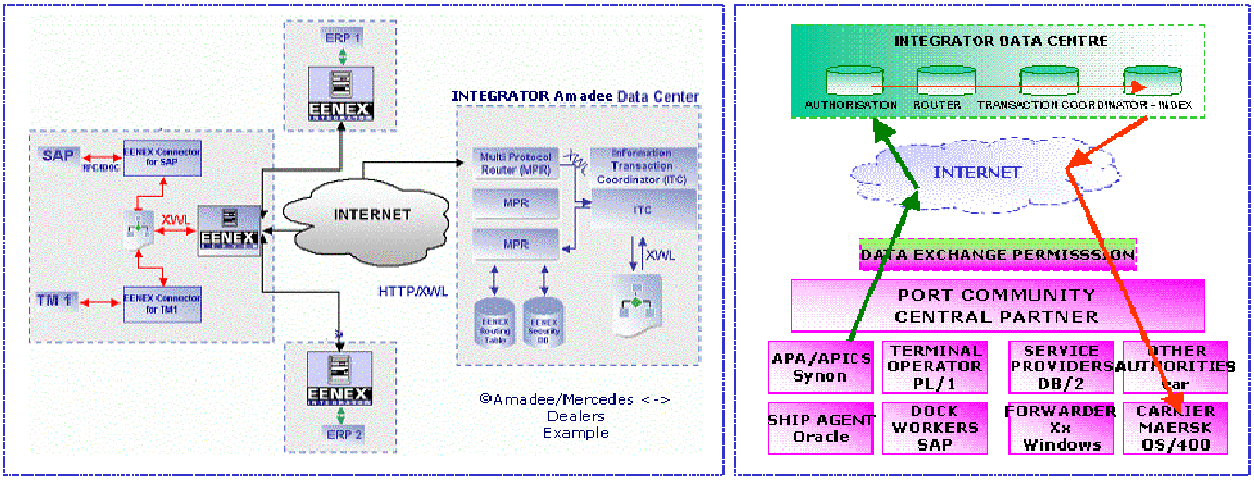
Information output via 'integrator' (drill down)

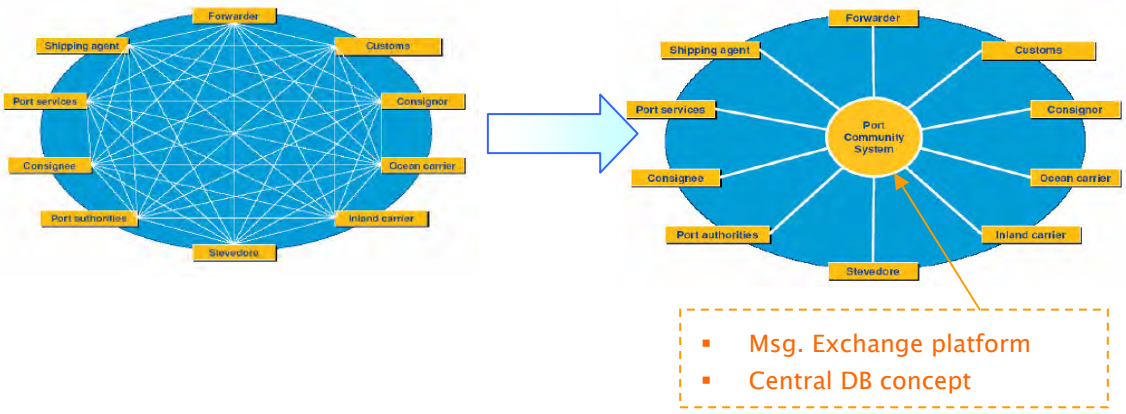
In a technical view, a 'Process Integration Platform' can be regarded as a component based IT-platform which allows the multiple use of single functional modules and processes within a distributed system

- it is an externally based (Integrator) data centre who coordinates the various application(s), enabling the drill-down (put data/get data)

It is only viable in a good/weel-structured organisation with very competenet ICT-departments

- advantages: systems/applications not to be adapted; only installation of 'convertor(s)' disadvantages: $/€, dependant external party





6.7 PCS State-of-the-Art in Western Europe

In many ports around the world[40] Port Community Systems (most of the time we are speaking about ***Services***; more specifically Value Added Services) have evolved over time and have provided these ports with significant gains in transport and documentation flows by sharing data between the different port communities.
The ***most successful*** ones have adopted both:

- message switching - some even adding supplementary intelligence (esp. in web-enabled applications) – and
- maintaining a central database facility
- containing transportation information from multiple sources.

It is seen that many of the PCSs have been established ***around either the customs[41] or port authority[42]*** as nodal agency or hub[43].
It should be noted that almost all European ports tend towards 'tailor-made' applications on mid-frame systems.

Off-the-shelve packages are seldom used.

- All other stakeholders in the community have aligned their systems **to** suit these main stakeholders.
- Which is 'the' main objection against PCS and reason for not taking part
- Private Cies have already, previously (out of need) – and without the help of any authority – implemented e.g. EDI (even own, local messages
- And are, all at once, asked to change/adapt/upgrade their (EDI-messages) applications towards a new to build PC-system/application

- Even more: the reason why they should adapt is not (always) in their own interest (they are the data-providers)
    - It was shown[44] that most of the source-information is owned by private Cies and wanted/needed (?) by public entities
    - It is even so that private Cies are not that much interested in information coming from public authorities (Correct? When? ..)
    - Therefore these private enterprises, which are – in principle - not 'against' the sending of the 'wanted/needed' information, but only on their conditions and terms; e.g.
        - their own EDI-msg./communication protocols/

---

[40] It should be noted that a lot of ports 'pretend' to have a PCS: reality forces the author to say that many ports have a 'partly' PCS – it is the author's experience that, even in the most developed ports, some part is missing

- ***One may conclude that, depending the port's management model/structure, attention is either drawn on the 'means of transport', either on the 'cargo/commodity' part***

[41] In (W) Europe: Customs have, if automated, their own system and are not eager to connect to other systems. They 'claim' to be open to other systems/services but reality urges me to say that most of this 'sayings' is rather hollow talking.

[42] and here starts, once again, the discussion around 'port authority'. It is clear that e.g. a 'private port authority' never will be interested in financing, managing, maintaining a PCS (= out of her own financial means)

[43] As a result of 9/11 and the security measures goods became 'more attractive'. When up to these days the 'means of transport' is mainly the 'key', a new idea/approach is being developed by making the 'good's consignment nr' the key.

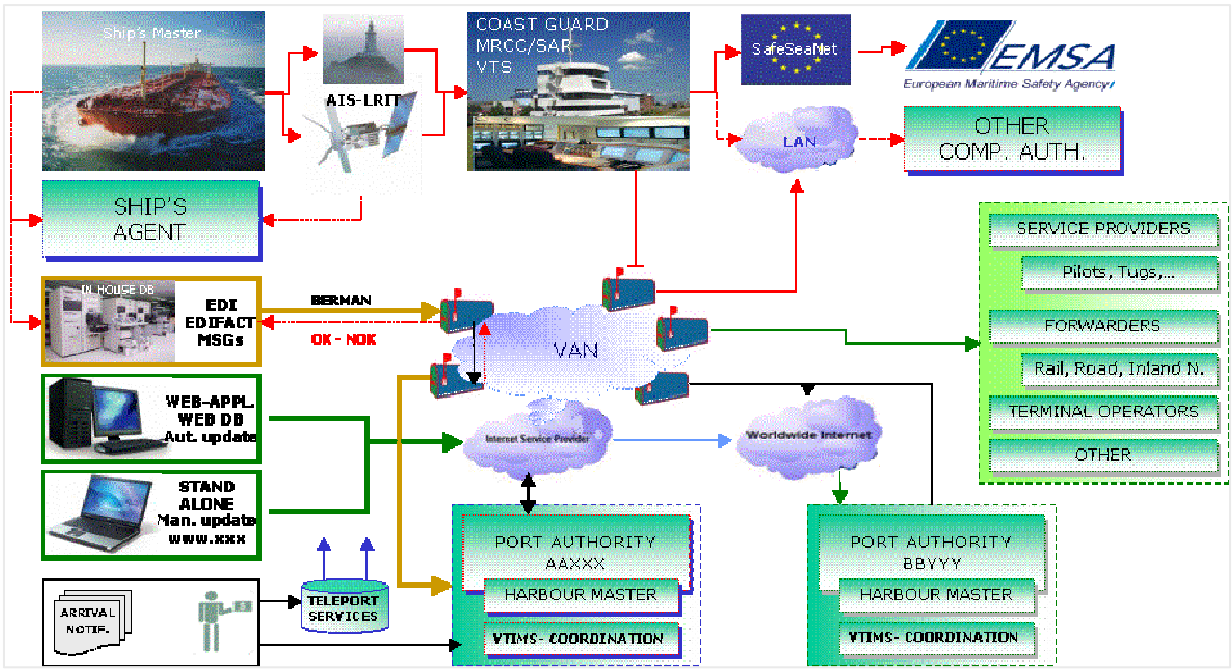
- ***Resulting in the situation that 'goods move around on 'a' means of transport, contrary to the nowadays applications whereas 'means of transport' move around carrying goods***

[44] During the workshops (by the key-expert)

Antwerp

- landlord port; only interested in relevant information
- any 'commercially' oriented information = private sector (even mailbow exchange servers)
- ***only*** electronically information towards Port Authority (BERMAN, IFTDGN, WASDIS)
- teleporting/buffer organisation for non-automated parties & dissemination of nautical/commercial information: Shipping & Signalling services
- EDI-messages through message-exchange system
  - From sender (own system, stand alone application, Porthus/Seagha web-application) via mailbox (directly) towards destination(s)
- APICS (APA own nautical information system) is also used as pass-through information towards other (competent) authorities (-> Waterway managers, SSN, NCA, IVS/SRK,…) via a separate CBS (central broker system) application
- APA/Amaris intends to evolve towards a (I?)CCS ((integrated?) cargo community system) together with the Belgian Customs (in view of the New Customs directive[45], Porthus, Alfaport (the umbrella organisation of the private port service providers)

[45] *normally to have been implanted 1/06/09 but only recently postponed*


Ship's Master
AIS-LRIT
COAST GUARD
MRCC/SAR
VTS
SafeSeaNet
EMSA
European Maritime Safety Agency
LAN
OTHER
COMP. AUTH.
SHIP'S
AGENT
IN HOUSE DB
EDI
EDIFACT
MSGs
BERMAN
OK - NOK
VAN
SERVICE PROVIDERS
Pilots, Tugs,...
FORWARDERS
Rail, Road, Inland N.
TERMINAL OPERATORS
OTHER
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WEB DB
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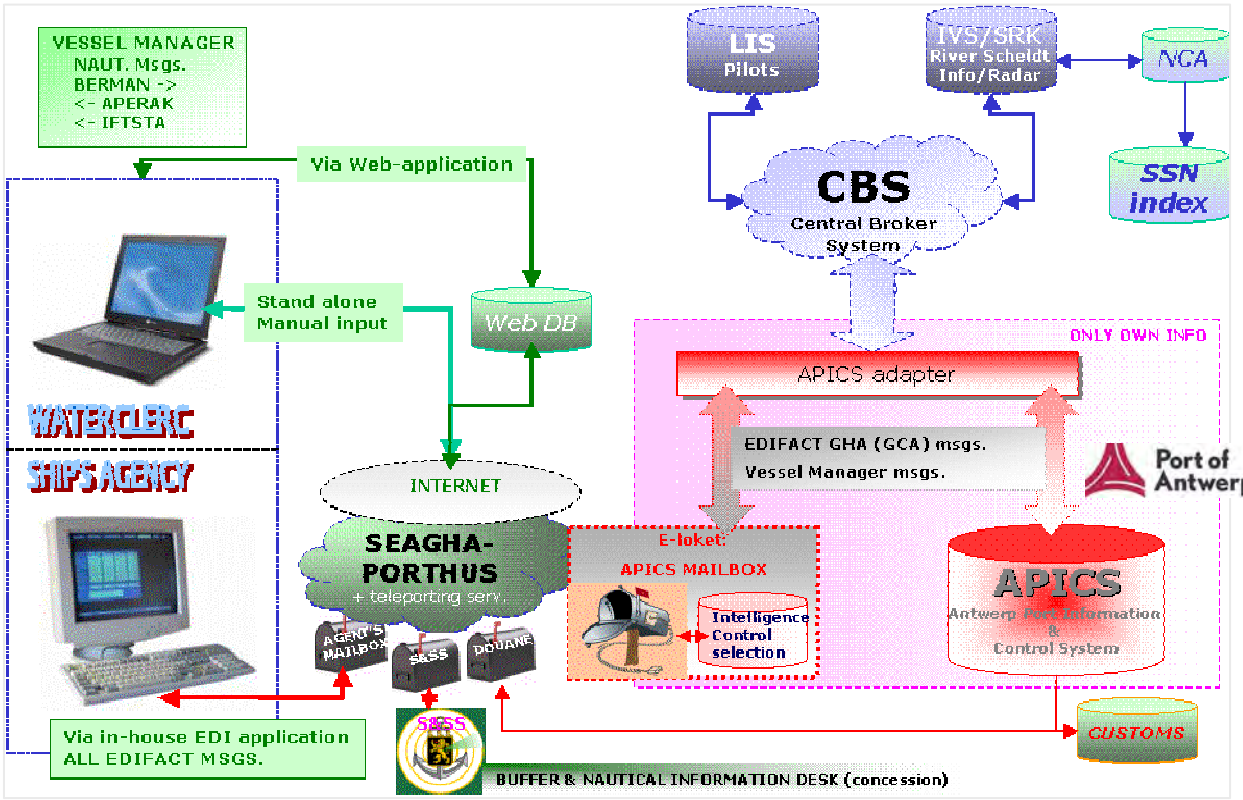
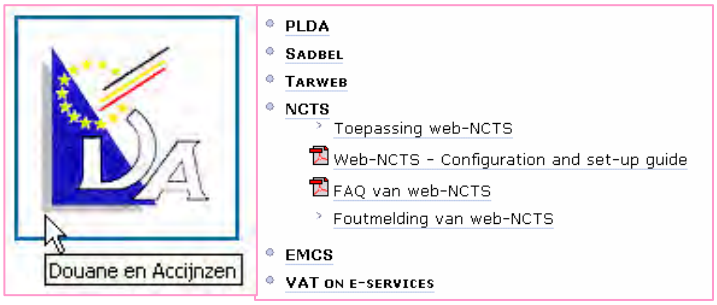
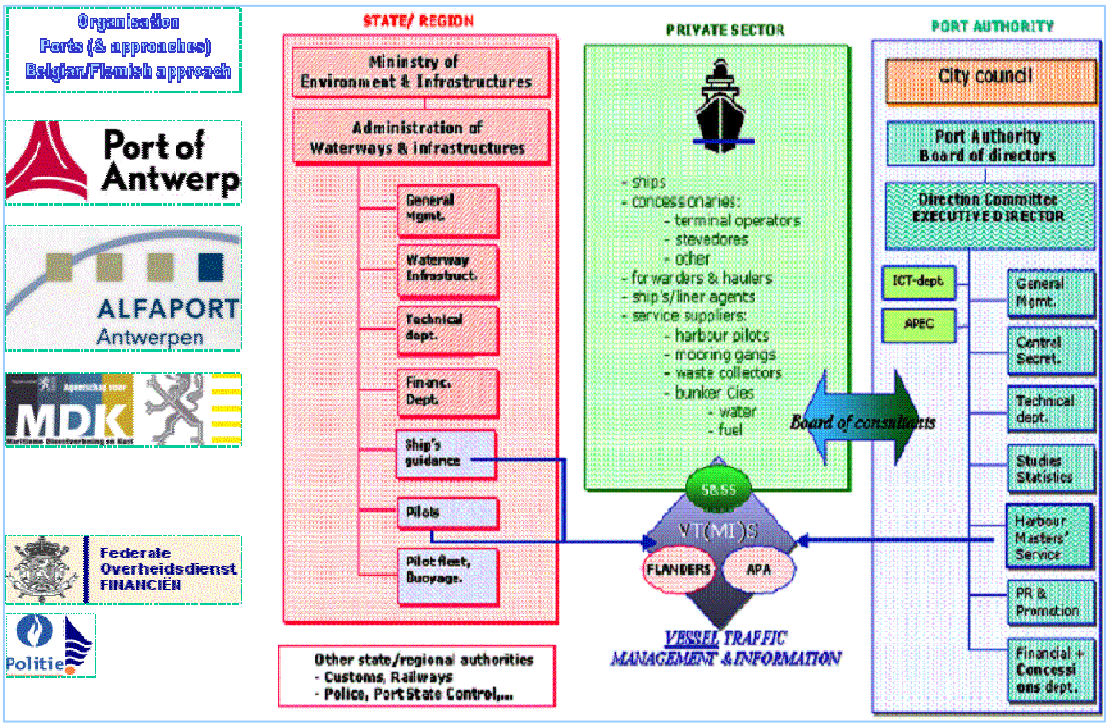
VTIMS- COORDINATION


VESSEL MANAGER
NAUT. Msgs.
BERMAN ->
<- APERAK
<- IFTSTA
LIS
Pilots
IVS/SRK
River Scheldt
Info/Radar
NCA
SSN
index
CBS
Central Broker
System
Via Web-application
Stand alone
Manual input
Web DB
ONLY OWN INFO
APICS adapter
EDIFACT GHA (GCA) msgs.
Vessel Manager msgs.
Port of
Antwerp
WATERCLERC
SHIPSAGENCY
INTERNET
SEAGHA-
PORTHUS
+ teleporting serv.
E-loket:
APICS MAILBOX
Intelligence
Control
selection
APICS
Antwerp Port Information
&
Control System
AGENT'S
MAILBOX
SASS
DOUANE
SASS
CUSTOMS
Via in-house EDI application
ALL EDIFACT MSGS.
BUFFER & NAUTICAL INFORMATION DESK (concession)


Douane en Accijnzen
PLDA
SADBEL
TARWEB
NCTS
Toepassing web-NCTS
Web-NCTS - Configuration and set-up guide
FAQ van web-NCTS
Foutmelding van web-NCTS
EMCS
VAT ON E-SERVICES


Organisation
Ports (& approaches)
Belgian/Flemish approach
Port of Antwerp
ALFAPORT Antwerpen
MDK
Federale Overheidsdienst FINANCIËN
Politie
STATE/ REGION
Ministry of Environment & Infrastructures
Administration of Waterways & Infrastructures
General Mgmt.
Waterway Infrastruct.
Technical dept.
Fin-ans. Dept.
Ship's guidance
Pilots
Pilotfleet, Buoyage.
Other state/regional authorities
- Customs, Railways
- Police, PortState Control,...
PRIVATE SECTOR
- ships
- concessionaries:
- terminal operators
- stevedores
- other
- forwarders & haulers
- ship's/liner agents
- service suppliers:
- harbour pilots
- mooring gangs
- waste collectors
- bunker cies
- water
- fuel
Board of consultants
SRSS
VTM(I)S
FLANDERS
APA
VESSEL TRAFFIC MANAGEMENT & INFORMATION
PORT AUTHORITY
City council
Port Authority Board of directors
Direction Committee EXECUTIVE DIRECTOR
ICT-dept
APEC
General Mgmt.
Control Secret.
Technical dept.
Studies Statistics
Harbour Masters' Service
PR & Promotion
Financial + Concessions dept.


ALFAPORT Antwerpen
Mission Presentation Dossiers Publications Events Port Promotion Seagha>Porticom News Members Only Sitema
Seagha
seagha
PORT-I-COM
ICT STRATEGY FOR EFFICIENT CARGO FLOWS
Seagha is renamed Port-I-Com
In order to provide the port and logistics communities with the technical and ICT support that they deserve in these challenging times of globalisation, the operational activities of Seagha were sold off to the Porthus IT company in Lier at the end of 2007.
To avoid confusion between the operational activities transferred to Porthus and the new strategic ICT policy activities of Alfaport Antwerp, it was decided that Seagha should change its name to Port-I-Com.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RAILWAYS DEPARTURES LIST
Port of Antwerp
www.portofantwerp.com


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THE INLAND WATERWAYS DEPARTURES LIST
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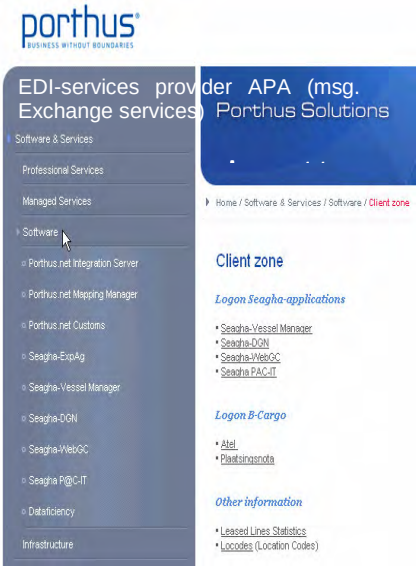
Port of Antwerp
GHENT
Search by map
Search by Database
Agents, Operators & Terminals


porthus
BUSINESS WITHOUT BOUNDARIES
EDI-services provider APA (msg. Exchange services)
Porthus Solutions
Software & Services
Professional Services
Managed Services
Software
Porthus.net Integration Server
Porthus.net Mapping Manager
Porthus.net Customs
Seagha-ExpAg
Seagha-Vessel Manager
Seagha-DGN
Seagha-WebGC
Seagha PAC-IT
Dataficiency
Infrastructure
Home / Software & Services / Software / Client zone
Client zone
Logon Seagha-applications
Seagha-Vessel Manager
Seagha-DGN
Seagha-WebGC
Seagha PAC-IT
Logon B-Cargo
Atel
Plaatsingsnota
Other information
Leased Lines Statistics
Locodes (Location Codes)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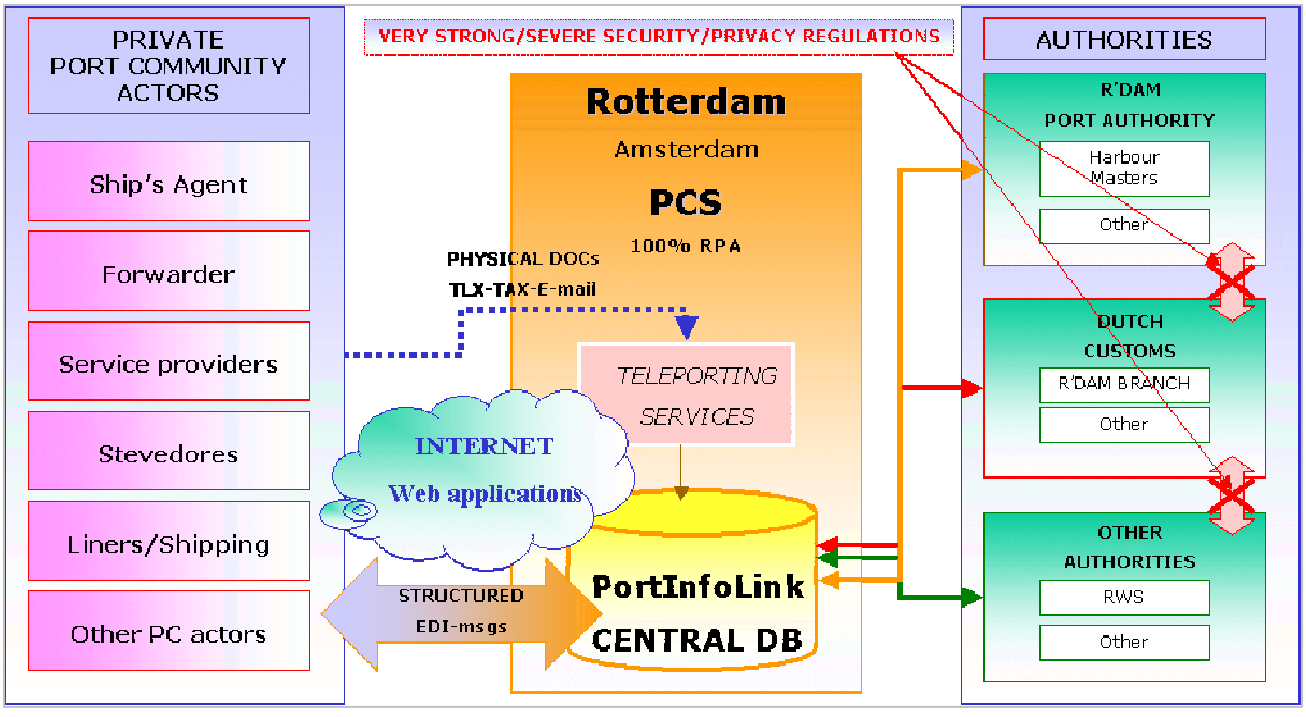
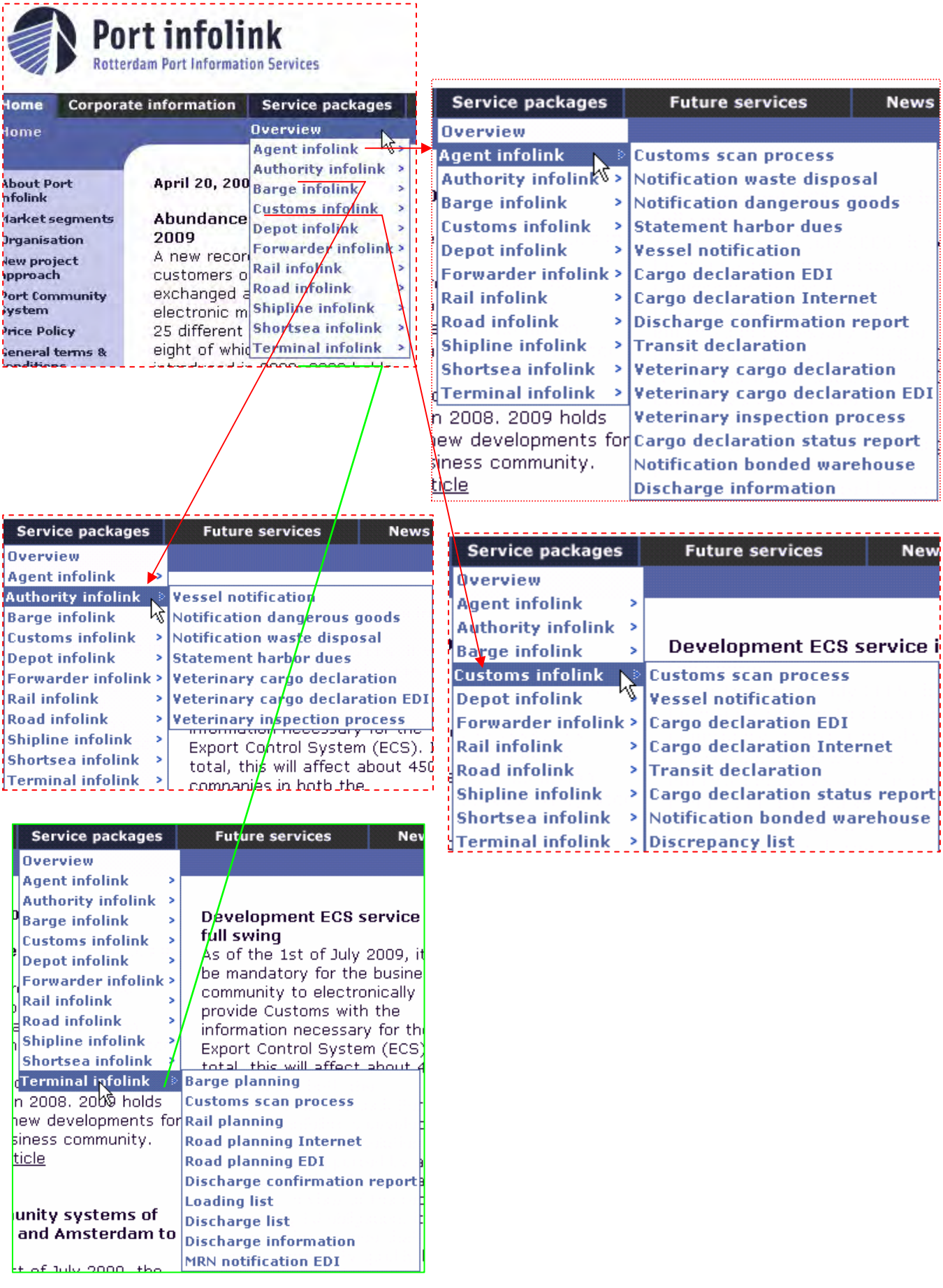
Services over and above the rest

Rotterdam/Amsterdam (PortBase)

- landlord ports; but well aware of the importance of 'information' as a strategic factor and a PCS as a competitive challenge
- teleporting/buffer organisation for non-automated parties & dissemination of nautical/commercial information: PortInfoLink teleporting services
- EDI-messages through central DB
  - From sender (own system, stand alone application, web-application) via mailbox (or directly) towards 'PortInfoLink/PortBase central data-base', after which info is available for any authorised port community users/actor

http://www.portbase.com/ http://www.portinfolink.com/ http://www.portnet.nl/




Port infolink
Rotterdam Port Information Services
Home
Corporate information
Service packages
Overview
Agent infolink
Authority infolink
Barge infolink
Customs infolink
Depot infolink
Forwarder infolink
Rail infolink
Road infolink
Shipline infolink
Shortsea infolink
Terminal infolink
Future services
News
Customs scan process
Notification waste disposal
Notification dangerous goods
Statement harbor dues
Vessel notification
Cargo declaration EDI
Cargo declaration Internet
Discharge confirmation report
Transit declaration
Veterinary cargo declaration
Veterinary cargo declaration EDI
Veterinary inspection process
Cargo declaration status report
Notification bonded warehouse
Discharge information
Development ECS service
full swing
Barge planning
Customs scan process
Rail planning
Road planning Internet
Road planning EDI
Discharge confirmation report
Loading list
Discharge list
Discharge information
MRN notification EDI

6.8 Common Software Packages for PCS Available

The main problem is the variety of interpretation/understanding/perception of the definitions and procedures within the maritime supply chain.

This complicates the splitting up of, or dedicating systems/services to specifically public- and/or private sector port community actors.

As already previously: there is no ICT-culture in European ports for off-the-shelve applications/systems. They all prefer 'tailor-made' applications[46].

- Typically port authority systems/applications:
  - APICS (Antwerp), ENIGMA (Ghent), ZEDIS (Zeebrugge), ENSOR (Ostend)
  - DACOSY (Hamburg), COMPASS (Bremen)
  - FCPS (Felixtowe),
  - PROTIS, AP+, ESCALE (Marseilles, Le Havre)
- Typically mailbox message switching systems/applications:
  - Porthus/Seagha, Port-I-com, (Belgium/Flanders)
  - PortInfoLink, PortNET, Portbase, (NL)
  - PortNet (Finland)
- Typically terminal operator's systems/applications:
  - Navis, Cosmos, SeT, HPC,
- Typically ship's agents systems/applications:
  - Harbour/PortView, E-loket, HITT,
- Typically maritime & waterway's administration systems/applications:
  - IVS/SRK (incl WESP, LIS, CBS), IVS90, SPIL,)
  - SSN
  - Flexlock
- Typically Custom's systems/applications
  - Own systems (country dependant)

[46] ***also to be kept in mind = the big ports have their (very often large) own ICT-dept.***

7 Results 1st year

7.1 Results of incentive tour & visits to the ports

During the first year all involved 5 countries[47] and 11 ports[48] were visited[49], project explained, interests awakened, contact points established and local situation analysed.

From in the beginning it was clear that the project aims/goals, especially in the field of ICT (and as described in the ToR and in the proposal), would be very difficult to achieve.

Very striking were the variety of:

- Behaviour/awareness towards electronic information exchange and/or even any form of modernisation (which excludes paper documents)[50]
- (ambiguous) definitions, procedures, structures, organisations (public vs. private), hierarchical levels,
- perceptions of supply chain, port community (actors)
  - the role and status of the 'ports'!
- interpretations of 'leading/neutral party' within an port community ICT-environment
- port systems/models; some (partly) privatised, others acting as landlords, sometimes port operators acting as port authorities,
  - but all ports being part of a centralised organisation

Regulator	Landlord	Operator
▪ Licensing, permitting ▪ Vessel traffic safety ▪ Customs and Immigration ▪ Port monitoring ▪ Emergency services ▪ Protection of public interests ▪ Determining port policy and environmental policies applicable	▪ Waterside maintenance (dredging,...) ▪ Marketing of location, development strategies, planning ▪ Maintenance of port access ▪ Port security ▪ Land acquisition and disposal	▪ Cargo and passenger handling ▪ Pilotage and towage ▪ Line handling ▪ Facilities security, maintenance and repair ▪ Marketing of operations ▪ Waste disposal ▪ Landside and berth capital investment

[47] *Ukraine, Romania, Bulgaria, Turkey, Georgia*
[48] *Odessa, Illiychevsk, Constantza, Varna, Burgas, Istanbul/Haydarpasa, Derince, Samsun, Hopa, Batumi & Poti*
[49] *except for the Turkish port of HOPA*
[50] *being one of the main reasons to refer upon/to 'legal issues'*

Also was noted the long time between the beginning of the 'time between the beginning of the 'project-ideas' and the real start-up (we heard some figures of ca. 5y between the submission of the project and the real start-up).

Which results in rather 'odd' situations:

- From Conceptual project design/definition
- -> EU/Enlargement/Traceca
- -> ToR
- -> tendering
- -> evaluation offers + choice of consortium
- -> contractual administrative procedures
- -> start-up
    - contractual 17/04/07
    - kick-off 23/04/07
    - start inception tour 7/05/07
- + 2y towards the end of the project (16/04/2009).

It is obvious that during all this time 'some things/ideas/thoughts[51]' have changed and especially ICT-technology didn't stop evolving.

The concept of PCS became more and more a 'hot topic'.
Ports (and the port community actors) which, in the late 80s/beginning 90s were confronted with

- Reorganisations within the maritime landscape
    - ports becoming more and more a 'real' part within the supply chain and
    - becoming autonomous
- an overload of information/messages to be exchanged due to the entry of
    - 'unified/packaged' cargo
        - e.g. containers, RoRo, pallets,..,
    - door-to-door B/L

had started up (invested in) a 'kind' of electronical information exchange (accordingly the single window & one stop shopping principles) and had been confronted with a complete lack of standardised structured (maritime) EDI-messages, were not eager to adapt their systems/applications towards that quick evaluating ICT-world.

Furthermore the 'dominant' position of Ministries (mostly MoTC/Maritime or Naval administration[52]) with the highest priorities on/towards the 'means of transport' (safety the ship & environment).
Lesser accent was laid into the real role of the harbour and its community (the port being hierarchically too low in the organisation) and the cargo (flows).

It was the general understanding of the author that ICT (as described in the goals of result nr. 4) was meant to be 'information exchange with VT(IM)S" (incl. SSN) and that the ***only*** solid party within this information-flows was the Maritime/Naval/Port administration.
Therefore a ***lot of time*** was spent, and this throughout the whole project[53], in explaining the various port models/regimes, their port communities (and actors), their roles. Including the W-European approach - autonomous ports - was explained.

[51] ***Also the people involved in the initial conceptual phase might have changed. Resulting is situations whereas the actual project-involved (responsible?) people don't exactly know what was meant by some 'things'***

[52] ***Next to the National Traceca secretariat it was always the MoTC/Maritime administration who initiated/followed the project***

[53] ***even during the closing/final seminar at Sofia (March 2009) some participants had problems with e.g.***

- ***the role of a Port Authority, of waterway managers, of maritime/port administrations***

The experiences of the first year were all translated into an 'Action plan' which was demonstrated during the Istanbul seminar.

7.2 Status of PCS in the project region

There is no PCS in one off the 11 ports[54].
In all these ports lack of computerized (interactive) data processing does not allow efficient data sharing between users:
- within the own port community,
- between the authorities &
- between the ports themselves.

Attention also to be drawn to the fact that:
- a 'good & fair ICT-awareness',
- a believe in unambiguous procedures/definitions/... and
- the feeling of 'e-commerce' as a tool of competitiveness (whether it be e-navigation, e-maritime, e-customs, e-freight, etc...)

is (mostly) ***not in place***

Current computerized data is often/mostly not shared with all key stakeholders and the lack of computerized data exists.

The already computerized customs declaration data is often not reused for other purposes (even for the preparation of other customs declarations).
- During the workshops - and when the Customs were present[55] - the general feeling was that they[56] are willingly to open up there (information) systems for multiple use (other port community actors) but only on their own conditions and terms (cfr. Private port actors)

The PCS has great potential to automate streamline the planning process.

(Pre)Announcing of vessels and cargo/containers arrival can be a great help for the various service providers (and assist in producing berth, gangs, machinery and warehouses work plans).

7.3 Potential bottlenecks for the development of a PCS

Ports management organisations

It was clear, from in the beginning, that the port's management model would be fundamental.
Especially in view of the 'leading party/partner' (= who is going to manage such a PCS?) an ***unambiguous, objective & neutral structure*** should be in place.

- *the difference between an operator and a port authority,*

[54] ***It must be repeated that all over the world, and as far as the author is aware of, there is not a port with a complete (integrated) PCS***
[55] ***Which in most of the events was not the case***
[56] ***Being the Customs' representatives; meaning that mostly they were talking in their personal name (= without the 'consent' of the higher levels)***
- ***It should be noted that this 'issue'(= the attendees not being the right or hierarchically high enough people/staff members) was encountered through the whole project/workshops***

Port management models = models for the administrative and commercial management of port assets and functions

- Key characteristics of port management models
  - public/private mix of ownership of port assets and control of port functions
  - degree of integration of port assets and functions
    - port assets and functions managed by a single entity are integrated
    - port assets and functions managed by different entities are not integrated
  - degree of centralisation/decentralisation (in case of public ports)
    - ports managed by central authorities (e.g. one ore more departments within a Ministry of Transport)
    - autonomous ports: local port authority with own management and separate accounts

There are many port management models

- Depending on the particular institutional context in a country the port functions may be distributed in many different ways among various public and private entities
- Port authority
  - There is no universally accepted definition of a port authority!
- Organisations that are considered as "port authorities" usually:
  - cover at least the landlord functions and the local regulatory functions
  - have some autonomy (they are regulated and supervised, but not managed by central authorities)
- The aim of this project is not to give recommendations on the best port management model
- Nevertheless, we need to devote attention to port management models because they have a profound impact on the feasibility and desirability of both PCS and PPP

- Impact of integration
- High degree of integration (example: public service port)
  - easier to implement PCS because benefits are largely internal
  - but benefits of PCS are lower because there are few port actors

- Low degree of integration
  - more difficult to implement PCS because
    - benefits are diffuse
    - costs and benefits may be unbalanced: some actors win and other lose
  - but potential benefits of PCS are larger

- Impact of centralisation
- Centralised port management
  - lack of operational and market knowledge
  - long and politically influenced decision processes
  - deep pockets
- Autonomous port
  - good insight in operational and market processes
  - short decision lines
  - smaller financial resources

Overall conclusions	**To-do**
Is there need of an integrated PCS?	Depending size of port, of handled commodities, ….. In any case all ports should evolve towards automated & structured procedures and try to aim at paper-poor procedures. Re-keying must be avoided.

As in almost all ports the Port manager (?) seems to be an 'operator', most meetings were difficult (an operator not being quite familiar with ship's follow-up and vv.)	Redefine the organisation and/or port management 's models/system Incl. their procedures
There is a huge difference between the various visions on PCS and the results (as well qua organisation as qua functional/technical approach):	Do not tackle all the problems at once Go on with a 'pilot project' Cfr. The proposal by the Turkish: Trabzon pilot, but not withheld by Traceca-secretariat in Brussels.
EU-vision: more Maritime adm. oriented (VT(IM)S -> SSN -> safety	PCS should treat all the port community actors
Perception of 'private' vs. 'public' issues	A result of too long 'plan-economical' thinking.
Traceca ports: Too much 'operator' oriented	Operator's information needs are different from 'Authority' needs. Idem with information sources. Better insight in PCS required through e.g. pilot project Proposed also by Bulgarian Port Infrastructure Cy (mr. Tozar)
It is not clear who ***might*** be the coordinating/leading party (everybody pretending to be the 'starting point'	Define 1. a viable port community and it's actors 2. define all the (business, procedure) cases and their information flows It will show (almost automatically) that only an objective/neutral body may be the leading party/partner
Correct use of definitions, interpretations, perceptions	May be more courses, seminars, (even abroad; such as APEC, STC, NEA,…..)
The roles and functions of all the involved (public) sectors/parties is not clear – ports depend of too much organisations (or too much involvement of too many parties)	When starting with a PCS: Appoint coordinating/leading party/partner. Be sure that the leading power is hierarchically capable of guiding such a project
Some fundamental issues before starting any concept-phase should be answered[57]:	WHO is doing WHAT with WHICH information? What is the ADDED VALUE for your own job/function/organisation? What service do you think you should give?
The gains/profits are still not clear for the Traceca-ports/actors	A result of too much 'job protection' and 'over esteem'. They should better understand: ***"Improve the communication and facilitate the workload of the port user and/or service/information provider"***

[57] The 'so-called' PSYCHOLOGISTICAL approach

Some ports were privatised. Further co-operation towards a PCS might be very tricky	Only if Port Authority functions (incl. traffic mgmt) are well and clearly defined a solution might be feasible.
The existing ***walls*** between the public sector (with too many involvement within the operational level) and the private (even if they are 100% state owned) is a hard to surmount issue	Only time and the necessary reorganisations might solve this 'problem' (if any?)
There is no idea of cost/time needed to build a PCS	Separate study via a pilot project
Up to now, the information exchange (what?), was/is too much 'point-to-point oriented and actor-dependant	Separate study via a pilot project Incl information flows and re-engineering proposals

7.4 Why 'transfer of expertise' through 'workshops'?

As mentioned earlier the initial goals/aims of the project had to be abandoned and replaced by something else.

Due to a lack of:

- (fundamental) ICT-awareness
  - knowledge of state-of-the-art technologies
  - knowledge towards the possibilities of ICT as a competitive tool,
  - EDI (more specifically structured EDI),
- the (still) too-centralistic (top down) view on harbour and port community exploitation
- believe in autonomous structures (=decision lines) due to hierarchical barriers,
- the ambiguous use of all kinds of definitions and procedures,
- etc..

But also due to

- over-esteem (as well organisational, as technical, as conceptual and/or functional),
- over-organisation (= too many personnel and consequently too many people who may intervene = over-involvement)
- far too much people involved in the project
  - ***but***, almost never the same persons in the various meetings and/or (preparative) workshops, seminars
- the top-down approach by the MoTC (as a result of the underestimation of the role of ports within the supply chain and the hierarchical structure)
- the too much 'maritime' means of transport oriented approach and understanding
- etc..

It was proposed (and accepted by all parties) that 'transfer of expertise/know-how/knowledge' through (joint) workshops would be a far better way to introduce ICT-awareness, explain costs/benefits[58] and show the importance of ports (and its community & actors) being a part of the supply chain.

Te biggest challenge being: who to attend? (see further)

[58] *Costs/benefits: as explained during the various workshops: not easy*

7.5 Why 'joined workshops'[59]?

- Although PCS and PPP are different topics, the port actors, issues and bottlenecks involved are surprisingly similar.
  - Issues: organizational set-up
    - who finances, who pays, who operates?
    - balance between costs and benefits for each actor
    - answer will depend on port management model
      - landlord port, toolport, service port
      - state-private mix of ownership and control
      - level of (de)centralisation
  - Bottlenecks: unclear and fragmented responsibilities in port regulation, management and operation

- The pooling of resources allows us to organize separate national workshops tailored to the needs of each project country (instead of one general, regional workshop)

- Moreover, confronting the several (involved[60]) parties (of (fragmented) organisations) with each other and/or within 'group' discussions seemed to be a good idea.

  - It's only a 'pity' that the results, whatever they might have been, will stay on a 'local' level[61]
    - the attendees being of a too low decision level
    - moreover, as a result of the (too) centralistic administration (involvement), the way-back/up reporting will be rather harsh to achieve

[59] ***Although it should be mentioned that, in the beginning – when explaining this approach to the National secretaries – there were some reserves from Bulgaria.***
Mrs Gospodinova preferred the initial 'National seminars' instead of local workshops. Only after having explained the added value, she agreed on the condition that the workshops should be 'joined and interactive'

[60] ***during the whole project it was clear that 'involved' meant mainly: 'having time' and not 'having an added value' to either the organisation (or administration), either the project, either towards any solution, e.g. ((proposal for a) change of law, change within a structure/organisation, change/adapt a procedure, ….***

[61] ***May be except for Turkey and/or Bulgaria (where a real support, push; drive was encountered/felt)***

8 Results 2nd year

8.1 Approach

As already stated previously, and as explained in the Action plan scenario (demonstrated during the Istanbul seminar) a different approach seemed to be necessary.

Mainly as a result of the experiences and results of the 1st year the 'transfer of expertise' would be done through interactive 'workshops'.
Each workshop consisting of 2 days

During which, after a theoretical and more or less scholastic introduction, a group's discussion would integrate the attendees in a 'modern' thinking/way of approaching this PCS (and PPP) problem; taking their own particular field (actor's group) as basic departure point[62].

Group discussion per actor's group:
- what do you think/expect to be the impact of PCS on your organisation?
  - operational/administrative
  - cost savings
  - commercial
- choice of model (message exchange, central DB, integrator)
- Synthesis
- General group discussion
- Pre-Conclusions

8.2 Preparative meetings with National TRACECA Secretariats

Why preparative meetings? Planning

It was clear that, due to
- the many people involved[63],
- the targets
  - ports and their port communities
  - management, port/maritime/naval/waterway authorities,
  - service providers (port operators, pilots/tugs, energy, ship's agents/forwarders,…),
  - ICT-departments[64] and
- to avoid misunderstandings and ambiguous situations

preparative meetings (with the National Secretariats, in order to respect the project's hierarchical ladder) had to be arranged in order to explain clearly
- what the workshops were about
- why workshops were needed

[62] ***it should be noted that this splitting up into specifica 'actor's groups' wasn't a success. Reasons being 'not used to work independently and/or not being able to express themselves freely' .***
[63] ***Or people who 'felt' to be essential***
[64] ***indeed ICT-departmentS: due to the fractured & centralised port management models/organisations it became obvious that in fact the ICT-deps of all involved port community actors should be involved. It later became clear that this was not feasible; not out of our view, but as a result of the 'wrong' perception of 'involved partners' within a port community***

- who should attend
- etc.…

Planning PREPARATIVE MEETINGS 2008

- Week 36: Ankara
- Week 38: Kiev
- Week 40: Sofia & Bucharest
- Week 51:Tbilisi – conference call
    - previous planned meetings (during weeks 42 & 50) cancelled

Whom to invite?

- As already stressed from in the beginning of the project, the necessity and importance of the private sector should be taken in account[65]
- Profile of representatives from each actor
    - senior officers with an overview of all business procedures
    - sufficiently high ranking

- Local port community
    - Authorities:
        - Port authority (or similar organisations: port administration, port infrastructure company)
        - Dispatching/coordination centres (VTIMS)
        - Maritime administration (included VTS)
        - Coastal affairs, MRCC/SAR)
        - Customs
        - Border police/immigration
        - Port state control/flag state control
        - Inland waterway and canal administration
        - Harbour master's office
        - Other competent authorities and ministries,….

    - Service providers:
        - Pilots, tugs, mooring
        - Energy providers (Bunkers, H2O, Electr., tel…..)
        - Terminal operators/stevedore (included stowage, tallying)
        - Warehousing
        - Surveyors
        - Inland transport (road, rail, barge)

    - Port users:
        - Shipping lines
        - Liner and ships' agents
        - Shipmasters
        - Forwarders and freight integrators

- Relevant port actors outside local port community
        - Authorities competent for port investment planning and financing (varies from country to country depending on the institutional structure)

[65] ***in which we die not succeed (workshops were mainly attended by (middle high) public servants***

8.3 The workshops

8.3.1 Aims, Objectives

- knowing how a PCS will affect your operations, in particular
  - which costs the use of a PCS entails, and
  - which cost savings it (might) generate,
- knowing the main technical, organisational and financial options to implement a PCS,
- having discussed these options and (tentatively) selected a "preferred option" to implement a PCS in your port,
- having a better insight in the various port management models and their implications for the set-up of both PCS and PPP;
- having acquired an understanding of
  - the different models for public-private partnerships in the port sector, and
  - how to select and implement the most appropriate model for a particular investment project.

8.3.2 Planning, venue & ratings[66]

- 2008
  - Week 46: Ankara (5/5/5)
  - Week 48: Odessa (4/3/2)

- 2009
  - Week 03: Varna (4/4/2)
  - Week 04: Constantza (3/2/1)
    - Week 09: Constantza[67] (5/3/4)
  - Week 07: Batumi (4/4/2)
  - Week 13: Final closure seminar: Sofia (26/03/09)

Mission description	Period	Project Result	Place	Team members
Workshop	Week 46	4/5	Turkey, Ankara	PV/JG
Workshop	Week 48	4/5	Ukraine, Odessa	PV/JG
Administration + Prep. Georgia (teleconference)	Week 51	4	Bulgaria, Sofia	PV
Workshop	Week 3	4/5	Bulgaria, Varna	PV/JG
Workshop	Week 4	4	Romania, Constantza	PV/JG
Workshop	Week 7	4/5	Georgia, Batumi	PV/JG
EU study tour	Week 11	4	NL and BE	PV + team
Suppl. Workshop	Week 12	4	Romania, Constantza	PV
Administration Final seminar	Week 13	All	Bulgaria, Sofia	Whole team

[66] ***Organisation:*** ***5 (excellent), 4 (very good), 3 (good), 2 (poor), 1 (bad)***
Co-operation & interaction audience: ***5 (excellent), 4 (very good), 3 (good), 2 (poor), 1 (bad)***
Composition of participants: ***5 (excellent), 4 (very good), 3 (good), 2 (poor), 1 (bad)***

[67] ***supplementary workshop for private sector (during initial workshop, only public services were present (not invited?)***

8.3.3 General conclusions

- One of the greatest (bad) conclusions is the **complete absence** of ICT-representatives
  - mostly as a result of not being invited

- Results of too centralised (port) mgmt. still very clearly visible/tangible

- Bottlenecks (but: how to change/adapt?):
  - Legal obstacles
    - even used as excuse(s) to maintain a certain 'status'
  - Hierarchical/organisational barriers
    - advantages/added value of ports/automation not always (fully) recognised
    - no (real) autonomy for the port (mostly < €)
      - -> e.g. harbour dues go to a central administration

- Big difference between (human approach of) public- and private sector
  - Public:
    - Too conservative (& public servants mentality)
    - -> job protection (searching for (and finding) reasons 'why not')
    - Little affinity with business/operations playing field of other stakeholders
    - Not enough (ICT) awareness
  - Private:
    - (Wrong) perception of 'private' & 'privatisation'
    - believing too much in the 'sanctifying' effect of privatisation
      - -> killing the 'chicken with the golden egg'
    - (Sometimes) too eager in expecting too fast the wanted changes
    - (Sometimes) hostile vision upon public servants/services

- Ambiguous definitions and procedures
  - (Willingly?) misunderstanding and/or wrong interpretation of 'certain issues': resulting in useless discussions; examples:
    - Port authority, service providers, concessions, hire, rent, lease
    - Centralised DB
      - centralisation of data and
      - not geographically
      - Ownership of (source) data, security of data, …..

- Participants:
  - Customs were/are not (enough) represented
    - Role very much underestimated; in fact (mostly) their own fault:
    - customs act too monopolistic/conservative,
    - don't like to look/work together to/with the other (port) actors

  - Too much 'hope' that the workshops (and the project results) will bring 'the' solution

  - What is said during the workshops should be ventilated - through the proper and correct (hierarchical) ways - towards the higher decision making administrations/organisations

- During group discussions in the workshops a first attempt was made to identify **suitable candidates** for taking the lead in the development and introduction of a PCS:
  - Romania
    - Port Authority of Constantza (MPAC).

- But, actual ICT (system development and operation) is completely outsourced[68] (private sector not willingly to talk/discuss with UTI concerning procedures within the port)
  - Resulting in a rather strange situation.
  - Have the (legal & operational) power to make PCS use mandatory.

- Bulgaria
  - Bulgarian Port Infrastructure Company.
  - Have supported the development of the Varna-pilot.
  - Are prepared to go beyond this Traceca-study towards a pilot for defining the actual information/data flows.
  - Have the power to make PCS use mandatory.
  - Were willingly to start-up a 'pilot project' throughout modular approach
    - starting with the (pre)announcement of ship's arrival/shift/departure by the ship's agent towards the Bulgarian Port Infrastructure Cy.
    - However, this proposal was not withheld.

- Turkey
  - As ports are in a privatisation process, it's rather difficult to define a 'leading partner'.
    - UMA may not be interested to become the leading party
  - It should be stressed that the 'Under-secretariat of Maritime Affairs & Ministry of Coastal affairs' were very co-operative.
  - Turkey already has one of the most sophisticated VTS in the world (actually a VTMIS).
  - UMA was willingly to support a 'pilot project' for the port of Trabzon.
    - However, this proposal was not accepted by the Brussels Traceca Secretariat.

- Ukraine
  - Difficult and unclear situation
  - Although the impression was/is created that the ports are (rather) autonomous[69], the idea of PCS didn't find any support
- Georgia
  - Big question mark.
  - No suitable private nor public counterparts available.
  - There is the willingness of the Harbour Masters' Office, but no support out of Tbilisi.

8.3.4 Results per project country

TURKEY

- Very good organised (e.g. National Traceca secretariat)
- 'Ports and operators' very well represented
- Turks believe that 'Privatisation' seems to be 'the' soul-saving (sanctifying) solution
- Are very satisfied with the results
- Business minded and very clear awareness (and know how) of the necessity and added value of PCS
- "Let's get started" (and leave the discussions (e.g. who = leading partner) for those who like this)
- Unambiguous statements:
  - Procedural bottlenecks should be (urgently) solved
  - results/remarks/advices/recommendations of the workshops -> higher level -> Minister

[68] ***UTI***
[69] ***'autonomous' as what may be understood out of the complicated explanations***

- If the 'law' is a real bottleneck than the law should be changed/adapted towards the (functional/operational) commercial needs (allowing better benefits)

o Only the future will tell if this new/modern approach resulted in improvements

UKRAINE

o For PCS-workshop: completely wrong audience
o Strange organisations and interpretation of 'definitions/procedures' (e.g.: privatisation, lease/hire/rent/….)
- Resulting in ambiguous discussions about needs, added value, leading party, etc.

o Far too much negative heritage:
- Unilateral-, selfish approach; public service representatives still too 'centralistic' oriented
- Ukrainian legislation is not adjusted to implement PPP in ports

o Common idea = resolve first the legal bottlenecks
- Which may also be seen/interpreted as 'slow down everything' (whatever reason)

o Big difference in mentality between the organizations
- Public vs. private sector, administrative vs. operational (port) users, central level vs. local level, etc…

o Floor too often/much used to comment on:
- The centralistic Kiev-approach
- Argue for more (port) autonomy

BULGARIA

o Rather good representation during the first hours; decreasing but
o Lack of (real) interest
- Some operational attendees Y, but still always overruled by PICy

o No port operators, (few) maritime administration, no national customs
o Although an EU-member: strange & selfish approach
- Lack of transparency
- Strange statements towards the EU-approach
  - "Brussels is far away"

o Very strong influence of 'Port Infrastructure Cy'
o Not all noses in the same direction
o Ambiguous (internal) discussions (= between the workshop participants)
o Very strong differences:
- Or (almost) everything is 'perfect' and no need for PCS nor PPP; nor external consultancy
- Or interested but only accordingly own procedures/organisations = not open for changes
- Or fully interested and every 'transfer of experience/know-how' welcome

ROMANIA - 1st workshop

o Only public services (and MPAC)[70] present but
- No customs
- 2nd workshop necessary for private sector

o Big delegation of Danube River ports71 & Canal authorities
o Good representation during the first hours; decreasing, but all with very great interest and
- very cooperative
- but poor understanding of
  - the organisation of a port community,
  - port models & port services
- automation within that port community

[70] *due to wrong (?) invitations, politics?*

[71] *Infrastructure, traffic management functions , ….*

- unaware of the (necessary) differences between automating a public service and a private enterprise
- (rather) strong aversion towards 'private' sector
- mostly a result of wrong/misunderstandings
- Due to strange financial management
  - Incapability of some organisations/departments (mainly River ports, canal authorities,…) to work properly
  - Poorly informed about 'other' funding possibilities
- Far too much political influence; resulting in rigid organisations

ROMANIA - 2nd workshop

- Only private services (and MPAC) present but
  - Almost whole workshop dedicated to own presentations (naval administration, customs, UTI (software house MPAC), DP-world,..)
  - Romanian was the common language during the whole workshop. Translations were done by MPAC
  - Consequently this report (and MoM) only reflects what was well understood.

- Fierce discussions between private sector and UTI
  - UTI presenting themselves as 'the dedicated MPAC-software house'
  - Ship's agents and forwarders cannot agree that a private Cy describes the working procedures without any consent of the private sector; their point of view was/is that their counterpart should be (must be) the Port Authority and not a private Cy; Indeed:

    - As a result of the (mostly during 2003/4 period) privatisations the MPAC/ICT-dept was reduced to 4 analysts.

      - This results in a (very) strange situation: MPAC has no power/knowledge of her own information.
      - Out of what I understood, the hardware & communications are MPAC-property but exploited/managed by either UTI, either SIVECO (also the IN-broadband connections).
      - They depend completely of 2 private Cies
        - UTI (Neptune <-> MPAC-portal) &
        - SIVECO (Neptune DB: Mgmt/maintenance).
      - MPAC/ICT functions merely as a 'help-desk' and playing the (ungrateful) go-between 'users-UTI/SIVECO).

    - Private sector's opinion that too much attention is given to the 'nautical service providers' (pilots, etc…); they feel that, if e.g. the pilot/tugs/mooring gangs services are in need of information, they should be treated as other service providers

GEORGIA

- A PPP-workshop for completely privatised ports is rather odd, but nevertheless great ` interest was shown
- Too much discussions were done in Georgian
- Frustrated public services (harbour master's dept.)
- Lack of interest out of Tbilisi
- Ambiguous organisations (Transport/Ports now depending from Min. of Economic Development)
- As a result of the privatisation of the ports, public organisations are running behind
- Within the privatisation-contracts/concessions, the conditions/procedures for further co-operation with the public sector was/is not described
- Private Cies cannot wait and go ahead; Resulting in a dominant attitude of these private Cies vs. public services

- ***'you may connect on <u>our</u> conditions accordingly <u>our</u> procedures'***
- Without further 'transfer of expertise' and without going 'up' with the results/conclusions, the workshops will have been (once again) useless

8.4 The West European Study Tour

8.4.1 Introduction

To make the involved countries/ports acquainted with the European approach, as well towards port management models/regimes/systems, as towards ICT, an European tour was arranged towards Antwerp, Rotterdam & Amsterdam. During this tour, some state-of-the-art systems/ applications and off-the-shelve packages were shown/demonstrated.

As expected (and encountered also during and in the workshops) not all the right people were present; the study tour having been planned mainly for ICT-managers of the private[72]- and public sector[73] (and mixed organisations[74]).

All presentations were put on a memory-stick and handed to each participant.

8.4.2 Results Study Tour

The European study tour, which initially was meant to make the various port managers (and in particular the ICT-managers of all port community actors[75]) acquainted with the approach and/or use of ICT in some big NW-European port communities.

Invitations were done by the respective Traceca National secretariats and it should be, once again, noted that some important parties/actors/organisations were not present[76]

Parties should now be aware of the ICT-basics used by R'dam, A'dam and Antwerp[77], e.g.

- mailbox message exchange ((Apics/Amaris-Porthus) vs. centralised db (PortBase (PortInfoLink + PortNET,…)
- some off-the-shelve packages were shown/explained by private Cies: Phaeros, Tinc, Hitt, Porthus,

[72] ***Ship's agents, forwarders, terminal operators, …..***
[73] ***port-, maritime/naval authorities (incl. VT(IM)S, customs, border police,…..***
[74] ***e.g. dispatchers/coordination centres***
[75] *preferably automated parties or actors very much interested in future automation*
[76] *no customs, no ICT-managers, no private actors*
[77] *all attendees received a memory stick of all presentation*

9 The 'VARNA pilot project'

Concept & description; Referring to

- the ToR,
  - ***A pilot <u>scheme</u> for efficient <u>port</u> communication and information system, which facilitates and fastens maritime transportation within the Black Sea region, is established and findings are disseminated. That implies tracing of movements and handling of the ships in the ports, tracing and control of cargo-handling operations and information services of outer clients. For the pilot scheme the port of Varna is to be envisaged, provided the information obtained in the review phase (please refer also to result 1) does not suggest otherwise.***
- the offer made by the consortium and
- the fact that the initial goals could never be reached

It was finally decided to develop a 'stand-alone' (so-called 'live') demo version for a ship's agent/forwarder (pre) announcing:

- the arrival/shift/departure of his/her ship
  - accordingly the BERMAN MIGs,
- the dangerous goods (to be loaded/discharged/remaining o/b)
  - accordingly the IFTDGN MIGs,
- crew- and passengers o/b
  - accordingly the PAXLST MIGs,
- waste to be delivered/kept o/b
  - accordingly the WASDIS MIGs,
- the ship's manifest
  - accordingly the IFTMCS MIGs,

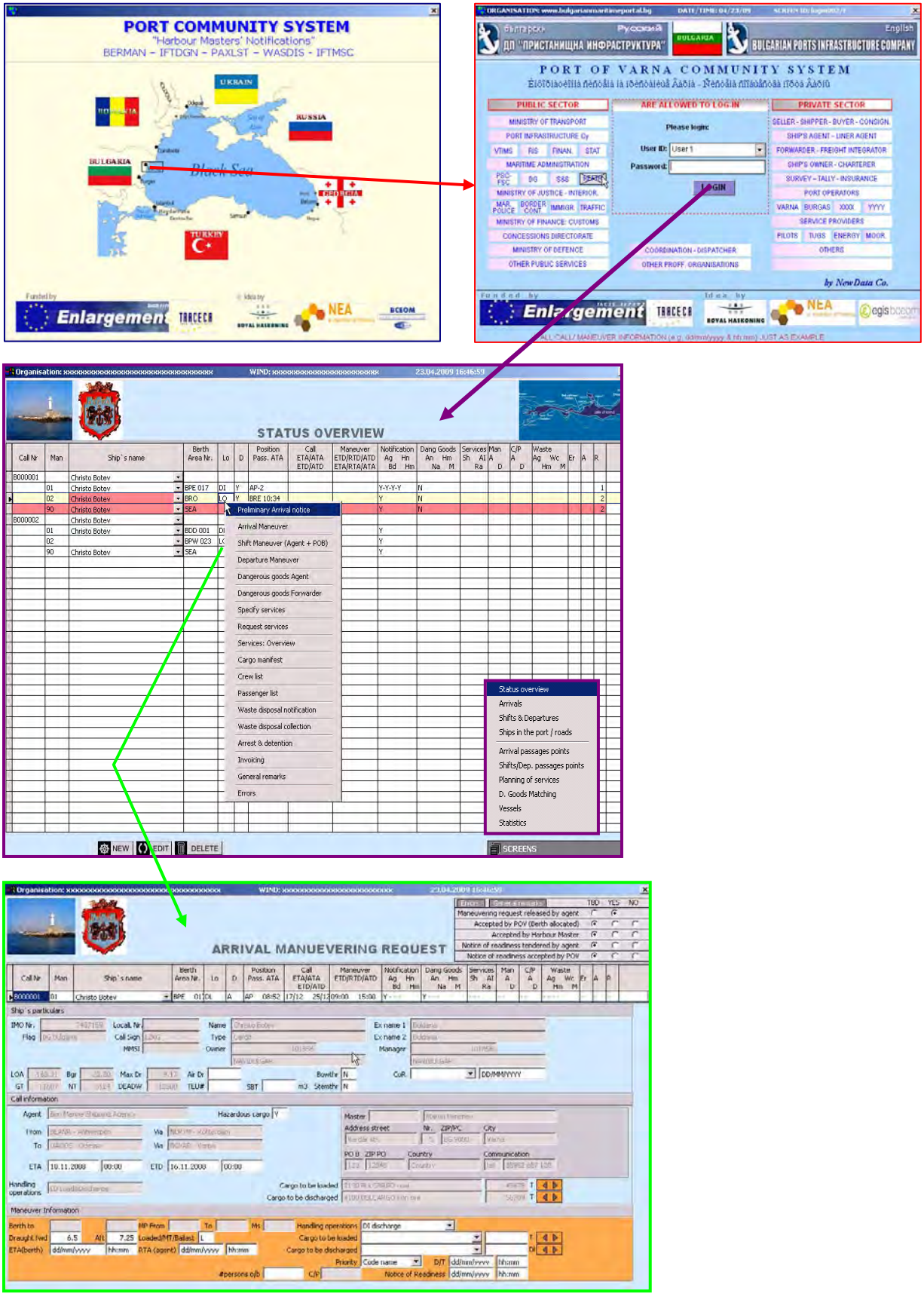
without taking into account:

- the destination and/or receiving/approving party
  - due to lack of proper unambiguous procedures
- any connection towards another intelligence source (e.g. Lloyd's/Fairplay ships db, Exis DG db, …)
- no live input possibilities
- no translation into EDI

the programming was done by a Sofia situated software house 'New Data Cy' and the results were shown/demonstrated during the workshops.

This Project is funded
by the European Union

Outputs



10 Completion Seminar

During the final (closure) Seminar, a short ca. 15 min overview was given of the project.

The main result/advice being:

- start doing 'something', e.g.
  - (re)organise the port community
  - create awareness

- don't keep on hiding behind 'something', e.g.
  - legal issues
- beware of the time needed, e.g.
  - describing existing information & documentation flows, business procedures, re(engineered procedures, etc.
  - preferable guided by an (external) objective expert/consultant

11 Basic Framework for Implementing PCS in Ports

What To Do?

- Be aware that some actors are already automated (in one or another way)
  - even with systems/applications which have no direct relation with supply-chain issues; with own procedures/standards; E.g. bookkeeping & invoicing, personnel & HRM, time mgmt., …
  - trying to persuade them to adapt/change towards international, up-to-date standards, other procedures, applications of which they even don't see/feel any profit
  - might be (will be) very hard & time consuming

- In order to achieve a common goal, it will not be obvious to bring all these PC-actors together with - very often - competitors, make them believe the advantages

- 'Public' port actors (authorities, administrations,…) may 'over-react'
  - out of 'job protection
  - afraid of new procedures, loss of power, re-organisation(s)

- Before starting anything:
  - define and install the leading party (with it's own independent structure)
    - should be the party which may be identified as being objective & neutral in need of the operational key-information vessel/cargo & related voyage/movement info to which all the other information is related, normally the 'Port Authority'

- Appoint, next to the overall PCS-manager/director, PCS-coordinators with the necessary know-how, authority & power (and acceptable for/accepted by all parties):
  - Public: representatives of each involved authority/administration/department
  - Private: representatives of all Supply chain/D2D involved parties: Ship/liner agents, forwarders/freight integrators, terminal operators, hauliers, service providers

- Be sure that, next to a financial business plan, the necessary funds are available

- Create overall 'awareness' about a.o. the major role of communication

- Demonstrate benefits of ICT

- ABC/M (activity-based cost management): to avoid unnecessary discussions, debates can be minimized

- Reorganisation of the 'Port's model/regime' (towards the PCS-approach)
  - Public servant mentality?
  - 'Think & act' (more) commercially

- Define and create a viable 'Port Community'
- Avoid (operational) hierarchical levels
- Define the port community actors
- Be aware that a PCS means mainly/basically: PORT community system/service

- Define the information flows (business procedures) and how they could be simplify
  - As is <-> To be
  - Is the information needed?
  - Why is the information needed?
  - Who needs which information?

- Define whether the 'procedures' are up-to-date
- Re-engineer if necessary

- PCSs are (rather) costly: depending the Port's model/regime a financing plan should be agreed upon; e.g. PPP, BOT,… construction ?

- PCS should be initiated/analysed 'bottom-up' and the major role of the private sector should not be underestimated

- One should not underestimate the (amount of) work:
  - Describing exactly the business procedures
  - Designing the concept-, functional- and technical designs
  - Programming, testing, implementing, maintenance
  - Training

Towards 'Terms of Reference'

An example scheme[78] how to proceed from zero could be:

- Appointing an overall PCS-coordinator[79] + steering/workgroup (in which are delegated the various port community actors/parties)
- Hiring in the competences of a neutral, objective expert/consultant to help the above mentioned PCS-coordinator (and working group)
- Analysing & listing the actual procedures (legally and commonly used customs) from a ship's agent's perspective regarding the 'Harbour Masters' messages' :
  - Either via an 'off-the-shelf' package, either via the use of an elementary/basic software, of:
    - the (pre) arrival-, the shift(s)- and the departure notification/announcement of a (sea) vessel, towards/in/from the Bulgarian international seaports
    - the announcement of dangerous goods,
    - the announcement of waste,
    - the crew- and/or passenger list
    - the ship's cargo-manifest
  - towards the Port Authority[80] via the single window principle and their dissemination possibilities (one way in/many out)
  - taking into account the functionalities/technicalities of the actual used applications (e.g. Harbour Masters' module of e.g. PortLogic[81], the general declaration & departure clearance ,..)

- Propose an outline of the further steps (incl. easier/better procedures if necessary or desired (re-engineering)):
  - draft description of the path from the study-results towards the implementation of a core PCS comprising the five above Harbour Messages mentioned above, using either:
    - off-the-shelf software package or own development

[78] ***modular approach***
[79] ***with the necessary hierarchical power and accepted by the whole port community***
[80] ***e.g. Port Infrastructure Cy in Bulgaria (commonly known as the 'Port Authority')***
[81] ***Bulgaria***

- Short profile-description of the Cy who might be considered as being able to write the Draft Terms of Reference (ToR)

- Give a rough cost/price indication for:
  - writing draft ToR[82]
  - writing/designing the conceptual/functional analysis/designs (incl. data-model)
  - implementation (within the PI Cy) of the core PCS (incl. the adaptations/interfaces/… to the Bulgarian procedures)

- Indication of possible sources of funding and/or subsidies.
- Etc…..

When should a port (community) consider to opt for a PCS?

- In my personal view there are no black/white arguments to proof the necessity of a PCS

- But in any case: 'legal issues' (laws, directives,….) should not be an obstacle

- Only a weighing of the pro/contra, a (financial) SWOT-analysis, a mutual agreed approach can help the PC-actors in their choice

  - Try to show (prove?) benefits of PCS: which is not easy
  - Who benefits the most?
  - What/who will do/what/when?
  - Who will pay? What(for)?
  - Look for investments (if needed)

---

[82] ***Based on the generally accepted PCS technical requirements:***

. The Portal solution must be :
- ***Distributed Solution***
- ***Three major application tiers***

. This allows to distribute processing load among two machines,
- ***one for the database and***
- ***one for the web server and application server.***

. Open, Extensible architecture

. The Portal must allow new features and will respond to new demands without disturbing the existing system(s) or to reorganize heavily the existing data.

. The system must be easy to extend using standard tools, packages and products and not to depend of solutions with proprietary format.

. Scalable design
- ***The system must have extending capabilities, to be scalable grow the hardware platform point of view.***
- ***The designed system must be modular, easy to adapt to different hardware solutions.***

. Stable and safe platforms

. The legal aspects of providing (partially) public information requires tools and technologies that protect data against unauthorized access and abusive modifications. The operating system used and solution components must assure an adequate security level for these requirements.

. Internet availability

. The system must be usable through Internet, using a standard web browser.

ALSO KEEPING IN ACCOUNT:
- ***as a result of the so-called 9/11-rules it might be worth while considering to change the key from***
- ***the 'means of transport' to the 'cargo/consignment' = goods (shipped on that means of transport)***
  - ***but feeling is that this issue is too early to discuss***
  - ***and even more important the absence of the Customs' authorities***

- Trying to be a 'modern' (almost or at least try) paper-less (paper-poor) port

- It should also be clear that, taking in account the nowadays 'transparency' in the supply chain, better communication is an element of ***competitiveness***

    - the successful functioning of ports is indistinguishable from the successful functioning of the entire supply chain (incl. the services provided)

- Be aware that implementing a complete, integrated PCS is, even for a big port, a complex, time-consuming and expensive 'thing'

    - Sometimes also called 'nice-to-have' toy
        - Cfr. AIS/LRIT

12 Annexes

12.1 ANNEX 1: 'Definitions/Abbreviations'

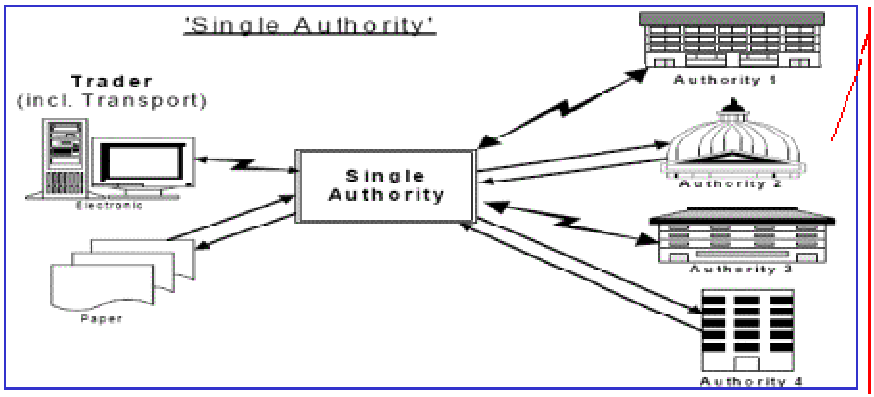
Name	Definition
Portal	A Web-portal is a single point of access to information which is linked from various logically related internet based applications and of interest to various type of users A WEB-site/application providing structured information and specific services. Very often 'Portals' are hosted.
Single window concept, Single point of entry, Single entry point:	The common definition of the term "Single Window" is: - A facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements. - If information is electronic then individual data elements should only be submitted once. Accordingly to the UN-CEFACT International Trade Procedures Working Group (ITPWG): - The 'SW-environment aims to expedite and simplify information flows between trade and government and bring meaningful gains to all parties involved in cross-border trade. - In a theoretical sense, a SW can be described as "a system that allows traders to lodge information with a single body to fulfil all import- or export related regulatory requirements. - In practical terms a SW-environment provides one 'entrance', ***either physical or electronical***, for the submission and hanling of all data, and documents related to the release and clearance of an international transaction. This 'entrance' is managed by one agency, which informs the appropriate agencies, and/or directs combined controls.
WEB Page	Static or Dynamic HTML page generated by Portal
EDI	Electronic Data interchange = the '(un)structured' electronical exchange of records, files,…; EDI can be transmitted (structured) using ***any methodology agreed to by the sender and recipient***. This includes a variety of technologies, including modem (asynchronous, and bisynchronous), TCP/IP, FTP, SMTP/Email, HTTP, HTTPS, EDIINT-AS1/AS2, MQ, etc. - Generally speaking, EDI is considered to be a technical representation of a business conversation between two entities, either internal or external.

	- Be noted that there is a perception that "EDI" consists of the ***entire electronic data interchange paradigm***, including the transmission, message flow, document format, and software used to interpret the documents. - EDI is considered to describe the rigorously standardized format of electronic documents. - a set of standards for structuring information to be electronically exchanged between and within businesses, organizations, government entities and other groups. - The standards describe structures that emulate documents, for example purchase orders to automate purchasing. - The term EDI is also used to refer to the implementation and operation of systems and processes for creating, transmitting, and receiving EDI documents. - Despite being relatively unheralded in this era of technologies, such as XML services, the Internet and the World Wide Web, EDI is still the data format used by the vast majority of electronic commerce transactions in the world. - See also annex EDI
EDIFACT	The international EDI standard developed under the United Nations. (cfr. ANSIX12 in US) The acronym stands for United Nations/Electronic Data Interchange For Administration, Commerce, and Transport. It seems there is a battle between XML and EDIFACT.
XML	The Extensible Markup Language (XML) is a general-purpose markup language.[1] Its primary purpose is to facilitate the sharing of data across different information systems, particularly via the Internet.[2] It is a simplified subset of the Standard Generalized Markup Language (SGML), and is designed to be relatively human-legible. By adding semantic constraints, application languages can be implemented in XML. These include XHTML,[3] RSS, MathML, GraphML, Scalable Vector Graphics, MusicXML, and thousands of others. Moreover, XML is sometimes used as the specification language for such application languages. XML is recommended by the World Wide Web Consortium. It is a fee-free open standard. The W3C recommendation specifies both the lexical grammar, and the requirements for parsing.
ANSI-X12	Is the official designation of the US National standards body for the development and maintenance of EDI standards for the United States (cfr. EDIFACT) The acronym stands for "American National Standards Institute Accredited Standards Committee X12", with "X12" being a sequential designator assigned by ANSI at the time of accreditation with no other significance.
Port or Sea Port (EU law)	an area of land and water, made up of such improvement works & equipment, as to permit, principally, - the reception of ships, - their loading/unloading, - the storage of goods - the receipt/delivery of these goods by inland transport,

	- the embarkation/disembarkation of passengers
Port Authority[83]	A 'port authority' may be considered as the provider of a service of general economic interest This authority or authorities may be public or private and may be responsible for one or more tasks covered by this directive and for one. Nowadays there is a lot of commotion about the 'real significance' of PA.
Port Community System	A Port Community System enables all the links (from/towards all port community actors) within a port's logistics chain to efficiently exchange information with one another.
Portlet	is an application within a browser window, displayed in an effective layout; a portlet is itself a Web application and 'Portlets' are aggregated by the portal page Oracle: A portlet is a ***fundamental building block on an Oracle Portal Web page***. Oracle Portal uses portlets to integrate both structured and unstructured data into a single, personalized view.
Menu Item	An item menu and web page with its associated portlets
Role	Category of end users involved in an existing activity or required functionality.
Portal database	A database optimised for web access
Source of Data	Other databases that can supply data to Portal database
User	The person that will make use of information and/or services provided.

[83] ***Until nowadays there is NO unambiguous and mutually (EU countries) agreed definition of a 'Port Authority'.***
The definition used here comes out of the proposal of a new directive.

12.2 ANNEX 2: UN-single window principles

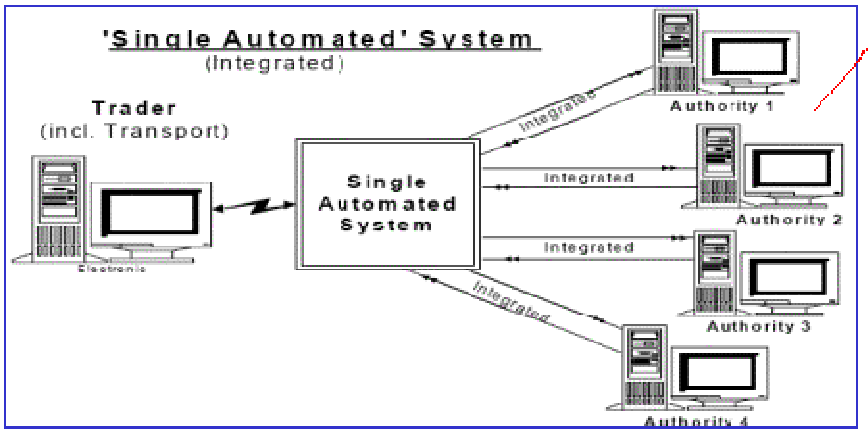


Single Authority:

–That receives information, either on paper or electronically,

–disseminates this information to all relevant governmental authorities, and

–co-ordinates controls to prevent undue hindrance in the logistical chain.

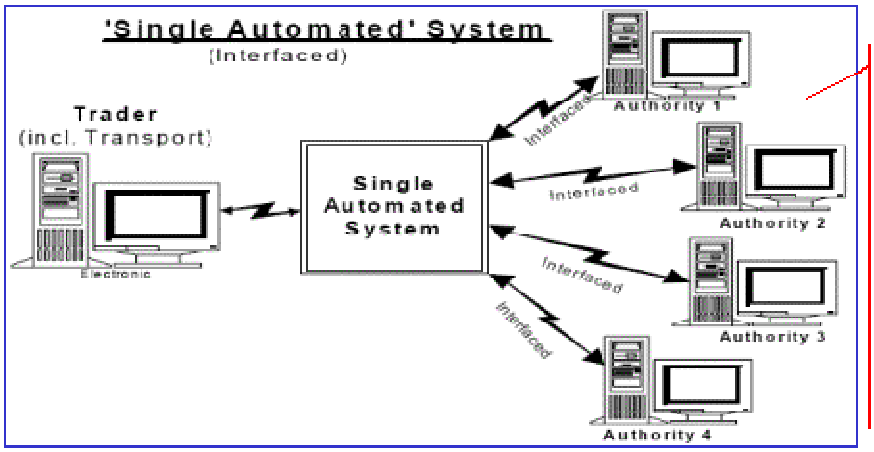


Single Automated System:

– for the collection and dissemination of information (either public or private)

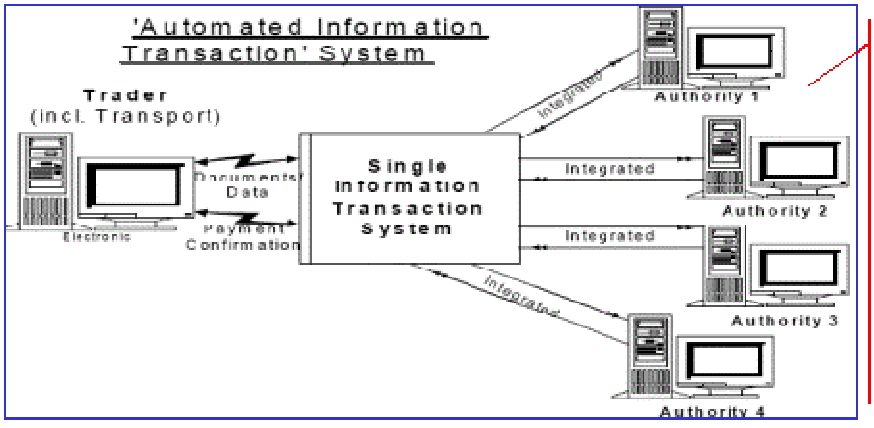
– that integrates the electronic collection, use, and dissemination (and storage)

– of data related to trade that crosses the border.



Interfaced System (decentralised):

Data is sent to the agency for processing



Automated Information Transaction System:

Through which a trader can
– submit electronic trade declarations to the various authorities for

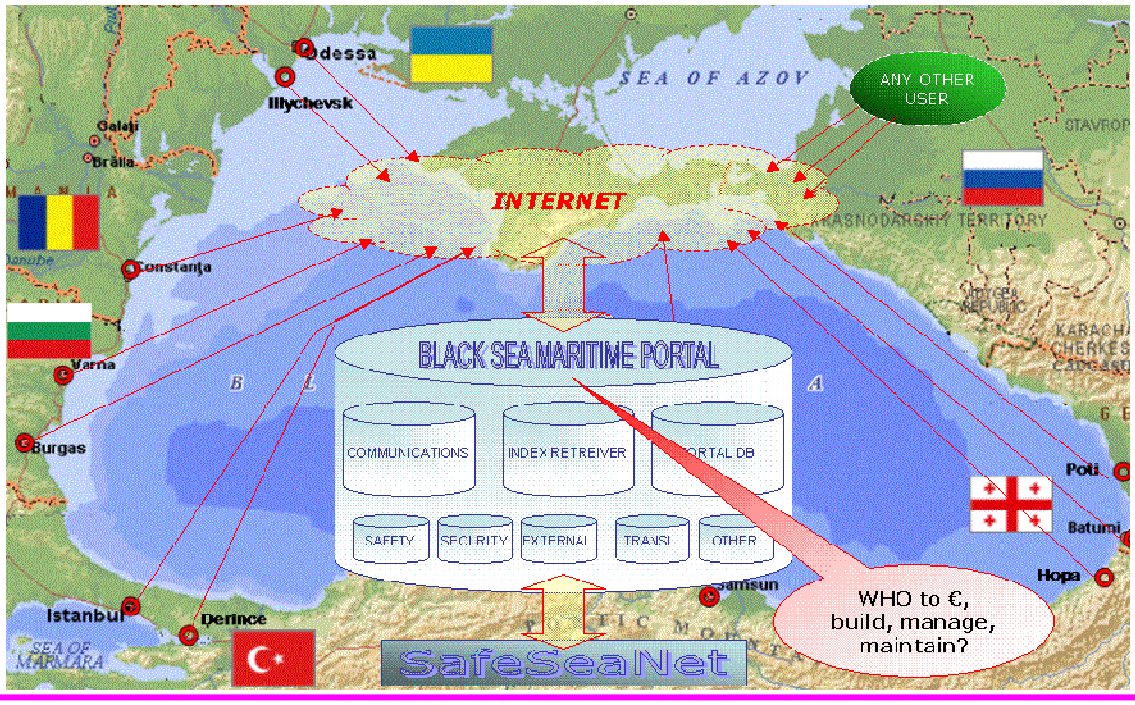
–processing and

– approval in a single application

12.3 ANNEX 3: Author's impression on an overall 'BLACK, AZOV & MARMARA SEA PORTAL'

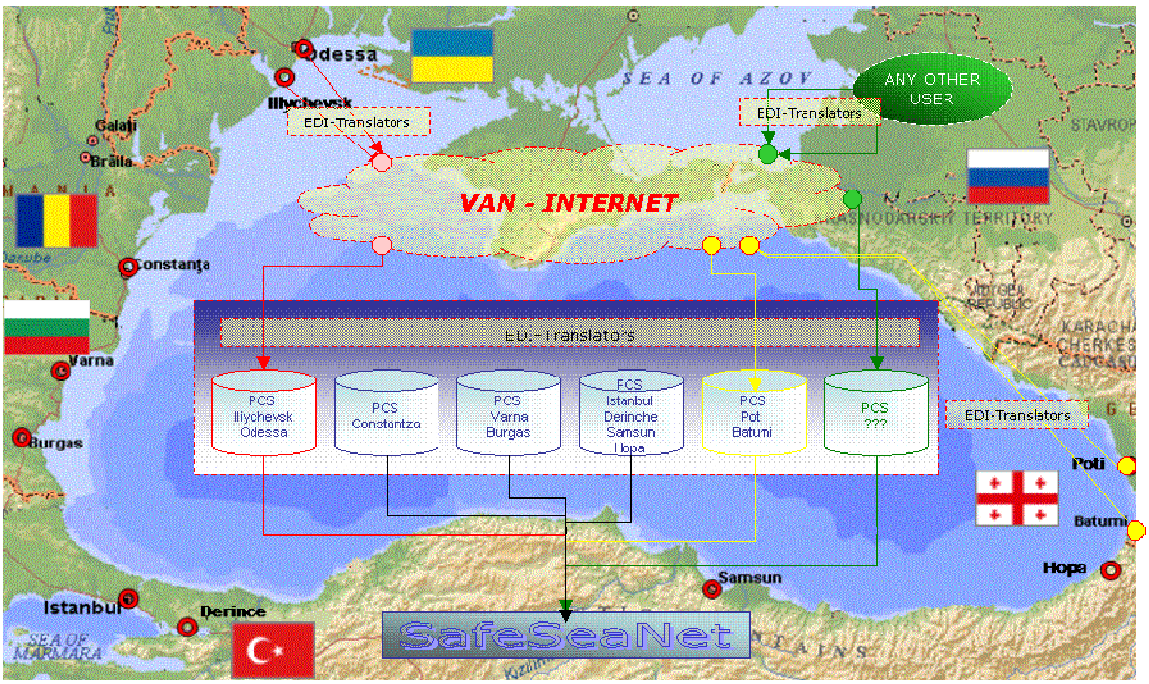
Author's impression: (Overall) Black Sea Port@l

From own system/application -> via www -> BlackSeaPort@l



Author's impression: Each port own PCS

From own system/application -> www/EDI -> PCS



12.4 ANNEX 4: Interchange agreement (example)

THIS AGREEMENT is made by and between

(1) 'XXXXXXX', with its principal office at .....hereinafter referred to as '……' and

(2) 'XXXXXXX', with its principal office at .....……herein after referred to as '.....'; separately referred to hereinafter as "Party" and collectively as "Parties".

WHEREAS: The Parties have jointly undertaken to exchange trade data by means of a process known as electronic data interchange ("EDI"), as hereinafter defined. NOW THEREFORE the Parties agree as follows :

1. PREAMBLE

1.1. The provisions of this Agreement are intended to govern the rules of conduct and methods of operation between the Parties in relation to the interchange of data by teletransmission for the purposes of or associated with the supply of goods and/or services (hereinafter referred to as "Trade") and take account of the Uniform Rules of Conduct for Interchange of Trade Data by Teletransmission (UNCID) as adopted by the International Chamber of Commerce and the United Nations Economic Commission for Europe.

2. DEFINITIONS

In this Agreement the following expressions shall have the following meanings, unless the context otherwise requires : table off definitions to be inserted

3. SCOPE

3.1. This Agreement shall apply to all Messages between the Parties using the Adopted Protocol and the Parties agree that all such Messages shall be transmitted in accordance with the provisions laid down in the then current version of the User Manual.

4. SECURITY OF DATA

4.1 Subject to any requirements of applicable data protection laws, each of the Parties shall :

4.1.1 Take reasonable care to ensure that Messages are secure, and to prevent unauthorized access to its system;

4.1.2 Treat as proprietary and not provide or otherwise make available the whole or any portion of the other Party's network procedures, passwords or computer telephone numbers to any person other than its employees who need to know;

4.1.3 Treat as proprietary, information exchanged by the Parties relating to product pricing and volumes.

4.2 The Parties agree that any information other than that specified in Articles 4.1.2 and 4.1.3 shall not be considered proprietary information unless a separate Nondisclosure Agreement is executed by the Parties to this effect.

4.3 The Parties shall apply special protection, where agreed upon, by encryption or by other means, to those Messages or specific data within Messages which the Parties agree should be so protected. Unless the parties otherwise agree the recipient of a Message so protected in whole or part shall use at least the same level of protection for any further transmission of the Message.

4.4 Each of the Parties shall implement new passwords either upon request or, at a predefined frequency.

5. VERIFICATION OF MESSAGES

5.1. All Messages must identify the sender and recipient(s) as provided for in the User Manual and must include a means of verifying the completeness and authenticity of the Message either through a technique used in the Message itself or by some other means provided for in the Adopted Protocol.

5.2. The Parties may by agreement also use higher levels of authentication to verify the completeness and authenticity of the Message.

6. INTEGRITY OF MESSAGES

6.1. Each Party accepts the integrity of all Messages and agrees to accord these the same status as would be applicable to information sent by other than electronic means, unless such Messages can be shown to have been corrupted as a result of technical failure of the machine, system or transmission line.

6.2. Where there is evidence that a Message has been corrupted or if any Message is identified or capable of being identified as incorrect it shall be re-transmitted by the sender as soon as practicable with a clear indication that it is a corrected Message.

6.3 The sender is responsible and liable for the completeness and accuracy of the Message he sends. The recipient must immediately inform the sender of any transmission error such as unintelligible or garbled transmission or of any error which is reasonably obvious to recipient in order to enable sender to take corrective actions.

6.4. In order to prevent the loss of Messages the receiver must adhere strictly to the verification procedures described in the User Manual. If an error is found to have occurred the receiver must undertake all necessary investigations and, if necessary, contact the sender.

6.5. If the recipient has reason to believe that a Message is not intended for him he should take reasonable and expeditious action to inform the sender. Upon receipt of confirmation from the sender that the Message was not intended for the recipient, the recipient shoud delete from his system the information contained in the Message and confirm such deletion to the sender.

7. PROCESSING OF MESSAGES

7.1 The parties undertake to process or ensure that their system processes Messages without unreasonable delay after receipt, but in any event within the time limits specified in the User Manual, if any.

8. CONFIRMATION OF RECEIPT OF MESSAGES

8.1. Except where receipt of Messages is automatically confirmed, the sender of a Message may request the recipient to confirm receipt of the Message.

8.2. When the recipient has received such a request for confirmation he shall send such confirmation within the time limits specified in the User Manual.

8.3 If the sender does not receive the confirmation of receipt within the time limits specified in the User Manual, he shall be entitled to consider that the Message has not been received and may consider it as null and void provided he so advises the recipient.

9. MAINTENANCE OF A TRADE DATA LOG

9.1 Each party shall maintain without modification its Trade Data Log, containing all Messages sent and received.

9.2. Subject to any requirement of the national law in the country of the party maintaining a Trade Data Log, the Parties may agree a period during which the Trade Data Log must be stored unchanged. In the absence of such agreement, each party shall have the right to maintain its Trade Data Log for such period as it thinks fit.

9.3. The Trade Data Log may be maintained on computer media or other suitable means provided that, if it is necessary to do so, the data can be readily retrieved and presented in readable form.

9.4. Each party shall be responsible for making such arrangements as may be necessary to ensure that the data contained in the Trade Data Log is a correct record of the Messages sent or received by that party.

9.5. Each party shall ensure that the person responsible for the data processing system of the party concerned, shall certify that the Trade Data Log and any reproductions made from it is/are correct.

10. FALL-BACK ARRANGEMENTS AND SHUTDOWNS

10.1 In the event of failure of the EDI operation which is incapable of rectification within a period of time as may be agreed between the Parties resulting in the potential disruption of their normal business relationship, the Parties shall revert to the method of data exchange in operation prior to EDI until such time as the EDI service can be resumed.

10.2 The Parties shall use reasonable efforts to mitigate the effect of any such disruption to the EDI operation and work closely together to facilitate the flow of information between them during any such period of disruption.

10.3 In the case of planned shutdowns affecting EDI operations the Parties shall inform each other at the earliest possible time as specified in the User Manuel and the Parties shall agree on any interim measures as outlined in Article 10.1.

11. THIRD PARTY SERVICE PROVIDERS

11.1 If either Party procures the services of a Third Party Service Provider in order to transmit, log or process Messages then such procuring Party shall remain liable to the other Party for any acts, failures or omissions by such Third Party Service Provider in its provision of the said services as though such acts, failures or omissions were those of the procuring Party. For the purposes of this Agreement, the Third Party Service Provider shall be deemed to be acting on behalf of the procuring Party.

11.2 If upon the request of one party the other party agrees to use the services of a third party service provider for transmitting a message then the requesting party shall :

11.2.1. Be responsible to the other for that Third Party Service Provider's acts, failures or omissions;

11.2.2. Ensure that the Third Party Provider is bound by the same obligations in respect of confidentiality, data integrity and maintenance of an Audit Log as are imposed upon the Parties under the terms of this Agreement.

12. EVIDENCE

12.1 The Parties shall not, in the event of litigation between them or otherwise, challenge the admissability as evidence of the Trade Data Log or the Audit Log.

13. CHARGES

13.1 Each Party shall be responsible for the payment of all :

13.1.1 Start and termination network charges;

13.1.2 Network charges to and from its own electronic mailbox.

14. IMPLEMENTATION AND CHANGES

14.1 The Parties shall cooperate in the testing of the communications link and the ability to send/receive Messages.

14.2 For a period of time mutually agreed, the Parties shall send and receive Interchanges by both documentary and electronic means.

14.3 Test Messages shall not be treated as being of commercial significance.

14.4 The Parties shall coordinate any changes to the Message transmission techniques which affect the EDI procedure.

15. TRAINING

15.1 Each Party shall maintain trained EDI operators and support personnel capable of independently performing EDI day-to-day operations.

15.2 Training of such operators and support personnel may be undertaken externally or internally and extend to the provision of trained backup operators and support personnel to cover periods of vacation and any other absences.

16. CONDITIONS OF SALE OR PURCHASE

16.1 Neither Party shall have any obligation under this Agreement to sell or purchase any product or services. Any such sale or purchase shall be governed solely by

.....

17. TERM

17.1 This Agreement shall take effect from the date when last signed by both Parties and shall continue until terminated by one Party giving to the other not less than four (4) weeks notice thereof.

17.2 Termination of this Agreement shall not affect any action required to complete or implement Messages which are sent prior to such termination.

17.3 Each Party reserves the right and expects the other Party to exercise the right to make an emergency termination of the EDI operation to protect resources from illegal access or other damage. Such action shall not constitute termination of this Agreement.

17.4 Notwithstanding termination of this Agreement for any reason, the rights and obligations of the Parties as to the Security of Data (Article 4), Maintenance of a Trade Data Log (Article 9) and Evidence (Article 12) shall survive.

18. LIMITATION OF LIABILITIES

18.1 NEITHER PARTY SHALL BE LIABLE FOR ANY DAMAGES WHETHER SUCH DAMAGES ARE ALLEGED AS A RESULT OF TORTIOUS CONDUCT OR BREACH OF CONTRACT OR OTHERWISE, EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SUCH EXCLUDED DAMAGES SHALL INCLUDE BUT SHALL NOT BE LIMITED TO LOSS OF GOODWILL, LOSS OF PROFITS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS OR OTHER ECONOMIC LOSS.

19. FORCE MAJEURE

19.1 Neither Party shall be liable, either wholly or in part, for non-performance or a delay in performance due to force majeure or contingencies or causes beyond its reasonable control.

20. ASSIGNMENT

20.1 This Agreement may not be transferred or assigned in any form by either party without the prior written consent of the other, given by a duly authorized representative.

21. APPLICABLE LAW AND JURISDICTION

21.1 It is expressly agreed that the validity and construction of this Agreement and performance hereunder shall be governed by the laws of and that the courts of....., to whose jurisdiction the parties hereby submit, shall have exclusive jurisdiction to hear all disputes arising herefrom.

22. WAIVER

22.1 Consent by either party to, or waiver of, a breach by the other party, whether express or implied, shall not constitute a consent to, waiver of, or excuse for any other different or subsequent breach.

23. SEVERABILITY

23.1 If any provision, or part of any provision of this Agreement, or the Attachments hereto, is invalidated by operation of law or otherwise, the provision or part will to that extent be deemed omitted and the remainder of this Agreement, or applicable Attachment will remain in full force and effect. Should the case arise, the parties agree that such invalidated provision or part thereof shall be replaced by a similar but legally valid provision which is as close as possible in commercial effect to the invalidated provision or part thereof.

24. EXPORT CONTROL COMPLIANCE

24.1 Each Party agrees that it will not knowingly (1) export or reexport, directly or indirectly, any product or technical data (as defined by the U.S. Export Administration Regulations) or any controlled Products restricted by other applicable national regulations, including software, received from the other under this Agreement, (2) disclose such technical data for use in, or (3) export or reexport, directly or indirectly, any direct product of such technical data, or of such other controlled products, including software, any destination to which such export or reexport is restricted or prohibited by U.S. or non U.S. law, without obtaining prior authorization from U.S. Department of Commerce and other competent government authorities to the extent required by those laws.

25. PUBLICITY

25.1 Neither party shall publicly announce or disclose the existence of this Agreement or its contents without the prior written consent of the other party. This provision shall survive the expiration or termination of this Agreement.

26. HEADINGS

26.1 The headings in this Agreement are for the convenience of the parties only and shall not be considered in the construction or interpretation of this Agreement.

27. NOTICES

27.1 All notices made or required to be given under this Agreement shall be in writing and shall be sent by registered mail to the addresses indicated below with notice of receipt and shall be effective on receipt thereof :

If to ..... :

If to ..... :

28. COMPLETE AGREEMENT

28.1 This Agreement and its Attachments are the complete and exclusive statement of the Agreement between the parties, which supersedes all proposals or prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this Agreement and any of its Attachments. No addition to or modification of this Agreement shall be binding upon either party unless reduced in writing and executed by duly authorized representatives of the parties to this Agreement.

29. SUMMARY OF ATTACHMENTS

12.5 ANNEX 5: (Most used) Maritime EDI-messages:

It should be clear that, nowadays, there is a not-resolved discussion concerning the use of EDIFACT vs. XML.
Adepts of XML use the saying: "XML vs. UN/EDIFACT or Flexibility vs. Standardisation"

When starting from zero, it is obvious that modern, state of the art tools should be used. Systems and/or applications which were developed some years ago will keep the EDIFACT-standards (too costly to change).

XML, the eXtensible Markup Language, has become the standard for defining data interchange formats in Internet applications. Therefore, it is currently one of the most popular topics in the area of Electronic Commerce. The XML-hype also enters the field of electronic data interchange (EDI). In the past decades EDI standards, like UN/EDIFACT or ANSI X12 have been the dominant ways of interchanging data between applications. These traditional standards are successfully used by the Fortune 1000 companies, but were not commonly accepted by most of the SMEs. Owing to its flexibility, XML is expected to close this gap. But there is a huge uncertainty among companies. Some are concerned that XML is a threat to their current EDI applications.
Others are making technically naive and overly optimistic statements on how XML will replace current EDI standards. Both expectations are not entirely true. In this paper we describe the strengths as well as the limitations of using XML in EDI. By comparing XML with current EDI standard technology, we show where XML still has to learn from EDI standardisation

It must be realised that XML has to offer a lot of goodies for EDI, but employing XML alone does not guarantee for a plug-and-play solution in application-to-application information exchange. But it was the „easy-to-use" approach which made up the success of the Internet.

A similar success in EDI could only be reached, if there were no need for an agreement on the meaning

of XML tags

EXAMPLE & EXTRACT of
The functional description of the existing UN/Edifact standard messages used in Maritime transport & maritime business UN/Edifact standard messages in the D97 B directory

1. APERAK
The function of this message is:
a) to inform a message issuer that his message has been received by the addressee's application and has been rejected due to errors encountered during its processing in the application.
b) to acknowledge to a message issuer the receipt of his message by the addressee's application.

2. BAPLIE
A message to transmit information about equipment and goods on a means of transport, including their location on the means of transport. The message can be exchanged between (liner's) agents, tonnage centers, stevedores and ships masters/operators

3. BAPLTE
A message to transmit information about the total numbers of equipment and quantity of goods on a means of transport. The message can be exchanged between (liner's) agents, tonnage centers, stevedores and ships masters/operators

4. CALINF

A message from a liner agent to a stevedore providing information concerning the planned arrival of a vessel and the expected container operations.

5. COARRI

A message by which the container terminal reports that the containers specified have been discharged from a seagoing vessel (discharged as ordered, overlanded or shortlanded), or have been loaded into a seagoing vessel.

6. CODECO

A message by which a terminal, depot, etc. confirms that the containers specified have been delivered or picked up by the inland carrier (road, rail or barge).
This message can also be used to report internal terminal container movements (excluding loading and discharging the vessel).

7. CODENO

Notice specifying the cargo for which either the validity of the permits/Customs documents expires at short notice or for which regulatory Customs clearance has taken place.

8. COEDOR

A message to report containers that are in stock of the sending party (i.e., a terminal, depot or container freight station).

9. COHAOR

Order to perform a specified special handling and/or service on containers.

10. COMDIS

A notice of commercial dispute against one or more invoices is usually raised by the buyer to notify the seller that something was found wrong with the goods delivered or the services rendered (goods damaged, delivery incomplete, delivery late, etc.). The dispute must be resolved before the related invoice can be settled.
The message will be used to:
1) notify a dispute;
2) correspond about an existing dispute (structured information);
3) notify the settlement of a dispute.
The message will serve at the same time as the dispute notice and as the dispute answer.

11. COPARN

The message contains an order to release, to make available, to accept or to call down containers or to announce the impending arrival of containers.

12. COPINO

A message by which an inland carrier notifies of the delivery or pick-up of containers.

13. COPRAR

A message to order to the container terminal that the containers specified have to be discharged from a seagoing vessel or have to be loaded into a seagoing vessel.

14. COREOR

Order to release containers, and giving permission for them to be picked up by or on behalf of a specified party.

15. COSTCO

Confirmation that specified goods/consignments have been stuffed into or stripped from LCL-containers.

16. COSTOR

Order that specified goods/consignments are to be stuffed into (already or still to be delivered) or stripped from LCL-containers.

17. CUSCAR

This message permits the transfer of data from a carrier to a Customs administration for the purpose of meeting Customs cargo reporting requirements.

18. CUSDEC

This Customs Declaration Message (CUSDEC) permits the transfer of data from a declarant to a customs administration for the purpose of meeting legislative and/or operational requirements in respect of the declaration of goods for import, export or transit

19. CUSEXP

This message permits the transfer of express consignment data to a Customs Administration for the purpose of combining all three types of Customs reporting (conveyance report, cargo report and Customs Declaration) within a single message.

20. CUSPED

This Periodic Customs Declaration Message (CUSPED) permits the transfer of data from a declarant to a customs administration for the purpose of meeting legislative and/or operational requirements in respect of the periodic declaration of goods for import or export. The message may also be used, for example :

- to transmit consignment data from one customs administration to another;

- to transmit data from a customs authority to other governments agencies and/or interested administrations.

- to transmit data from a declarant to the appropriate data collection agency on the movement of goods between statistical territories.

21. CUSREP

This Customs Conveyance Report Message (CUSREP) permits the transfer of data from a carrier to a Customs administration for the purpose of meeting Customs reporting requirements in respect of the means of transport on which cargo is carried.

22. CUSRES

This Customs Response Message (CUSRES) permits the transfer of data from a customs administration to the sender of customs data. It may also be used by Customs to transmit electronic customs clearance of goods.

23. DESTIM

A message for use by the container repair, shipping and leasing industry. It may be used by a container equipment repair depot to send an owner or user a description of damages to the equipment, as an estimate of the repair actions and costs needed to rectify such damages. A recipient owner may forward the estimate to a lessee. The message may also be used by an owner or lessee as an authorisation message to the repair depot to perform the repairs indicated in the estimate, and as an acknowledgement of his willingness to pay for those repairs indicated in the estimate for his account.

24. DGRECA

A message to specify recapitulations pertaining to the dangerous goods on board of a means of transport, e.g. a vessel.

25. DIRDEF

This Directory definition message (DIRDEF) permits the transfer of the contents of a UN/EDIFACT Directory set or parts thereof.

26. GENRAL

General Purpose Message. A message enabling interchange of data not provided for in other UNSMs.

27. GESMES

The compilation of statistics is a continuous chain starting with raw data collection, followed by a number of harmonisation and aggregation processes leading to aggregated statistical data.
Raw data collection is realised by means of surveys, sampling, direct reporting from individuals, economic operators. Harmonisation and aggregation processes are very often handled by statistical bodies or authorised economic operators in case of direct reporting.
A Generic Statistical Message (GESMES) is used by an organisation involved in this elaboration process to transmit a statistical data set. It permits the transmission of the following, either in the same and/or different messages:
- the statistical concepts comprising the data set and their structure
- if required, all related information (code sets, labels, methodological notes, footnotes, etc.), the statistical figures of the data set.
This message could be used by producers and users of statistical information such as:
National Statistical Offices, ministries, private and public administrations, private companies etc.

28. IFCSUM

A message to be used for consolidation purposes from a party arranging forwarding and transport services to the party for which the transport of the consolidated cargo is destined.
The message can be used to exchange information concerning the consolidated cargo between forwarders, carriers and agents enabling those parties to handle the consignments included in this consolidation.
In addition it can be used for a collection of consignments originating from one shipper for forwarding and transport services.

29. IFTCCA

The function of this message is to request the calculation of the transport charges of a specific shipment and to answer to such a request.

30. IFTFCC

A message specifying freight, handling and transport costs and other related charges between transport service providers and their customers.

31. IFTDGN

The International Forwarding and Transport Dangerous Goods Notification message is a message from the party responsible to declare the dangerous goods (e.g. carrier's agent, freight forwarder) to the party acting on behalf of the local authority performing the checks on conformance with the legal requirements on the control of dangerous goods, normally Port Authority, conveying the information relating to one conveyance/voyage of a means of transport such as a vessel, train, truck or barge, on the dangerous goods being loaded, unloaded, and/or in transit.

32. IFTIAG

The International Forwarding and Transport Dangerous Cargo List Message is a message:
- from the party acting on behalf of the carrier for the gathering of the dangerous goods information of the cargo in a certain port or place of call or loading,
-to the party acting on behalf of the carrier in the next port or place of call or discharge, conveying the information relating to one conveyance or voyage of a means of transport such as a vessel, train, truck or barge, on the dangerous goods being carried on board - irrespective of the operations that will take place in the next port of call.

33. IFTMAN

A message from the party providing forwarding and/or transport services to the party such as has been indicated in the contract, giving notice and details of the arrival of the consignment.

34. IFTMBC

A message from the party providing forwarding and/or transport services to the party booking those services giving the confirmation information to the booking of the consignment concerned. A confirmation might read that the booking of a consignment is accepted, pending, conditionally accepted or rejected.

35. IFTMBF

A message from a party definitely booking forwarding and/or transport services for a consignment to the party providing those services. The message will contain the conditions under which the sender of the messages requires the services to take place.

36. IFTMBP

A message from a party requesting space and/or giving brief details of a planned consignment for forwarding and/or transport services to the party providing those services. In this message, the conditions under which the planned transport should take place can be given.

37. IFTMCS

A message from the party providing the transport/forwarding services to the party that issued the instructions for those services stating the actual details, terms and conditions (charges when applicable) of the service and of the consignment involved. In addition it can be used for the exchange of contract information between carriers mutually.

38. IFTMIN

A message from the party issuing an instruction regarding forwarding/transport services for a consignment under conditions agreed, to the party arranging the forwarding and/or transport services.

39. IFTRIN

The function of this message is to request transport rate information and to answer to such a request.

40. IFTSAI

The function of this message is to request transport schedule or availability information and to answer to such a request.

41. IFTSTA

A message to report the transport status and/or a change in the transport status (i.e. event) between agreed parties.

42. IFTSTQ

A message to request an International multimodal status report message (IFTSTA) in order to provide details relating to transport status and/or a change in the transport status between agreed parties.

43. IMPDEF

The EDI implementation guideline definition message (IMPDEF) permits the transfer of a document on guidelines for the implementation of one or more EDI messages.

44. ITRRPT

45. MEQPOS

A message containing the position of a means of transport (e.g. a vessel or truck) and/or equipment related to a means of transport.

46. MOVINS

A Stowage instruction message contains details of one means of transport vehicle, giving instructions regarding the loading, discharging and restowage of equipment and/or cargoes and the location on the means of transport where the operation must take place.

47. PAXLST

This Passenger List Message (PAXLST) permits the transfer of passenger/crew data from a Customs, Immigration or other designated authority in the country of departure to the appropriate authorities in the country of arrival of the means of transport.

48. RECADV

This message is to address the business needs related to the goods receipt. This message is used to report the physical receipt of goods. The message allows for the reporting of discrepancies in products, quantities, terms, packages, etc.
The message may contain only the information that the received consignment is completely in line with the consignment information given in the Despatch advice message. In case there is no detail to be provided.

49. RETANN

A message by which a party announces to another party details of goods for return due to specified reasons (e.g. returns for repair, returns at end of leasing period, returns because of damage).

50. RETINS

A message by which a party informs another party whether and how goods shall be returned.

51. SAFHAZ

Safety and Hazard Data sheet. The safety and hazard data message is to enable the communication of safety data and advice on relevant materials supplied to industrial customers so as to enable them to take measures to protect their employees and the environment from any potential harmful effects from these materials

52. SANCRT

A Sanitary/Phytosanitary Certificate permits an inspection authority to attest to the status (health, hygiene, freedom from disease or insect pests) of animal, plant or fish product, and provides basic details about the means of conveyance of that product.

53. TANSTA

Tank Status Report Message. A message from a vessel to the shipplanning department of a shipping line and vice versa (e.g. via satellite), giving details about the contents of ballast tanks, fuel tanks, water tanks and other figures necessary for the calculation of the stability of the vessel.

54. VATDEC

This VAT Declaration Message (VATDEC) permits the transfer of data from a declarant to a national VAT collecting authority for the purpose of meeting legislative and/or operational requirements in respect of the declarations of VAT.

55. VESDEP

A message from a stevedore to a liner agent informing the latter party of the closing of a vessel's file and giving information on the actual container operations.

56. WASDIS

A message to convey information on last inspection and on waste on board of a means of transport (e.g. vessel) and/or equipment related to a means of transport - and still to be disposed in the next place or port of call of the means of transport.

57. BOPBNK, BOPCUS, BOPDIR, BOPINF, COLREQ, CONAPW, CONTRL , CONWQD, CREADV, CREEXT, CREMUL, AUTHOR, AUTACK, BALANC, BANSTA, DEBADV, DEBMUL, DELFOR, DELJIT, DESADV, DIRDEB, DOCADV, DOCAMA, DOCAMI, DOCAMR, DOCAPP, DOCARE, DOCINF, FINCAN, FINSTA, MSCONS, ORDCHG, ORDERS, ORDRSP, OSTENQ, OSTRPT, PARTIN, PRICAT, PRIHIS, PRODAT, PRODEX, PRPAID, QALITY, QUOTES, RDRMES, INFENT,

INSPRE, INVOIC, INVRPT, KEYMAN, RECECO, RECLAM, REMADV, REPREM, REQDOC, REQOTE, RESMSG, SLSFCT, SLSRPT, SSIMOD, STATAC, SUPCOT, SUPMAN

58. Conventional Cargo Messages

The Conventional Cargo Message Scenario defines the messages to be interchanged between the freight forwarder, the shipping agent, the cargo handler, the stevedore and the tally services.
The following messages have been defined :

59. LOAFIA The Loading Fiat Message

The LOAFIA message is sent by the shipping agent to the stevedore.
By means of this message the shipping agent gives the stevedore permission to have a specific shipment loaded on board of a specific vessel.

60. MEASLI The Measurement Slip Message

The MEASLI message is sent by the tally services to the shipping agent.
The message gives the exact measurements of the goods items, determined by the tally services before shipment. The measurement slip message will only be sent in case the order "to measure" is explicitly stated in the Lading Fiat message.

61. MATREC The Mate's Receipt Message

The MATREC message is sent by the stevedore/tally services to the shipping agent.
By means of this message, the stevedore/tally services sends stowage information and possible qualitative and/or quantitative remarks determined before or during the loading of the vessel, to the shipping agent.

62. BOOLIS The Booking List Message

The BOOLIS message is sent by the shipping agent to the stevedore.
The message gives a statement of all the consignments booked on a specific ship and for a specific voyage.The stevedore uses the Booking List message as a basis for the pre-stowage planning.

63. CORDER The Conventional Order Message

The CORDER message is sent by the freight forwarder, the shipping agent or a third party to the cargo handler. It is a structured order message which can contain all possible orders related to all types of goods items.
The same structure of the message can be used to make a report of the executed order by the cargo handler to the ordering party.

CONTAINER MESSAGES

The "Container Message Scenario" contains the information scheme and the specifications per containermessage.
The container messages are exchanged between a containerterminal/depot and a shipping agent/carrier office. As far as Container messages are concerned Seagha (now Porthus) has always been a pioneer. These messages are already exchanged for 8 years in the port of Antwerp and have been tested out and updated several times based on user requirements.
All Antwerp Container terminals use these messages; the Seagha Edifact container messages have quite a lot of success not only with Antwerp companies but also with foreign partners.
Apart from the Seagha Container messages several years ago UN/Edifact container messages were introduced on international Edifact level.
Seagha (now Porthus) as UN/Edifact expert for the Antwerp port, received a mandate of Agha (now Alfaport), the organisation defending the interests of the Antwerp port functions, in order to integrate the Seagha Container message functionalities into these upcoming international container messages. As such Seagha became a member of the ITIGG group and of SMDG. As a result Seagha made a complete mapping of the Seagha container message functionalities into the ITIGG and SMDG container messages.

New partners in EDI in the Antwerp port as well as the Antwerp depots and terminals are advised to obtain that mapping guide from Seagha. This international Container message scenario contains the ITIGG and SMDG container messages but describes them more detailed and includes the Antwerp port functionalities.
Nowadays companies can choose whether to use the SEAGHA container messages, the ITIGG container messages or the SEAGHA container messages adapted to the ITIGG

Principles & Rules. The latter are based on:
- ***the ITIGG Equipment principles & rules (latest version)***
- ***on the different ITIGG reference guidelines for : Coparn, Codeco, Coreor***
- ***on the SMDG reference guidelines for Coprar and Coarri***
- ***on the D95B Edifact directory***
- ***taking into account upcoming and approved DMR's (Data Maintenance Requests)***

This means the following :
- ***Seagha ((now Porthus)) Container messages International Edifact container messages***
- ***Coanin = Coparn***
- ***Comore = Codeco***
- ***Coloin = Coprar : for loading order***
- ***Codiin = Coprar : for discharging order***
- ***Colore = Coarri : for loading report***
- ***Codire = Coarri : for discharge report***
- ***Corein = Coreor : for release of full import containers***

64. COANIN/ COPARN The Container Announcement Instructions Message
The COANIN message is sent by the shipping agent to the containerterminal operator/depot. It can be used for import, export and logistic movements. This message is the order for the release of empty containers, announcement of the bringing of full containers to the terminal or a combined order. When it concerns a release of containers, the shipping agent reports to the terminal operator that one or more containers will be collected on a later date. In case of an announcement, the shipping agent announces to the terminal operator that full or empty containers will be brought to the terminal whether or not with the intention to be exported. For the order to release full import containers, the COREIN message is to be used. A detailed specific userguide of COANIN is included in the Container Message Scenario.

65. CODIIN/ COPRARThe Container Discharging Instructions Message
The CODIIN message is sent by the shipping agent to the containerterminal operator. This message contains a list of all the containers to be discharged out of one vessel.

66. CODIRE/ COARRI The Container Discharging Report Message
The CODIRE message is sent by the containerterminal operator to the shipping agent to report all the containers discharged out of a specific vessel and reports the possible damages. It is an answer on the CODIIN message.

67. COLOIN/ COPRAR The Container Loading Instructions Message
The COLOIN message is sent by the shipping agent to the containerterminal operator. It contains a list of all the full and empty containers to be loaded on board of a specific vessel.

68. COLORE/ COARRI The Container Loading Report Message
The COLORE message is sent by the containerterminal operator to the shipping agent as an answer on the Container Loading Instructions message. This message is a list of all the containers loaded on board of a vessel.

69. COMORE/ CODECO The Container Movement Report Message
The COMORE message is sent by the containerterminal operator/depot to the shipping agent (department logistics Equipment Control Center: ECC) as an answer on the COANIN or COREIN

message. This message is sent several times per day and gives an overview of all the gate in/out movements as well as of all other non shipbound movements of containers.

70. GETEIN/ COHAOR The General Terminal Instructions Message

The GETEIN message is an order message sent by the shipping agent or a third party to the containerterminal operator, to perform a certain handling of the container. The content of the message depends on the value of the action code.

71. COREIN/ COREOR The Container Release Instructions Message

The COREIN message is sent by the shipping agent to the containerterminal operator.
By means of this message, the shipping agent instructs the terminal operator to release full import containers to the transporter who can give the unique keycombination : container number + release order number.

Generic Messages

The following 3 messages can be used in any kind of SEAGHA message set:

72. GENREJ The General Rejection Message

The "general rejection" message is only to be used by the receiver of a message when he can not/doesn't want to agree with the content of the received message.
In the Rail Message Scenario and the Protect Message Scenario which are based on the IFTM message set, the APERMS message is used instead of GENREJ.

73. GENCAN The General Cancellation Message

The "general cancellation" message is only to be used by the sender of the message when he wants to cancel the sent message.
In the Apics Message Scenario the APICAN message is used instead of GENCAN. In the Rail messages a specific value is used in BGM instead of a separate message GENCAN. For the cancellation of IFTDGN GENCAN is used.

74. FRTEXT The Free Text Message

The "free text" message is used to send unstructured information.

75. CANMES The Cancellation Message

The cancellation message is used by the sender of a message when he wants to cancel a previously sent message.

LOADING MESSAGES

The Loading Message Scenario defines the messages to be interchanged between the shipping agent and the freight forwarder. These messages match the functionalities of the international set of IFTM - messages.
The following messages have been defined :

76. FREINQ The Freight Inquiry Message

By means of the FREINQ message, the freight forwarder asks the shipping agent for specifications about the charges of the transport of a specific consignment to be shipped on a specific date to a certain destination.

77. FREQUO The Freight Quotation Message

The shipping agent sends a FREQUO message to the freight forwarder as an answer on the Freight Inquiry and indicates the charges for the transport of a specific consignment for a specific destination, shipped on a specific date.
A full description of the charges is given in this message. In case the shipping agent might need to change certain items of the Freight Inquiry during the quotation, the Freight Quotation message would contain these changed items apart from some references of the Freight Inquiry.

78. PRBORE The Provisional Booking Request Message

The PRBORE message is sent by the freight forwarder to provisionally book transport services with the shipping agent providing those transport services.
By means of this message, the freight forwarder inquires to provisionally book a consignment, which has to be carried on board of a vessel, within a certain period, from a place of loading to a place of discharge.

79. PRBOCO The Provisional Booking Confirmation Message

The PRBOCO message is sent by the shipping agent to the freight forwarder as an answer on the Provisional Booking Request.

80. BOOREQ The Booking Request Message

The BOOREQ message is sent by the freight forwarder to the shipping agent.
By means of this message, the freight forwarder firmly books a consignment which has to be shipped on a certain date, from a place of loading to a place of discharge.

81. BOOACC The Booking Acceptance Message

The BOOACC message is the acceptance by the shipping agent of the booking of the freight forwarder. Full detail of the freight calculation is given in this message.

82. LOAPER The Loading Permit Message

The LOAPER message is sent by the freight forwarder to the shipping agent. The message contains the specifications of a consignment which is to be shipped.

83. BILLAD The Bill Of Lading Message

The BILLAD message is sent by the freight forwarder to the shipping agent.
The Bill of Lading message claims the fulfilment of the ordering of transport under the conditions agreed upon by the freight forwarder ordering the transport, and the shipping agent arranging it.
The shipping agent who receives the B/L instructions will take care of the print-out on the original B/L document following the printinstructions described in the userguide.

84. LOABIL The Loading Permit-Bill Of Lading Message

The LOABIL message is sent by the freight forwarder to the shipping agent. It is a combined message and may only be used if the data elements of the Lading Prmit message are identical to those of the bill of lading message.

85. SHIPAC The Acknowledgement Of Shipping Message

The acknowledgement of Shipment is sent by the Shipping Agent to the Freight Forwarder immediately after the departure of the vessel. By means of this message the Shipping Agent gives information about the FCL Containers which are loaded on the vessel.

86. BILANS The Answer On Bill Of Lading Message

The Answer on Bill of Lading Message is sent by the Shipping Agent to the Freight Forwarder. The message can only be sent after the vessel departure and when the B/L is with the agent.

87. IFTMAN The International Forwarding And Transport Arrival Notice Message

The IFTMAN message contains the arrival message as well as the additional arrival

message. Both messages are related to the Import :

- ***The arrival message is sent as soon as possible to the consignée and/or notify party.***
- ***With the additional arrival message more data can be sent to the forwarder.***

Rail Messages

The Rail Message Scenario defines the messages to be interchanged between the forwarder/shipper and the Belgian Railways and are designed and maintained by the Belgian Railways. The Rail messages are based on the 90.2. directory.

88. IFTTOI (The International Forwarding And Transport Order/Instruction Message (Waybill msg/ subset of IFTMIN)), APERMS (The Application Error Message), IFTTCS (The International Forwarding And Transport Contract Status Message)

Protect Messages

The PROTECT Message Scenario has been defined by the PROTECT group, the EDI project of a group of cooperating ports around the North Sea in which are represented the port systems of Antwerp (SEAGHA), Bremen (COMPASS), Hamburg (DAKOSY), Felixstowe (MCP80), Le Havre (SOGET) and Rotterdam (DEBIS). The PROTECT messages are internationally submitted and accepted by the UN/EDIFACT Board: they are the only international messages to notify dangerous goods towards Port Authorities. They are based on the D95 A directory.
The international user guide is available for download from the SMDG website. However, be aware that in Antwerp there is a local, supplementary annex which is to be followed to be compliant with local rules and regulations.
The following messages have been defined :

89. IFTDGN The International Forwarding And Transport Dangerous Goods Notification Message
The "International Forwarding and Transport Dangerous Goods Notification" message is sent by the party responsible to declare the dangerous goods (e.g. carrier's agent, freight forwarder) to the party acting on behalf of the local authority performing the checks on conformance with the legal requirements on the control of dangerous goods, normally Port Authority, conveying the information relating to one conveyance/voyage of a means of transport such as a vessel, train, truck or barge, on the dangerous goods being loaded, unloaded, or in transit.
The IFTDGN message is a subset of the International Forwarding and Consolidation Summary (IFCSUM) message.

90. CANMES Cancellation Message
This is a short generic message to cancel a previously sent IFTDGN.

91. APERAK The Application Acknowledgement Error Message
This is a general answer message sent by the Port Authorities to the sender of a Protect message.

The APERAK message can signify an acknowledgement of the received message or an indication of errors or a rejection of the received message

12.6 ANNEX 6: Example of 'a' message (IFTDGN)

United Nations Directories
for Electronic Data Interchange for
Administration, Commerce and Transport

UN/EDIFACT

```
Message Type : BERMAN
Version      : D
Release      : 05B
Contr. Agency: UN

Revision     : 4
Date         : 2006-01-17
```

For general information on UN standard message types see UN Trade Data Interchange Directory, UNTDID, Part 4, Section 2.3, UN/ECE UNSM General Introduction
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0. INTRODUCTION: This specification provides the definition of the Berth management message (BERMAN) to be used in Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport.

1. SCOPE

1.1 Functional definition The Berth management message is a message from a carrier, its agent or means of transport to the authority responsible for port and waterway management, requesting a berth, giving details of the call, vessel, berth requirements and expected operations.

1.2 Field of application: The Berth management message may be used for both national and international applications. It is based on universal practice related to administration, commerce and transport, and is not dependent on the type of business or industry.

1.3 Principles: This message is meant to comply with requirements of authorities concerning the request for berthing services. The following guidelines, rules and functionality apply to this Berth management message:

1- A message will contain information on only one means of transport/conveyance. The only exception will be the case of covering pre-announcement function.
2- A ship call may require several berths.
3- One berth may be the scenario of several operations.
4- The message has to cater for the provision of sending updates (cancellation, replace, provisional, definitive) or new services request such as shifts and request for second berth. The message will cover the function of pre-announcement of vessels.

The Transport SWG Working Group (D4) has developed recommendations for a harmonized implementation of this message through its subgroup ITIGG (International Transport Implementation Guidelines Group). Users implementing the message are strongly advised to apply these recommendations, which may be obtained from the D4 secretariat.

2. REFERENCES:
See UNTDID, Part 4, Chapter 2.3 UN/ECE UNSM – General Introduction, Section 1.

3. TERMS AND DEFINITIONS

3.1 Standard terms and definitions: See UNTDID, Part 4, Chapter 2.3 UN/ECE UNSM – General Introduction, Section 2.

4. MESSAGE DEFINITION

4.1 Segment clarification: This section should be read in conjunction with the segment table which indicates mandatory, conditional and repeating requirements.

0010 UNH, Message header: A service segment starting and uniquely identifying a message. The message type code for the Berth management message is BERMAN.

Note: Berth management messages conforming to this document must contain the following data in segment UNH, composite S009: Data element 0065 BERMAN, 0052 D, 0054 05B, 0051 UN

0020 BGM, Beginning of message: A segment to indicate the beginning of the message by identifying the message by a message number.

0030 DTM, Date/time/period: A segment to identify a date and time on which the message is prepared.

0040 FTX, Free text: A segment to give free form or coded text information at message level

0050 RFF, Reference: A segment to provide a reference relating to the whole message, such as:
- reference to previous message.

0060 QTY, Quantity: A segment to indicate the number of passengers and or crew members aboard the vessel.

0070 Segment group 1: NAD-SG2: A group of segments to identify a party related to the message.

0080 NAD, Name and address: A segment to identify the name and address of the ship's agent. The function to be qualified: - ship agent

0090 Segment group 2: CTA-COM: A group of segments to identify a contact and its communications related to the party.

0100 CTA, Contact information: A segment to identify a person or a department within the party.

0110 COM, Communication contact: A segment to identify a communication number of the contact to whom communication should be directed.

0120 Segment group 3: TDT-RFF-DTM-MEA-FTX-COM-SG4-SG5: A group of segments to specify details for the arriving means of transport.

0130 TDT, Transport information: A segment to identify the transport details of the arriving vessel.

0140 RFF, Reference: A segment to identify a relevant reference number, such as:
- Lloyds number, - shipping line reference, - conference, - internal customer code

0150 DTM, Date/time/period: A segment to identify a date and time related to the arrival of the means of transport, such as: - estimated time of arrival, - estimated time of departure

0160 MEA, Measurements: A segment to specify physical dimensions of the vessel such as:
- breadth, - total length, - draught, - dead-weight

0170 FTX, Free text: A segment to provide supplementary information related to the means of transport, such as: - segregated ballast tanks, -double bottom

0180 COM, Communication contact: A segment to specify details for communication tools onboard such as a telephone, fax, VHF (Very High Frequency) radio telephone and etc.

0190 Segment group 4: LOC-DTM: A group of segments to specify details of the ship's route

0200 LOC, Place/location identification : A segment to identify locations related to the transport details, such as: - previous port of call, - next port of call, - port of origin, - port of destination

0210 DTM, Date/time/period: A segment to identify a date and time related to the ports of call in the ship's route

0220 Segment group 5: GOR-RFF-NAD-SG6: A group of segments to provide customs information

0230 GOR, Governmental requirements: A segment to indicate the requirement for a specific governmental action and/or procedure. Codes indicating the movement of goods (import, export, transit) and other customs requirements regarding the ship calls will be applied

0240 RFF, Reference: A segment to identify a relevant reference codes, such as - customs codes for vessel routes, - customs codes for special transit procedures,

0250 NAD, Name and address: A segment to identify the name and address of a party relevant to the message, such as: - cargo brokers, consortia members sharing the vessel

0260 Segment group 6: DOC-DTM-LOC: A group of segments to provide customs information.

0270 DOC, Document/message details : A segment to specify documents on board, such as:
- de-ratting certificate, - ship's certificate , - tonnage certificate , - passenger ship safety documents.

0280 DTM, Date/time/period: A segment to specify date related to documents, such as: -date of issue , - date of expiration

0290 LOC, Place/location identification: A segment to specify the place related to documents, such as: - place of issue.

0300 Segment group 7: TSR-QTY-FTX-SG8: A group of segments to specify details for the transport service requirements

0310 TSR, Transport service requirements: A segment to specify berthing, pilot and tugboat service details of the arriving vessel, such as: - arrival and berth, - change of berth, - change of side, - request for pilots service, - request for tugboat service, - request for mooring service

0320 QTY, Quantity: A segment to indicate number of ports of call by the same captain on board in the same vessel

0330 FTX, Free text: A segment to provide supplementary information related to the berthing, pilot, tugboat and mooring service details, such as: - payment terms, - remarks required by government sector

0340 Segment group 8: LOC-MEA-DTM-QTY-POC-FTX-SG9: A group of segments to specify details of the service required.

0350 LOC, Place/location identification: A segment to identify locations related to the berth details, such as: - preferred berth, - preferred side for berthing, - preferred mooring site, - goods position, - pilot embarkation point

0360 MEA, Measurements: A segment to specify current physical dimensions of the vessel when entering the port, such as: - actual draught

0370 DTM, Date/time/period: A segment to identify a date and time related to the arrival of the means of transport at the berth and mooring site specified, such as: - estimated/actual date and time for berthing, - estimated departure, - estimated arrival time to the pilot station, - estimated time for tugboat service start

0380 QTY, Quantity: A segment to indicate number of pilots or tugboats required.

0390 POC, Purpose of conveyance call: A segment to specify the purpose of conveyance call, such as: - cargo operation, - repair

0400 FTX, Free text: A segment to provide supplementary information related to the berth details, such as: - waste disposal facilities, - supplies requested (water, power, fuel)

0410 Segment group 9: HAN-NAD-SG10: A group of segments to specify details for the operations to be carried out.

0420 HAN, Handling instructions: A segment to identify the type of handling movement, such as: - loading, - unloading

0430 NAD, Name and address: A segment to identify a name and address of a party, such as: - stevedoring company

0440 Segment group 10: GDS-FTX-MEA-EQN-DGS: A group of segments to specify details of the cargo to be handled.

0450 GDS, Nature of cargo: A segment to identify the type of cargo, such as: - containers, - dry bulk, - liquid bulk, - others

0460 FTX, Free text: A segment to provide detailed information related to the type of cargo

0470 MEA, Measurements: A segment to specify cargo weight

0480 EQN, Number of units: A segment to identify number of units, such as: - containers
- cars

0490 DGS, Dangerous goods: A segment to identify dangerous goods

0500 UNT, Message trailer: A service segment ending a message, giving the total number of segments in the message (including the UNH & UNT) and the control reference number of the message.

4.2 Segment index (alphabetical sequence by tag)

BGM Beginning of message
COM Communication contact
CTA Contact information
DGS Dangerous goods
DOC Document/message details
DTM Date/time/period
EQN Number of units
FTX Free text
GDS Nature of cargo
GOR Governmental requirements
HAN Handling instructions
LOC Place/location identification
MEA Measurements
NAD Name and address
POC Purpose of conveyance call
QTY Quantity
RFF Reference
TDT Transport information
TSR Transport service requirements
UNH Message header
UNT Message trailer

4.3 Message structure

4.3.1 Segment table

Pos	Tag	Name	S	R
0010	UNH	Message header	M	1
0020	BGM	Beginning of message	M	1
0030	DTM	Date/time/period	C	9
0040	FTX	Free text	C	9
0050	RFF	Reference	C	9
0060	QTY	Quantity	C	9
0070		----- Segment group 1 ----------	M	99----------+
0080	NAD	Name and address	M	1 |
0090		----- Segment group 2 ----------	C	9----------+|
0100	CTA	Contact information	M	1 ||
0110	COM	Communication contact	C	9----------++
0120		----- Segment group 3 ----------	M	99----------+
0130	TDT	Transport information	M	1 |
0140	RFF	Reference	C	9 |

0150	DTM Date/time/period	C	9	|
0160	MEA Measurements	C	99	|
0170	FTX Free text	C	9	|
0180	COM Communication contact	C	9	|
	|			
0190	----- Segment group 4 ----------	C	999--------+|	
0200	LOC Place/location identification	M	1	||
0210	DTM Date/time/period	C	9----------+|	
	|			
0220	----- Segment group 5 ----------	C	9----------+|	
0230	GOR Governmental requirements	M	1	||
0240	RFF Reference	C	9	||
0250	NAD Name and address	C	99	||
	||			
0260	----- Segment group 6 ----------	C	9---------+||	
0270	DOC Document/message details	M	1	|||
0280	DTM Date/time/period	C	9	|||
0290	LOC Place/location identification	C	9---------+++	
0300 *	----- Segment group 7 ----------	C	99----------+	
0310	TSR Transport service requirements	M	1	|
0320	QTY Quantity	C	9	|
0330	FTX Free text	C	9	|
	|			
0340	----- Segment group 8 ----------	C	9----------+|	
0350	LOC Place/location identification	M	1	||
0360	MEA Measurements	C	9	||
0370	DTM Date/time/period	C	9	||
0380	QTY Quantity	C	9	||
0390	POC Purpose of conveyance call	C	9	||
0400	FTX Free text	C	9	||
	||			
0410	----- Segment group 9 ----------	C	9---------+||	
0420	HAN Handling instructions	M	1	|||
0430	NAD Name and address	C	9	|||
	|||			
0440	----- Segment group 10 ----------	C	9--------+|||	
0450	GDS Nature of cargo	M	1	||||
0460	FTX Free text	C	9	||||
0470	MEA Measurements	C	9	||||
0480	EQN Number of units	C	9	||||
0490	DGS Dangerous goods	C	9--------++++	
0500	UNT Message trailer	M	1	

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UN/EDIFACT Directories

The European Union's Tacis TRACECA programme
for Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Romania, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

TACIS 117107

Improvement of Maritime Links between TRACECA and TENs Corridors

Bulgaria Georgia Romania Turkey Ukraine

Result 5: PPP and bankable projects

Final Report

May 2009

This project is funded by the European Union

A project executed by
Royal Haskoning,
NEA
BCEOM

This Project is funded
by the European Union

1 Report cover page

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors	
Project Number:	TACIS 117107	
Country:	Ukraine, Romania, Bulgaria, Turkey, Georgia	
Document Name	Final report PPP	
Project Sub-Project	Result 5: PPP and bankable projects	
	Client	Contractor
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2 Project synopsis

Project Title:	Improvement of Maritime Links between TRACECA and TENs Corridors
Project Number:	TACIS 117107
Countries:	Bulgaria, Georgia, Romania, Turkey & Ukraine

Overall Project Objective:

"To facilitate trade along the corridor Europe - Black Sea Region – Caucasus - Central Asia by increasing its competitiveness and attractiveness as stated in the Basic Multilateral Agreement for International Transport for Development of the Europe-Caucasus-Asia corridor"

Specific Project Objective:

The project's purpose is to create the basis for the improvement of maritime links in the Black Sea region. This relates to reliable, safe, secure, competitive and efficient shipping and port services and to enable viable links with the Trans European Networks mainly with regard to rail ferry, Ro-Ro ferry and container services.

Output Project Result 5

In a first phase a Port PPP (4P) Framework is developed for (i) the identification of Public Private Partnership (PPP) opportunities in the port and maritime transport sector on the TRACECA routes, (ii) the assessment of the added value of PPP (with respect to traditional, public solutions), and (iii) the optimal design of PPP constructions in order to effectively achieve this added value. In a second phase, the 4P Framework is applied to the investment needs and project plans in the region. The outcome of this exercise is an assessment of the PPP potential of these investments, and a selection of Bankable Projects.

3 Introduction

The present report is the final report of sub-project no. 5 (PPP and bankable projects).

3.1 Motive for sub-project 5

The market study conducted in sub-project no. 1 of this project has demonstrated that the ports covered by this project (Burgas, Varna, Constantza, Illiychevsk, Odessa, Poti, Batumi, Hopa, Samsung, Istanbul and Derince) will experience a substantial increase of cargo handling demand in the next decennium (up to 2020). To accommodate the expected traffic growth these ports will require large investments in the renovation, upgrading and/or expansion of their facilities. This will place a heavy strain on the budget of the governments financing the seaports.

Sole reliance on public sector budgets to finance investments in seaport infrastructure crates the risk that the needed expansion of port capacity can not be realised in time to meet demand, thereby hurting the competitiveness and economic development of the TRACECA member states using the ports mentioned above for overseas exports and imports. This consideration has led to the decision to include in the project an analysis of the feasibility and desirability of private co-financing of the required investments in seaport infrastructure.

While such fiscal-financial considerations have been our initial motivation to explore PPP opportunities in ports, there are also other reasons for a greater involvement of the private sector in the financing and operating of seaports. In particular, PPP can be used as an instrument to obtain higher efficiency and lower costs in the building and operating of seaport infrastructure. Those efficiency-related benefits in the comparison of PPP with alternative financing options are also addressed in this report.

3.2 Activities in subproject 5

The subproject was divided into two phases.

The first phase corresponds to phase 1B of the overall project, and was carried out in the period October 2007-April 2008. It comprised the following activities:

- desk study on PPP in ports (contract forms, costs and benefits compared to classic public procurement, best practices)
- fact-finding visits to relevant central authorities[1] in the five project countries to establish the current state of affairs and future plans with respect to PPP in ports;
- assessment of legal and institutional framework with respect to PPP in ports in the five countries.

The activities of the first phase resulted into two products:

- a Port PPP (4P) framework for the (i) the identification of Public Private Partnership (PPP) opportunities in the port and maritime transport sector on the TRACECA routes, (ii) the assessment of the added value of PPP (with respect to traditional, public solutions), and (iii) the optimal design of PPP models in order to effectively achieve this added value;
- a country-by-country assessment of the current state of affairs with respect to PPP in ports.

[1] Central authorities responsible for port investment planning, port policy and PPP. The identity of these authorities depends on the institutional context and administrative organisation in the respective countries. A list of authorities and contact persons visited has been included in the progress reports. Generally out visits extended to departments in the ministry of transport responsible for ports, infrastructure investments in general and public procurement/concessions.

The second phase of the project was carried out in the period April 2008 – April 2009. Its original objective was the application of the 4P Framework to port infrastructure investment needs and plans in the TRACECA region in order to obtain a selection of Bankable Projects. However, on the basis of the findings of the first phase, we concluded that the second phase could not be carried out as originally intended. The results of the market study (result no. 1) and the information collected during the first phase of the project did not allow us to identify specific investment projects for which the PPP potential and bankability could be assessed. The project ideas we encountered were either too early in the project cycle (requiring additional feasibility assessment before financing and PPP issues could be addressed in detail) or too late (funding had already been arranged).

In the first phase of the project we discovered several points requiring improvement with respect to the way port investment projects were put on the market, for instance (not all points apply to all countries or to all agencies in a given country):

- lack of familiarity with the principles and different forms of PPP;
- no explicit analysis and balancing of (potentially conflicting) public and private interests in the choice of a procurement approach (classic or PPP) for the financing and the construction of port infrastructure.
- insufficient elaboration of the business case of investment projects before putting them on the market, resulting in weak market interest for some projects and protracted negotiations for other.

Consequently we have used the second phase of the project to conduct series of five interactive workshops (one in each country) in which the areas of improvement were addressed. This means:

- increasing familiarity with the principles and different forms of PPP;
- showing how to select a PPP model on the basis of an explicit consideration of the advantages and disadvantages of the different PPP models;
- increasing awareness about the implementation issues of PPP (tender preparation, ensuring sufficient market interest and competition).

The objective of the workshops was not to impose a uniform best model for the financing and construction of port infrastructure. Such a uniformly optimal model does not exist. The ambition was instead to learn the participants which good options are available, and how they can make a rational choice between these options in function of their port's and country's particular needs and wants. The workshops were attended by participants from relevant central authorities and from both the public and private sector in the ports. Workshops have been held in Ankara, Odessa, Constantza, Varna and Batumi.

3.3 Main conclusions

What is PPP in ports?

There is no uniformly accepted definition of PPP. To avoid discussion on this issue, we have adopted in this report a broad definition of PPP. Any form of private involvement in financing or operating port infrastructure is considered to be PPP in ports. There is a range of PPP models that can be used for the delivery of port infrastructure services. Ranked by degree of private involvement they include management contracts, operating concession/land lease, DBFMO (Design-Build-Operate-Maintenance-Operate) contracts, BOT (Build-Operate-Transfer) concessions and concession of management rights.

Is there a need for (more) PPP in ports?

The market study conducted in sub-project 1 of this project has demonstrated that the ports covered by this project (Burgas, Varna, Constantza, Illiychevsk, Odessa, Poti, Batumi, Hopa, Samsung, Istanbul and Derince) will experience a substantial increase of cargo handling demand in the next decennium (up to 2020). To accommodate the expected traffic growth these ports will require large investments in the

renovation, upgrading and/or expansion of their facilities. This will place a heavy strain on the budget of the governments financing the seaports.

Sole reliance on public sector budgets to finance investments in seaport infrastructure crates the risk that the needed expansion of port capacity can not be realised in time to meet demand, thereby hurting the competitiveness and economic development of the TRACECA member states using the ports mentioned above for overseas exports and imports.

In fact, in the last ten years the region has proven its ability to attract large amounts of private capital and funds from international financial institutions for investments in port infrastructure. In all five project countries implementations of PPP are already present.

There are nevertheless areas of improvement in the set-up and management of PPP. These have not proven so far to be an obstacle for port investments. But addressing them will allow meeting future capital needs more easily and at more favourable conditions, and also managing ports investments more efficiently.

Areas of improvement

The conditions for a successful PPP in ports (and also in other sectors) can be summarized in five headings;

1. a well-defined and profitable project…
2. and a well-founded choice of the PPP model…
3. awarded in a competitive tender procedure…
4. implemented in a well-specified PPP contract…
5. supported by an adequate legal framework.

Below the main areas of improvement are described under these five headings

A well-defined and profitable project

This is probably the most important reason why some planned port PPP projects in the region have failed to attract investors. Before a port PPP project is tendered, its viability must be demonstrated by a sufficiently comprehensive and detailed technical and economic feasibility study (including market analysis). The undertaking of the feasibility assessment is the responsibility of the public initiator of the project. It is not realistic to expect that the bidders for the contract will carry out a full feasibility assessment as part of their bid (although they may perform an audit of the feasibility study carried out by the public contracting authority). In practice, however, the pre-tender feasibility study is often lacking or too superficial. One of the reasons is that the contracting agency itself lacks the required expertise and market knowledge to carry out or commission the feasibility assessment. This is especially the case when the contracting agency is part of the general administration, and has no direct contacts with the maritime and port sectors.

The horizontal market studies undertaken by Traceca (for instance in the present project) provide a very valuable contribution to the feasibility assessment of PPP projects. They can be used as background and foundation for project-specific market studies, thereby reducing the cost and/or increasing the quality of these project-specific studies. In this way Traceca already supplies a partial solution to the problem.

The remainder of the solution consists of the upgrading of the expertise of the contracting agency. This can be achieved by reinforcing the staff of the contracting agency with experts having knowledge of the

port business. A second option is to delegate the authority to assess and award port PPP contracts to the government department responsible for investments in port infrastructure. Depending on the institutional context of the country this may be a port authority, a port department within the Ministry of Transpoort,… The central administration only keeps a supervisory authority (for instance to verify that public procurement laws are respected). This second option is better because it also remedies some of the other problems mentioned later. However, it involves a degree of administrative reform and is therefore more difficult to implement.

A well-founded choice of the PPP model

As mentioned above there is a range of available PPP models for the delivery of port infrastructure services. These models are all potentially optimal. Which one is optimal in a particular project depends on the characteristics of the project and the objectives of the public sector. The selection of the most optimal PPP model must therefore be made on the basis of a project-specific analysis. We have, however, observed that an explicit comparison of the available PPP models is rarely or inadequately performed. The two main shortcomings were the following.

- We have encountered a lack of familiarity with the principles and different forms of PPP, even in agencies that are responsible for tendering PPP contracts. This lack is for instance manifested in the restriction of the attention to a single PPP model (e.g. BOT concession or mixed public/private companies) without examining whether other models might not be more efficient for a particular project. The workshops in the second phase of the project were aimed at addressing this problem.

- Ports have substantial public interest aspects. They contribute to the prosperity and international competitiveness of a country. The availability of a nearby and efficient seaport increases the competitiveness of exporting firms and lowers the price paid for imported goods, benefiting both domestic firms that use imported inputs and domestic households. This public interest value of seaports is not always sufficiently taken into account when considering PPP options. There is a risk of a conflict between overall economic interests (low-cost ports in the service of economic development) and financial interests (maximisation of revenues for state or local treasuries through high concession fees).

Awarded in a competitive tender procedure

A competitive tender procedure is essential to obtain the “best value for money” from PPP. In some countries there is a tendency to reduce the level of competition in the tender procedure (for instance by restricting the possibilities of judicial review). The argument is often that the tender procedures are too long and inefficient, and need to be simplified in order to facilitate PPP. We strongly support initiatives to increase the efficiency of procedures, but do not believe that restricting competition is the right approach. While the tender procedure may become faster, it will result in a project with lower benefits for society.

Implemented in a well-specified PPP contract

Good model contracts and expert legal advice are widely available. If a good PPP model has been selected, a competitive tender procedure has been followed and a skilled contracting agency is in charge, this aspect does not raise any significant problems.

Supported by an adequate legal framework

The legal assessment carried out in this project concluded that in all five project countries legal instruments are available to implement PPP in ports. As mentioned earlier, port facilities financed and/or operated in PPP are already operational in all countries covered by this project. The main legal instrument to implement PPP arrangements is the concession contract (and variants thereof). In four out of five project countries a concession law is in place. In Ukraine, however, the concession law has not yet been made applicable to ports. In Georgia no specific concession law exists. The concession agreements are supported by general civil law and the law on foreign investments.

Conclusion: main area of improvement

Summing up the above we can say that the main area of improvement (applicable to most, if not all countries covered by the project) relates to the skills and incentives of the public contracting authority. Ultimately the trust by potential private partners in the competence and reliability of the public contracting authority is the most important enabling condition for PPP. The main problem is a too large fragmentation of port policy and planning, resulting in a mismatch between authority, skills and financial responsibility. A public agency procuring a port investment project must have a clear authority to do so (so that the private partner has legal certainty that the public contracting agency has the authority to enforce and comply with the contract), must possess the skills to manage the tender process (i.e. it must know the port business, so that feasible and well-prepared projects are put on the market) and must be financially responsible (so that the agency has the required resources and the financial incentive to manage the PPP projects as efficiently as possible). If the contracting authority does not combine these three requirements (skills, authority and financial autonomy) it can not be a fully competent and reliable public partner in a PPP.

Main conclusions by country

The table below presents the main conclusions by country.

Table 1: Main conclusions by country

Bulgaria	Status of PPP in ports	PPP is governed by public procurement and concession law, which complies with relevant European legislation. Amendments to the Concession Act currently discussed by Parliament aimed at speeding up the tendering of concession contracts contain some worrying features. They include provisions limiting the competition in tender procedure and removing the obligation to carry out feasibility studies. While aimed at increasing the efficiency of PPP, they risk having the opposite effect Bulgaria is evolving to a landlord port model. The policy intention is to give all existing state-owned port terminals in concession (service concession) and to construct all new facilities under BOT schemes (public works concession). A few port terminals have been privatised through concession contracts. The realisation of new terminals with BOT contracts has proven to be more difficult. For instance the container terminals in Varna and Burgas will be financed by the state (in large part with a foreign loan) and will only after construction be given in concession to an operator.
	Areas of improvement	The executive and financial responsibilities for the management of the public port infrastructure on one hand and the granting of concessions on the other hand are separated and fragmented. The preparation, tendering and and management of PPP projects will be more efficient if they are entrusted to a single agency, which is also responsible for the management of port infrastructure. The central authorities must keep a supervisory role to ensure that the agency's concession policy complies with relevant legislation and the principles of fairness and transparency. The agency assigned to manage port infrastructure (including PPP and concessions) in a particular port must then develop more structured methods and procedures to prepare and tender PPP project.s.
Georgia	Status of PPP in ports	The ports of Batumi and Poti have been quasi-privatised through long-term concession agreements. The other Georgian ports, not included in the project, are smaller, fully private oil terminals. While the concessions are a form of PPP, they also rule out any future PPP schemes for the duration of the contract (30-40 years), unless in the unlikely event of a greenfield port development outside the concessioned aeas.

	Areas of improvement	Since PPP in ports is ruled out for a long time, areas of improvement in this area are not relevant. The long term concession of an entire port creates the risk of the formation of a private monopoly in the provision of port services. This risk is greater in regions or countries with only a few ports, such as Georgia. It is too late to address this risk in a PPP policy. The only remaining remedy is an effective competition policy.
Romania	Status of PPP in ports	PPP is governed by public procurement and concession law, which complies with relevant European legislation. Until now all port infrastructure has been financed from public funds (state budget, port authority, European Union) and external loans from international financial institutions. After construction the commercial infrastructure is concessioned to private operators, in line with the standard landlord port model. For some new port infrastructure projects, however, private financing (through a concession of works contract) is considered as an option.
	Areas of improvement	In Romania the desired integration of port infrastructure management and concessions management within a single agency (in casu the port authority) is largely achieved. The port authority of Constanta has the authority and a large part of the expertise required to manage PPP tenders. At most some outside support is needed in the form of consulting and training on specific topics related to the preparation and implementation of PPP projects.
Turkey	Status of PPP in ports	All Turkish ports covered by this study (Hopa, Samsun, Derince), as well as most other Turkish ports, have been (or will soon be) quasi-privatised with a long-term transfer of management rights (36 or 49 years). The port land remains public property, but all land use, development and management rights are transferred to a private company or consortium. This means that future PPP schemes in these ports are excluded for the duration of the contracts. Both public and private sector seem largely satisfied with the (quasi-) privatisation of Turkish ports. Given the large number of ports in Turkey the risk of private monopoly situations emerging is low. For ambitious greenfield port projects (such as Fylios) full private financing has proven to be infeasible. Due to their greenfield nature the projects are too risky. For the realisation of these projects other PPP models in which risks are more evenly shared between public and private sector are considered.
	Areas of improvement	The Turkish administration already has a tradition of a structured planning process of public infrastructure, including port infrastructure. In the case of PPP projects (for greenfield developments) this structured approach should include an explicit comparison of the different PPP models (in order to select the most optimal model for the project) and a thorough feasibility study, including market study, financial feasibility assessment and business case (in order to increase market interest for the tender).
Ukraine	Status of PPP in ports	The legal and institutional context with respect to ports and PPP in Ukraine differs markedly from that in the other project countries. A concession law exists, but is not (yet) applicable to ports. The ownership and management of port land and infrastructure is very fragmented. This has not prevented private investments in port terminal infrastructure. In fact several large terminals in both ports covered by the project (Illiychevsk, Odessa) are co-financed and operated by private companies. Due to the legal and institutional constraints these ventures make use of complex contractual arrangements. Traditionally these arrangements involved a joint public-private operation of port facilities. Recently, however, one has designed contractual arrangements between state-owned port operators and private investors that mimic the relations in a landlord port, with clearly defined obligations and rights for the public port manager and the private terminal operator. Although the institution of the landlord port does not exist in Ukraine, one tries to simulate it with the available legal instruments.
	Areas of improvement	The opportunities for PPP in Ukrainian ports would benefit from a more streamlined and less fragmented port management structure. The main issue is

		the integration of authority, land use rights, skills and financial responsibility with respect to port infrastructure management in a particular port within a single agency. This agency may be a landlord port authority, but other institutional options are also possible, provided the integration mentioned above is achieved. This agency must then develop more structured methods and procedures to prepare and tender PPP project.s

3.4 Guide to this report

Chapter 4 describes the 4P Framework. This chapter is in the first place intended as a general guidance. It is a written version of the material that has been presented in the interactive workshops in the second phase of the project. In addition the main areas of improvement in the project region are identified, as well as the possible role of Traceca in addressing them. This is done in a box at the end of each paragraph with respect to the guidelines presented in that paragraph.

Chapter 5 presents the results of the country-by-country analysis of the current state of affairs with respect to PPP in ports.

Annex A contains supporting background information on the 4P Framework.

The country reports of the assessment of the legal framework with respect to PPP in ports are attached in Annex B.

4 4P Framework

4.1 Conditions for successful PPP in ports

The conditions for a successful PPP in ports (and also in other sectors) can be summarized in a succinct statement consisting of five parts:

1. a well-defined and profitable project…
2. and a well-founded choice of the PPP model…
3. awarded in a competitive tender procedure…
4. implemented in a well-specified PPP contract…
5. supported by an adequate legal framework.

A private investor will only invest in a port infrastructure project if he expects that he will be able to recover his investment outlays and earn an adequate return. Profitability of the underlying project is therefore an obvious condition for a successful PPP. In order to forecast the profitability of the project with reasonable confidence and preciseness the project needs to be well defined. This means among other that the scope of the project, the investment costs, the timing of the works, the target markets, the pricing policy,… are known.

The value of a project not only depends on the investment costs and the market outlook, but also on the way the project is financed and managed. PPP, through its impact on the financial and management structure of the project, increases the value of the project, but only on condition that the right PPP model is chosen. The potential added value of PPP depends on a number of project characteristics. A right choice means therefore that the PPP model is selected in function of these characteristics.

The value of a PPP for the public sponsor of the project depends on how good a deal it gets from the private partner. The private investor will offer a better deal if it has to compete against other bidders in order to win the contract. If there is no competition, PPP will generally also create additional value. However, in that case the private investor will capture most of the additional value itself in the form of higher profits, leaving little or no benefits for the public interest.

The fact that a PPP model allows to increase the value of the project, does not imply that the additional value is effectively created. The advantages of a PPP model are only potential. They do not emerge automatically. The effective realisation of the potential added value of a PPP model depends on the existence of a well-specified contract that induces all signatories to take the appropriate actions to effectively achieve the advantages of the PPP model.

Finally, the fulfilment of the above conditions is facilitated by the presence of a legal and regulatory framework. This framework consists among other of decision-making procedures regarding PPP, tender procedures, model PPP contracts, etc.

In the next sections of this chapter the five conditions for a successful PPP in ports are explained in more detail.

Figure 1: Five conditions for successful PPP in ports

4.2 A well-defined and profitable project

A "well-defined" and "profitable" project is an essential basis to attract private partners willing to invest in a PPP project. Actually, this condition (with some modification of the "profitability" requirement) also applies in the case of projects that are procured in a classic manner (i.e. without PPP), but for which outside funding from international financial institutions (like EIB, EBRD, JBIC, World Bank,…) is sought. Moreover, even if the project is entirely financed by national, public funds, good practice in public investment planning requires that this condition is satisfied.

Well-defined

"Well-defined" means that a comprehensive feasibility study of the project has been carried out. Such a feasibility study comprises:

- preliminary design, sufficiently detailed to assess technical feasibility and to estimate capital expenditures (and where necessary also operational expenditure);
- environmental impact assessment;
- traffic study, showing the expected demand for the port project;
- financial analysis and business case, demonstrating an adequate return on the investment of the private partner.

The financial analysis must be convincing, i.e. based on a sound methodology and on realistic assumptions. The financial analysis obtains inputs from the other feasibility studies, notably the design study (information on costs) and the traffic study (traffic is the main determinant of the revenues of the project). Hence the quality of these studies is of utmost importance to the reliability and persuasiveness of the results of the financial analysis.

Social cost benefit analysis

In some cases a social cost-benefit analysis is also required. A social cost-benefit analysis assesses the economic value of the project from the perspective of society. It values and adds up all positive and negative impacts (both financial and non-financial) of the project on all households in a region or country. For instance, some people may find a job in the construction or operation of the port project. Other may live in the

neighbourhood of the project and be affected by pollution or noise. If the project is financed by the government, all tax payers experience an impact. Some international financial institutions or agencies require as a condition for conferring a loan or grant that a social cost-benefit analysis has been conducted and shows a positive net economic value.

For a private investor in a PPP a social cost-benefit analysis has no direct relevance. The private investor is ultimately only interested in the financial return of the project and not in its overall value to society. However, a social cost-benefit analysis may nevertheless be of indirect use to a private investor. A project that has received a positive social cost-benefit assessment is likely to have a stronger political support. This decreases the risk for the private investor that the project experiences cost-overruns, is delayed or even aborted during the political decision-making and approval process.

Profitable

"Profitable" means that the project is expected to generate enough revenue allowing the private partner in the PPP to recover its investment costs and to earn an adequate return. If this condition is not satisfied, then the project will not be able to attract private investors. In that case the project must be abandoned, or an other way of financing the project, relying more or entirely on public funds, must be found.

The required rate of return depends on the level of risk. The higher the level of risk, the higher the return private investors require in order to bear the risk. An example of the trade-off between risk and required rate of return is described in the box below. The example concerns an investment in a container terminal, but similar factors are at play for investments in other types of terminals or other types of port infrastructure.

Trade-off between risk and required rate of return

The table below shows the minimally required rate of return for an investment in a container terminal under a range of conditions with a varying level of risk. The columns of the table show situations with a varying level of traffic risk. The leftmost column refers to an investment on a site without any established trade (for instance a terminal serving transhipment cargo or a new free trade zone). In that case forecasts of the traffic volume are characterised by high uncertainty and the traffic risk is very high. The rightmost column applies to a site with very low traffic risk: there is an established container trade, the existing capacity is too small to serve present or future needs, and there are high barriers for new operators to enter the market. The middle columns represent situations with intermediate levels of traffic risk.

The rows of the table show situations with different levels of required investment expenditures. The top row refers to a completely undeveloped site. The private investor is responsible for all works and equipment to convert the site into a functional terminal. In the bottom row the site is fully developed and equipped. The private contractor is only required to provide operating staff and managerial skills. The effects on risk are twofold. First, the more investments that are needed to develop the site, the higher the probability of cost and completion time overruns. Secondly, as we move to higher rows the amount of irrecoverable investments increases. If the cargo volumes turn out to be lower than expected, then surplus cranes and other handling equipment can be sold or moved to another terminal. In this way a large part of the investment cost is recovered. However, investments in quay walls, land access roads can not be moved. If the project fails, the investment in immobile assets is lost. Consequently, the traffic risk is magnified in proportion with the amount of immobile investments.

Table 2: Trade-off between risk and required rate of return for investment in a container terminal

	No established trade Projections based on transhipment cargo or new free trade zone	Established trade Transhipment > 50%	Established general cargo trade but low containerisation	Established container trade but competition from other operators in same or nearby ports	Established container trade with evident need for new facilities and high barriers to competition
Undeveloped site	Not bankable without subsidy	Not bankable without subsidy	Not bankable without subsidy	Not bankable without subsidy	RF + 11%
Greenfield site with land infrastructure to site available	Not bankable without subsidy	Not bankable without subsidy	Not bankable without subsidy	RF + 10%	RF + 9%
Site with quay and paved yard (but without buildings and handling equipment)	Not bankable without subsidy	Not bankable without subsidy	Not bankable without subsidy	RF + 9%	RF + 7%
Site with quay, paved yard and buildings (but without handling equipment)	Not bankable without subsidy	RF + 12%	RF + 10%	RF + 8%	RF + 6%
Fully developed site including quay cranes (but without yard handling equipment)	RF + 10%	RF + 9%	RF + 8%	RF + 7%	RF + 5%
Fully developed and equipped site	Flat management fee	Flat management fee	Flat management fee	Flat management fee	Flat management fee

Note: RF = risk free rate of return (interest rate on long term government bond)
Source: Adapted from "Global Container Terminals" report, Drewry Shipping Consultants, 2002.

The table is arranged In such a way that the top left corner contains the most risky conditions. Many of these cases are not bankable. This means that no capital provider is prepared to back an investor for the development of the site, unless the government makes the deal more attractive by subsidies or guarantees. In these cases it makes no sense to launch a tender for a PPP. There will be no interest from serious candidate investors. The cases in the bottom right corner are bankable. The higher the risk, the higher the required rate of return (expressed as the sum of a risk free rate of return + a risk premium). In the bottom row the site is fully developed and equipped, so that the contractor does not need to undertake investments. In that case a flat management fee suffices as a reward.

The information in the table dates from a few years back. In the present market conditions the risk premiums may be different. However, they will still show a trade-off between risk and required rate of return.

For a public agency issuing a tender to invite private investors for a PPP It is not easy to know the exact required rate of return for a particular project. It depends on many, often not readily observable, factors determining the risk of the project. In fact, often the potential private investors also do not readily know the risks and hence the required rate of return for a particular project. They must make a decision based on incomplete information supplemented by their own estimates.

Despite the lack of precise information, it may still be possible to assess whether a project is sufficiently profitable to attract private investors. Often the numbers are so extreme (e.g. financial return is negative) that the conclusions with respect to the ability to attract private investors are obvious. In case of grey areas, on the other hand, more precise information needs to be collected though a market consultation.

Public homework first

Demonstrating that the project is well defined and sufficiently profitable is in first instance the responsibility of the public sponsor of the project. This task can not be delegated to the private bidders or partners in the PPP contract. It is not realistic to issue a request for proposals for an undefined project, and to expect that the candidate private investors will elaborate the project as part of their bid. An insufficiently defined project will generally attract little or no interest from bidders, so that the tender will fail. Therefore, before launching a tender procedure the public sector must perform a comprehensive feasibility study as described on the previous page. In other words: the public sector must first do its homework.

The crucial leading role of the public initiator in defining the project does not exclude the participation of the private sector. In fact, the candidate private investors can and should also be involved at this stage. There are two main ways of doing this.

- First, a market consultation among potential bidders prior to the launching of the tender. The purpose of the consultation is to obtain feedback on the feasibility and bankability of the project. The information gathered during the market consultation may lead to a revision of the project in order to increase the interest from private bidders.

- Secondly, the reports of feasibility studies are made available to potential bidders (e.g. in a "data room"). The bidders can then inspect the reports (perform a "due diligence") and use the information in the preparation of their bids.

The extent of the tender preparation depends on the type of the project. Obviously, little preparation is necessary for the tendering of an operating concession of an existing terminal. The project is then already well-defined, and no additional feasibility studies are required. On the other end of the spectrum a request for proposals for the development of a complete greenfield port needs to be accompanied by extensive documentation on the scope and constraints of the project.

Findings and recommendations on areas of improvement

In the course of the fact-finding visits we learned about some past tenders of port PPP projects that failed to attract the interest of private investors. The main cause of the failure was in our view an insufficiently thorough market study and feasibility assessment by the public initiator of the tender. As a result projects were put on the market without a demonstrated business case. Often the public actors were of the opinion that establishing the business case was the responsibility of the private bidders. This is true to a certain degree, but a good foundation must nevertheless be present before the project is tendered.

In this regard the horizontal market and traffic studies performed by Traceca (among other in sub-project 1 of the current project) can be extremely useful and valuable. They provide the background information for project-specific market studies. This allows reducing the cost of conducting these studies and increasing the quality of their revenue forecasts. It makes it easier for

There are other areas in which Traceca can be of assistance:

- ***upgrading the skills of the public initiators and sponsors of port PPP projects in conducting or commissioning preliminary feasibility assessments;***
- ***technical assistance in specific PPP projects.***

4.3 A well-founded choice of PPP model

4.3.1 Introduction

Public-private nature of seaports

Seaports fulfil a mix of private and public functions. The activities in seaports are in first instance carried out to meet the demand for overseas transport services from individual importing and exporting firms. However, the economic value of seaports extends beyond the serving of private transport needs. Seaports contribute to the prosperity and international competitiveness of a country. Most goods destined for overseas customers travel by ship. The availability of a nearby and efficient seaport reduces transport costs to customers and increases the competitiveness of exporting firms, allowing them to gain a larger market share in international markets. In addition, the country becomes more attractive to investors that want to establish new logistical or manufacturing platforms serving international markets. On the import side, the reduction of transport costs lowers the price paid for imported goods, benefiting both domestic firms that use imported inputs and domestic households, who get access to a larger and lower cost range of consumer goods. In this way the total economic value of a seaport exceeds the sales, value added and employment generated by the port activities themselves. There is a substantial additional effect on the overall productivity and prosperity of the country in which the port is located.[2]

Apart from the indirect economic effects, there are a number of other characteristics of seaports that affect wider public interests. Without attempting an exhaustive treatment of the topic, we provide below a few important examples.

- In any given region there are generally only a few seaports. Physical and geographical constraints limit the number of locations where seaports can be built. Moreover, the construction of port infrastructure is characterised by indivisibilities and economies of scale. Indivisibilities mean that a port can not be efficiently constructed below a certain minimum size. Economies of scale imply that one large port can be constructed and operated at a lower cost than two smaller ports. At a high cargo volume (the exact volume depends on specific circumstances) economies of scale peter out. However, in most regions this volume is so high compared to market demand that only one or a few ports can be supported. The small number of ports creates the risk of a monopolistic or oligopolistic market situation, where the lack of competition results in high-priced ports with insufficient capacity. Given the importance of ports to the prosperity and the competitiveness of the national economy, such an outcome would be highly undesirable.

- Seaports are by definition situated on the coast or in river estuaries. These areas usually also feature natural habitats with a very high ecological value, such as wetlands and tidal flats. Special care is needed to reconcile economic and ecological interests.

- Ports extend both over land and water areas. In most countries private individuals or enterprises can not obtain full property rights to water areas. The state is the owner of the water areas in navigable rivers and in front of the coast. The state is also the signatory to international treaties covering the regulation of maritime navigation.

The arguments presented above demonstrate that the construction and operation of a seaport involves both private and public interests. Consequently, some partnership between public and private actors is required to provide port infrastructure and services. In the next paragraph what form this partnership should assume.

[2] All business sectors generate to some extent indirect economic benefits. Due to their central role as an international transport node, the indirect effects of ports are, however, much larger than in most other sectors.

Two types of port infrastructure

For the purpose of considering the optimal public-private mix in the provision of port infrastructure it is useful to make a distinction between two types of infrastructure:

1. commercial or user-specific port infrastructure;
2. general port infrastructure.

Commercial port infrastructure is directly employed in commercial port activities, i.e cargo and passenger handling. Commercial port infrastructure is user-specific. This means that the right to operate the infrastructure is granted exclusively to a particular user, for instance a stevedoring company or a vessel operator handling its own ships. In practice commercial port infrastructure essentially consists of terminal infrastructure: basins (when used for single terminal), quay walls, jetties, yards.

General port infrastructure is not directly employed in commercial port activities, but supports those activities. It is general in the sense that it is not exclusively allocated to a single user, made but available to all potential users on equal, non-discriminatory terms. The general port infrastructure comprises the maritime access channel, breakwaters, locks, inner port navigation channels and basins, land infrastructure in the port area and to provide access to the port area for inland transport (roads, rail connection, marshalling yards, tunnels, bridges,…).[3]

The distinction between general and commercial port infrastructure is relevant; because the importance of private and public interests is very different for both types. In the case of commercial infrastructure and for individual terminals private interests predominate. The public interest issues described in the preceding section (indirect economic effects, monopolisation risks, environmental impact, state ownership and regulation on the maritime side) mainly arise at the level of the port as a whole and for general port infrastructure.

The very different public-private nature of general and commercial port infrastructure leads to a different optimal public-private mix of tasks and responsibilities in the provision of port infrastructure. The choice of the optimal PPP model is addressed in the following sections.

Phases in the provision of port infrastructure

For the purpose of discussing the optimal public-private mix in the provision of port infrastructure, the provision process is divided into three phases:

- planning: establishment of the master plan and the layout of the port, determination of the required performance specifications of the port infrastructure, management of the procurement process,…;
- financing: furnishing equity and assuming debt to cover the investment outlays;
- operation: maintenance and exploitation of the infrastructure (including required investments in superstructure and equipment)

[3] Our distinction between general and commercial/user-specific port infrastructure resembles at first sight the classification of port assets in the World Bank Port Reform Tool Kit (www.ppiaf.org/documents/toolkits/Portoolkit/toolkit.html), and in particular its distinction between basic and operational port infrastructure. There are however a few crucial differences. Some of the items that are classified under the heading of operational port infrastructure in the Port Reform Tool Kit, belong to general port infrastructure in our classification (for instance land infrastructure within the port area). Our classification is based on the degree of user specificity. The match between user-specificity and types of physical infrastructure may vary depending on local circumstances. For instance, some basins are built for a single user while other basins serve as common multi-user facilities.

These three phases offer a simplified description of the provision process, but they suffice for our needs.[4] A PPP model is characterized by the allocation of the three phases between the public sponsor of the project and a private contractor.

4.3.2 Commercial/user-specific port infrastructure

PPP models

Table 3 presents an overview of the available PPP models for the provision of commercial port infrastructure. Only the models that are potentially optimal are shown. For clarity we have eliminated the models that are inferior to the ones presented in the table. The reader can find a complete list of PPP models in the annex to this report, as well as the motivation why some of the models were eliminated from further consideration.

Table 3: Potentially optimal PPP models in the provision of commercial port infrastructure

	Operating concession/ land lease	BOT (Build-Operate-Transfer)
Planning	Public	Public/Private
Financing	Public	Private
Operation	Private	Private

For the provision of commercial port infrastructure two models have been retained.

- In the first model the public sector is responsible for planning and financing the infrastructure, in this case a terminal. The detailed design and construction is outsourced to specialised suppliers. Once the terminal infrastructure is completed, it is leased or given in concession to a private cargo handling company for a specified period. The operator invests in superstructure and equipment and operates the facility on a commercial basis, selling the infrastructure services directly to the end-user (i.e. shippers or vessel operators). In return for the concession rights the cargo handler pays a concession fee to the public sector, which remains owner of the facility. Depending on the contractual agreements the concession payment takes the form of a one-time sum, periodic fixed payments or a variable payment in function of the level of use. The public sector may also impose operational requirements on the concessionaire in the concession agreement. In this way the public sector can ensure that public interests are safeguarded. At the end of the concession period the assets are returned to the public owner, and a new tender procedure is launched to select a concessionaire for the next concession period (or an extension of the concession is negotiated with the incumbent operator). The length of the concession period depends among other on the size of the investment in superstructure and equipment and the bargaining power of the contract parties. It varies from 10 years for a small general cargo terminal to 40 years for large container terminals.

[4] For instance, we do not explicitly mention the design and construction of the infrastructure. These tasks are always outsourced to specialised engineering and construction firms. They do not create a differentiation between PPP models and are therefore omitted from the present analysis. The relevant issue is which party instructs the engineers and builders. This is done by the party in charge of the planning or the financing.

- In the second model (BOT) the public sponsor only determines the location and overall dimensions of the terminal. The private contractor finances and builds a terminal on publicly-owned land and maintains and operates it for a specified period (20-30 years and more) on a commercial basis. In return for the concession the private contractor pays a concession fee (one-time lump sum, periodic fixed payments or use-dependent payments) to the public sector. Since the contractor bears in this model the financing costs, the concession fee will be lower than under an operating concession. As above the public sector may impose operational requirements on the concessionaire in the concession agreement in order to safeguard public interests. At the expiry of the concession the assets are transferred to the public sector. At that point a new tender is launched to select a concessionaire for the next concession period (an operating concession or a new BOT if substantial investments are required to renovate or expand the terminal).

Choice between PPP models

Which of both models is optimal can not be said in general. The answer depends on a number of project-specific factors, which determine how the different stages of the provision process are best allocated.

For the operational phase, the choice is clear. The operation of commercial port infrastructure should always be left with the private sector (or, at most, with autonomous state-owned or municipally owned companies managed according to commercial principles).[5] Private companies are most capable and motivated to carry out commercial activities in an efficient manner. There are no overriding public interest issues that call for direct involvement of public authorities in the running of a commercial terminal. That is why in both retained options in Table 3 the terminal operation is entrusted to the private contractor.

For planning and financing the preferred option may go either way. The decision must be made on the basis of a project-specific comparison of the advantages and disadvantages of the different PPP models. We first present some reasons to opt for a BOT concession.

- If the public sector is unable to furnish the required investment funds (either from own means or by borrowing), then BOT is the only remaining option to realize the project. This may be the case if the government has already a high budget deficit or debt level. Even if the other factors (discussed below) plead against private financing, then BOT may still be the best alternative compared to postponing or cancelling the project. In the latter case the socio-economic benefits of the project (value added, employment and international competitiveness) would be delayed, or even fail to materialize.

- Another reason to choose the BOT model is the expectation of a more efficient realization of the project. Several potential sources of efficiency gains of private responsibility for the financing (including management of the construction) of the infrastructure can be identified.
  - The private contractor (and the banks backing him) is better at managing and monitoring the construction process, thereby reducing budget and completion time overruns.
  - The integration of the responsibility for the design, construction and operation of the terminal within one party (i.e. the private contractor) allows exploiting synergies between these phases and minimizing life-cycle costs. It is for instance possible that a more appropriate design results in lower operating costs. These synergies, when present, can not be easily exploited in an operating concession/land lease model, because the design and construction of the terminal on one hand and its operation on the other hand are then controlled by different parties.

[5] There are examples of efficiently-run state-owned terminal operators (e.g. PSA). They are, however, rare. The profit motive seems to be very important in sharpening the commercial skills and cost focus of private companies, making them in general more efficient than state- or municipal-owned companies. In addition, the latter are vulnerable to political interference in the management, often resulting in slow and cost-increasing decisions.

There are also factors favouring an operating concession or land lease.

- Compared to an operating concession or land lease a BOT arrangement increases the amount of the investment for the private contractor. Moreover, a larger part of this amount concerns irrecoverable investments in immobile assets (land levelling, construction of quay walls). If the traffic risk is too high, then a BOT contract is not bankable (we are in the top left corner of Table 2). In that case the public sector can make the project bankable by financing the terminal infrastructure itself, and only leaving the operational phase (including investments in superstructure and equipment) with the private sector.[6]

- In both models the public sector owns the port land, and remains in charge of port policy and overall port planning. Both models are compatible with the landlord port management model, which is predominant in Europe and the world. Nevertheless, the degree of control is a little bit lower in the BOT model. Relinquishing financial responsibility always entails some loss of influence. If the public sector objects to this loss of influence an operating concession/land lease is the preferred option.

As pointed out earlier the choice between operating concession/land lease and BOT depends on a project-specific analysis of the aspects described above. In practice both models are widely used throughout the world to finance and operate port terminals.

4.3.3 General port infrastructure

PPP models

Table 4 presents an overview of the available PPP models for the provision of general port infrastructure (including the public delivery model without PPP). As in the preceding section on commercial port infrastructure, only the models that are potentially optimal have been retained. A complete comparison of PPP models, including suboptimal ones, can be found in the annex to this report.

Table 4: Potentially optimal PPP models in the provision of general port infrastructure

	Public delivery	Management/ service contract	DBFM(O)	Transfer of management rights
Planning	**Public**	**Public**	**Public**	**Largely Private**
Financing	**Public**	**Public**	**Private**	**Private**
Operation	**Public**	**Private**	**Private**	**Private**

[6] It is possible that the project risk is then still too high to attract private investors. The public sponsor of the project may then choose also to undertake the investments in superstructure and handling equipment, so that the private contractor only needs to supply operational and managerial staff to run the terminal. However, if this is required to make the project viable, one may question its commercial foundation. It is then probably advisable not to carry out the project at all. That is why we have not retained this model in Table 3).

Four potentially optimal models have been retained for the provision of general port infrastructure. Each is characterised by a different position on the public/private scale.

- In the public delivery model a government agency (local or national government depending on the institutional organisation of seaports in the country) assumes responsibility for all phases of the provision process: concept (i.e. determining the port infrastructure requirements and defining a port infrastructure programme), design, construction, finance and operation. The design and construction work is outsourced to private firms through public procurement contracts. The operating activities are performed by the staff of the authorized public agency (for instance a public port authority).

- The second model is a variant of the public delivery model. As in the public delivery model the public sector plans and finances the infrastructure and manages the procurement process. The operating activities, however, are outsourced to a private contractor through a services or management contract. This private contractor works under the direct control of the authorized public agency, which is its client and from which it receives a payment for services performed. The public agency remains in charge of transacting with the end-users of the port facility (for instance vessels using the maritime access channel).

Case: Maasvlakte 2

Maasvlakte 2 is the new port and industrial zone that will be built on reclaimed land in the North Sea directly to the west of the current port of Rotterdam. The first phase of the project represents an investment of about €1 billion and consists of the construction of 2,4 km of hard sea defences (stones and blocks), 8,4 km of soft sea defences (beach and dunes), 700 ha of port area, 3 km of quays, and access roads and railway lines. The project will be financed by the Havenbedrijf Rotterdam N.V. (autonomous port authority), which has obtained loans from the European Investment Bank and a consortium of private banks.

Instead of outsourcing design and construction separately and consecutively, the works have been awarded to a single consortium of hydraulic engineering firms with an integrated design & construct contract. The bidders were asked to submit proposals meeting a functional schedule of requirements issued by the Port Authority. In addition the consortium will be responsible for the maintenance of the sea defences and quayside structures for the first five years after completion of the project.

The contract allows for a fine-tuned distribution of risks, such that risks are borne by the party best able to manage them. For example, the damages of storms which occur less than once every 50 years are borne by the contractor, but for larger, very rare storms the Port Authority takes responsibility.

The Port Authority will be in charge of the commercial exploitation of the infrastructure through land leases.

The Maastvlakte 2 project is an example of the public delivery model, but with innovative elements (design&construct, risk allocation) and a maintenance contract added to it.

Source: News items published on www.maasvlakte2.com

- In the third model the financing and the management of the construction process is also outsourced together with the operating activities. Hence, the private contractor finances, designs, constructs, maintains and operates the infrastructure (Design-Build-Finance-Maintain-Operate or DBFMO), all according to the specifications of the public sponsor of the infrastructure (a public port authority or an other authorized public agency). Note that the private contractor does not sell its services directly to the end-user of the infrastructure (i.e. vessels calling the port). Its client is the public port authority. It is paid in the form of availability fees (payment in function of the availability of the infrastructure) or

shadow tolls (fee per user, but paid by the public sector instead of by the actual user) for the duration of the contract. The revenues from these fees are used to cover the operating costs, service the debt and earn an adequate return on its own capital that it has invested in the project.

Notice that a DBFMO contract appears at first sight equivalent to a BOT concession, as described in the previous sections. Under both contracts the private partner is responsible for designing, building, financing and operating the infrastructure. There is, however, an essential difference. Under a DBFMO contract the private partner is paid by the public agency sponsoring the project and generally runs no commercial risks. In a BOT concession, on the other hand, the private concession holder sells its services directly to the end-user of the port infrastructure and assumes the commercial risk. The concession holder is not paid by the public sector. In contrast, it pays a concession fee to the authorized public agency.

For reasons explained below (and in more detail in the annex) we recommend to use a DBFMO contract based on availability fees instead of a BOT concession or shadow toll schemes to finance, construct and operate infrastructure that is not directly commercial (such as general port infrastructure). Therefore, we have not included the BOT concession in the list of potentially optimal PPP models for the provision of general port infrastructure.[7]

Case: Martin Garcia Channel

The Martin Garcia Channel is a natural channel in the Rio de la Plata estuary between Uruguay and Argentina. It provides access to the Rio Parana, which flows into the Rio de la Plata and is the principal transport route for the grain exports from the fertile plains of Argentina, Bolivia and Paraguay. Ocean-going vessels sail up the Rio Parana to the grain ports of Rosario and Santa Fé situated 300 km upstream from the Rio de la Plata. As many shipping companies bang utilizing larger vessels, the depth of the Martin Garcia Channel became insufficient, nor was the channel wide enough to permit two-way traffic.

In 1996 the Argentine-Uruguayan Rio de la Plata Administrator Commission (CARP), which manages the estuary, awarded a 10 year concession contract to a private consortium for the dredging of 76 kilometres of the Martin Garcia Channel to a depth 9,75 meters and a width of 100 meters (the rest of the 106 kilometre long channel was already deep enough). This gave the channel the capacity to accommodate vessels 245 meters long and 32 meters wide. The consortium was also instructed to install a navigation system of buoys and beacons to improve safety in the channel, and to establish and operate a tolling system. The cost of the project was estimated at US$180 million, consisting of US$100 million of capital dredging and the rest of the budget going to operation and maintenance.

The consortium was paid in two ways. First, the consortium collected a toll on vessels using the channel, with the toll rates set according to a formula based on the tonnage and draught of ships using the channel. However, it was expected that the toll revenues would not be sufficient to cover all the costs of the consortium. The Argentine and Uruguayan governments did not want to set the tolls too high as this would have the effect of depressing traffic, thus undermining the project's primary objective of promoting economic activity. Therefore, the private partner also received payments from Uruguay and Argentina through CARP. The toll revenue collected was reported to CARP and then deducted from the subsequent payments due from CARP to the consortium. In this way the consortium was partially shielded from the traffic risk.

The contract has been described by the signatories as a Design-Build-Operate-Transfer (DBOT) PPP. In our terminology it is a mixture of a BOT concession (since the private consortium collects tolls from the vessels using the navigation channel) and a DBFMO contract (part of the revenues comes from payments by the governments of Argentina and Uruguay, and the payment mechanism shields the private contractor from traffic risk. We have argued elsewhere in this report that for general port infrastructure a DBFMO contract is superior to a BOT concession because of its more optimal allocation of the traffic risk. In this case, however,

[7] In this report we have defined the terms DBFMO, BOT and concession in a consistent way on the basis of the identity of the paying client of the private contractor (i.e. public sector agency in case of DBFMO, and end-users. in the case of BOT and operating concessions). Notice that in the literature other definitions of these contract types can be found. For instance, some authors use the term BOT to refer to DBFMO contracts (in our definition) and vice versa.

the direct access to the toll revenues offered the consortium more certainty to receive at least part of its income if the government would default on its payments. In fact, such a default occurred in the financial crisis in 2001-2003.

Source: UNDP case studies published on website of The National Council for Public-Private Partnerships (www.ncppp.org)

- A transfer of management rights confers to the private contractor the right to manage and operate an existing port during a certain period (30-50 years) on a for-profit basis. In return it pays a concession fee (one-time lump sum, periodic fixed payments, payments per cargo unit or revenue sharing). During the concession period the concessionaire is responsible for financing the expansion and renovation of the port infrastructure, both general and commercial. At the end of the concession period all assets are returned to the public sector (which may conclude a new concession agreement with the same or another operator). A transfer of management rights amounts to a quasi privatisation of the port during the concession period. The port land, though, remains public property.

Case: Port privatization in Turkey and Georgia

Most state-owned ports in Turkey have been privatized, or are in the course of privatization, through long-term concessions of management rights. Against the payment of a lump sum concession fee to the government the concession holder acquires the right to operate an existing port for a period of 30 tot 49 years on a commercial basis. In addition the concession holder commits itself to carry out specific investments to renovate or expand the port. At the expiry of the concession period all port land return to the government. The Georgian ports of Batumi and Poti have been privatised through similar agreements.

Choice between PPP models

The four PPP models described above are potentially optimal. Which model of the four is optimal in a particular project can not be said in general, but depends on the specific characteristics of that project. Below we examine the factors determining the choice of the best PPP model. Each phase in the provision of the port infrastructure is treated in turn.

- Operation

  General port infrastructure has been defined as port infrastructure that has no direct commercial function (unlike terminals). Consequently, the superior commercial skills of the private sector provide no reason in this case to allocate the operation of general port infrastructure to the private sector. But there are other reasons why the private sector may be more efficient than the public sector in purely operational tasks. On one hand the efficiency of the public sector may be hindered by factors such as restrictive labour practices, lack of management skills, complex chains of command, political interference in the management,… On the other hand the profit motive of private firms provides a continuous incentive to increase efficiency. If these factors are present, a delivery model must be chosen in which the operation of the infrastructure is transferred to the private sector.

- Financing (including management of design and construction)

  The reasons to transfer financing and the management of the construction process to the private sector are the same as in the case of commercial infrastructure:

- lack of public funds, so that private financing is the only remaining option to realise the project;
- better skills and stronger incentives to manage the construction process (higher probability of completion on time and within budget);
- synergies between design, construction and operation.

- Planning

  As explained in section 4.3.1 general port infrastructure has much stronger and wider public interest aspects than commercial port infrastructure. This pleads for maintaining direct public control over planning and policy with respect to the overall port and general port infrastructure. This does not exclude a role for the private sector. Using service/management and DFBMO contracts, public control is compatible with allowing the private sector to participate in the operation and the financing of general port infrastructure.

  A long-term concession of management rights transfers the control over port planning to a large extent to the private sector. The concession agreement usually specifies infrastructure investments that need to be undertaken by the concession holder within a certain time frame. In this manner, the public sector retains influence on port development. Beyond these commitments the private concession holder is free to develop the port in function of the market opportunities it perceives. Naturally, its development strategy will be guided by maximization of profits and shareholder value rather than wider economic development. This will result in socially too low investments in port infrastructure.

  Under particular circumstances a concession of management rights may nevertheless be the best option for the financing and operation of general port infrastructure.
  - There are enough competing ports in the region to avoid monopolisation.
  - Public interests can be safeguarded by effective regulation and by clauses in the concession agreement.
  - The public sector lacks the managerial capacity and commercial skills required for an efficient overall port management.[8]

  A concession of management rights with the primary goal of raising revenues for national or local governments must be avoided. The risk of a conflict between financial objectives (maximal revenues, necessitating high port tariffs to pay the concession fee) and socio-economic objectives (efficient low-price ports supporting economic development) is then very great.

Findings and recommendations on areas of improvement

In all project countries port facilities used to be operated by state agencies or state-owned companies. We see in all countries an evolution towards the privatisation of the operation of commercial port infrastructure in line with the recommendations of the 4P framework. In some countries this process has largely or entirely been completed. In the other it is ongoing.

Apart from the need to entrust commercial operations to private companies, the 4P framework does not prescribe any specific PPP model. Several models are potentially optimal. The choice between them depends on specific project characteristics, the objectives of port policy, the competitive environment,… The choice needs to be made on the basis of a comparative analysis of the available models in which efficiency gains and public and private interests are assessed. However, we have not seen any instances of such assessments.

[8] We have argued earlier that the operation of general port infrastructure has no direct commercial functions. That is indeed true for individual items of general port infrastructure (for instance the maintenance of the navigation channel). However the overall management of the port has important commercial aspects, notably the terminal concession policy and the marketing of the port as a whole.

In fact, we found that the public initiators of the project often knew and considered only a single PPP model (mostly BOT concession. They did not examine whether other models might not be more efficient for a particular project. We think that in particular for general (i.e. non-commercial) port infrastructure there are PPP models that offer a good balance between achieving private finance and efficiency and safeguarding public interests, but which have as yet not been considered or applied.

The workshops in the second phase of the project were aimed at addressing this problem. They introduced the participants to the range of available PPP models and explained how to choose among them. An explicit consideration and comparison of the available PPP models should be part of the feasibility assessment of a project in which private finance is sought.

4.4 A competitive tender procedure

Suppose that the public sponsor of a port infrastructure project has chosen the most advantageous PPP model to realise the project, taking into account the factors described in the preceding section. The mere selection of the best PPP model does not by itself guarantee that the efficiency gains of this model will be effectively delivered. In order to effectively obtain the benefits of PPP two conditions must be fulfilled:

- the selected private contractor has offered to supply these benefits in his proposal to carry out the project;
- the selected private contractor honours the promises in his proposal.

The second condition must be enforced through the PPP contract. This issue will be addressed in the next section.

The key factor to satisfy the first condition is a competitive tender procedure. Only if a sufficiently large number of bidders compete against each other, they will be induced to offer the deal with the best possible cost-quality combination (best “value for money”). If only one or a few bidders are in the race, they do not have an incentive to offer the best deal possible in order to get the contract. In that case they will not be induced to share the efficiency gains of PPP with the public sector or with the community at large. For instance, efficiency gains will be converted into higher profits for the private contractor rather than lower prices for users or a higher concession payment to the public sponsor.

In essence there are two requirements for a competitive tender procedure:

- transparency;
- equal treatment of all bidders.

In order to attract bidders, they must be informed about the project and reassured that they have a fair chance of winning the contract. This implies:

- international publication of requests for proposals;
- selection of the contractor on the basis of previously announced procedures and criteria;
- notification of the award of the contract;
- registration of the decisions during the selection procedure (so that they can be referred to in disputes);
- review procedures (enabling wrongfully treated bidders to file a complaint).

Some of these measures might be objected to because they can lengthen procurement procedures. While this may be true, it is the price to be paid for getting the “best value for money” in the context of public procurement. Moreover, if implemented well, transparency can also help to reduce the length of procedures. If it is transparent to all bidders that the contract has been awarded fairly, the incentive to challenge the award in court will be lower.

Equal treatment of all bidders implies that:

- all bidders receive the same information on the project (for instance by means of a data room);
- all bids are evaluated according to the same criteria;
- the selection criteria do no discriminate against certain types of bidders, unless these restrictions are necessary to get better "value for money"

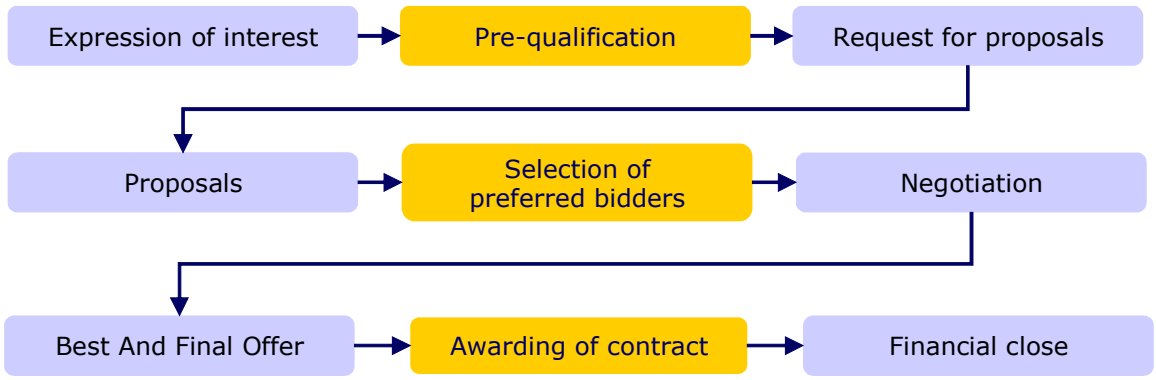
An example of the latter is the exclusion of bidders that that already have a strong presence in the port, in order to avoid the risk of the emergence of monopolies.

An efficient tender procedure strikes a balance between allowing competition (many bidders is better) and controlling the costs of running the procedure (few bidders is better). This balance is obtained by a multi-stage tender procedure. The most complete procedure has three stages (see Figure 2).

1. All bidders are invited to submit a candidacy to participate in the tender procedure. Out of the candidates a smaller number of participants is selected on the basis of qualitative criteria with respect to technical expertise and financial strength.
2. Only the pre-selected bidders are allowed to submit a proposal. The best few proposals (generally not more than two or three) are selected for further consideration. These proposals are fine-tuned in negotiation with the bidders who have submitted them.
3. Finally the remaining bidders are invited to submit a Best and Final Offer (BAFO). The contract is awarded to the candidate with the most advantageous BAFO.

A three-stage procedure is only required for complex projects involving finance, construction and operation. For the awarding of an operating concession of existing infrastructure a two-stage procedure (pre-qualification and a single bid phase) is generally sufficient.[9]

Figure 2: Three-stage tender procedure



[9] The three-stage tender procedure sketched in Figure 2 resembles most closely the negotiated procedure as defined by the classic public procurement directive of the European Union (2004/18/EC). According to this Directive the negotiated procedure can only be used for exceptionally complex projects. Most PPP projects would fall under a new procurement procedure labelled the 'competitive dialogue". In case EU procurement directives apply the three-stage tender procedure described above must be somewhat modified. The second phase consists then of the dialogue phase. The pre-selected bidders admitted to the dialogue do not submit offers, but propose solutions in consecutive dialogue stages. At some point the remaining bidders are asked to submit a final offer. The third stage consists of post-tender discussions in which the bids are clarified and fine-tuned, but may not be materially altered. Finally a single preferred bidder is selected, with whom a contract is signed after final clarification and confirmation of commitments.
Notice that only projects involving works fall under the public procurement directive. Operating concessions for existing infrastructure are outside the scope of the public procurement directive. However, the general rules of transparency and non-discrimination still apply because they follow from the Treaty of the European Union.

Findings and recommendations on areas of improvement

A competitive tender procedure is often regarded as a nuisance that slows down the realisation of investment projects (such views are not restricted to the project region, but are also frequently observed in other countries in Europe and around the world). It is true that a properly executed public works contract requires time, and the additional complexity of PPP often increases the length of the procedure. However, this is a cost that must be borne to get the best "value for money".

A competitive tender procedure can also save time. We have found instances where complex concessions were awarded in short procedures lasting only a few months. The brief time of the procedure did not allow settling all the details of the contract, resulting in protracted post-award negotiations with the selected contractor (in a context without competition). A longer tender procedure (for instance the three-stage procedure described above) might have shortened the total time to reach a deal, while improving "value for money".

4.5 A well-specified PPP contract

The PPP contract serves a dual purpose.

1. It must give reassurance to the private contractor that it can earn the expected return on investment.

2. It must ensure that the public sector (or in fact the national economy) effectively obtains the best "value for money" on the basis of which the contractor has been selected.

The PPP contract achieves this mainly by clearly stating the rights and obligations of the public and private partners of the project. The contract covers at least the following points:

- definitions of terms used in the contract;
- specification of investment commitments by the private contractor;
- operational and maintenance obligations;
- performance standards, and penalties in case these standards are not attained;
- payment schedules (by/to contractor depending on the project);
- reporting obligations, so that the obligations and performance standards can be verified;
- obligations of contracting authority (for instance complementary investments, commitment to change or not to change particular regulatory rules,…);
- duration of the contract;
- early termination of the contract: reasons and compensation;
- enforcement of contract and arbitration.

Below some important points are treated in more detail.

Optimal risk allocation

The risk allocation between public and private parties is mainly determined by the distribution of responsibilities (who does what in the provision of infrastructure) and the payment mechanism (which factors determine the payments between private contractor and public contracting authority).

The guiding principle of optimal risk allocation is that risks should be allocated to the party best able to manage them. Only then overall project risks (and the risk premium in the financing costs) are minimized. If a party is obliged to take on risks that it can not control, the only results is more expensive financing without any risk reduction.

Application of this principle in general calls for the following allocation of risks:

- private contractor:
  - construction risks (risk that construction is completed too late and over budget);
  - operational risks (risk that operational costs are higher than expected);
  - financial risk (risk that interest rates are higher than expected);

- contracting authority:
  - force majeure (natural disaster, war,...);
  - changes in laws and regulations that have specific impact on project.

The optimal allocation of revenue/traffic risks depends on the project. In the case of commercial port infrastructure the private partner is best able to manage the revenue risk. The revenue risks should therefore be allocated to the private partner, as is the case with both optimal PPP options that we have retained for investments in commercial port infrastructure (see section 4.3.2). Under an operating concession and a BOT-contract the private partner derives its revenues from the end-users of the port, so that the traffic risk is ultimately borne by the private partner.

If the revenue/traffic risk is too high, so that allocating the risk to the private contractor renders the project unbankable, there are a few options to share the risk with the public sector. As explained in section 4.3.2, choosing for an operating concession instead of a BOT is a way of transferring part of the costs, and therefore the risk, to the public sector. Also the concession payment mechanism can be used to share the revenue risk (see below).

In the case of general port infrastructure, on the other hand, the private contractor has little or no control over the level of traffic. Most of the revenue risk is caused by external factors determining port traffic volume, such as macro-economic growth and the commercial success of the terminal operators in the port. In these circumstances imposing traffic risk on the private contractor increases the costs of financing, while they are little or no efficiency gains from a better risk management. It is then optimal to choose a PPP model in which the private contractor is protected from traffic risk. This is the reason why we prefer a DBFMO contract based on availability payments to a BOT contract for the private financing of general port infrastructure (see Table 4 in section 4.3.3). In a DBFMO contract based on availability payments the private contractor does not derive its revenues from the market, but receives an availability fee from the public contracting authority. The availability fee is paid if the infrastructure is available and in good working order. The construction-related and operational risks are therefore borne by the private contractor, but that is as it should be.[10]

An alternative to availability payments are shadow tolls or shadow fees. A shadow toll is a payment made by the contracting authority, not in function of availability but in function of the use of the infrastructure (for instance the number of vessels calling at the port). A shadow toll is similar to a toll, but paid by the contracting authority instead of by the actual user of the infrastructure. A shadow tolling scheme allocates the traffic risk to the private contractor. In general we would recommend against such a payment mechanism in the case of general port infrastructure, for the same reasons as why we oppose BOT arrangements. At most one might consider applying a partial shadow toll (i.e. covering a part of the costs, the remainder being covered by availability payments) if the operational costs are related to the traffic volume, or if the operational efficiency of the private contractor has an impact on the traffic volume that can be accommodated.

[10] The case of the Martin Garcia Channel in section 4.3.3 provides, however, a partial counterexample. If there is a significant probability that the public contracting authority will default, a concession contract offers the private partner more certainty despite the traffic risk. With a concession contract the private partner receives revenues from the market and is not dependent on payments from the possibly unreliable public partner.

Duration of the contract

The duration of the contract should be sufficiently long for the private contractor to recover the investment costs and earn a normal rate of return on invested capital. The higher the capital intensity of the project, the longer the required duration of the contract. For an operating concession of a general cargo terminal (where the operator only needs to invest in handling equipment) 10-15 yeas is generally sufficient. For container terminals a longer duration is required, because the handling equipment is much more expensive. In the case of BOT and DBFMO contracts, where the contractor also invests in immobile infrastructure, contracts with a length of 25-50 years (and occasionally even longer) are required.

Payment mechanism

A distinction must be made between concession-type contracts (operating concession, BOT, concession of management rights) and DBFMO-type contracts. In the former the private contractor receives market revenues and pays a concession fee to the public contracting authority. In the latter the private contractor receives a payment from the public contracting authority against the supply of a service.

The most common types of concession fees are:
- flat annual fee (for instance a land lease per m^2);
- fee per tonne or TEU handled;
- percentage of the gross revenues of the terminal.

These three options are characterised by a different degree of revenue risk sharing. In the case of a flat fee the revenue risks end up completely with the private contractor. The revenues of the public contracting authority are fixed. The other two options result in a sharing of the revenue and traffic risks between the private contractor and the public contracting authority. The choice depends on views of contracting parties with respect to sharing the revenue risk. Sharing the risk may be preferred in case the traffic risk is very high (too high to be borne by the private contractor alone), or as a way to give the public partner a continuing stake in the commercial results of the project (which offers more reassurance to the private partner that its public counterpart will not take actions that harm the project).

Payments in the context of DBFMO contract come in two main forms: availability fees and shadow tolls. We have already explained above that from the perspective of optimal risk allocation an availability fee is generally preferred. To extract an optimal service level from the private contractor the availability fee must me made dependent on performance. If performance falls below the requirements set out in the contract the fee is reduced by a penalty. Establishing the level of the penalty is a balancing act. The penalty should be more than a “tickle”. It should really “hurt” the contractor, without however being so strong as to “kill” him.

Availability fees and shadow tolls are usually only partially adjusted for inflation (for instance 80%). The assumption is that over time the productivity of the contractor will increase.

Early termination of contract

The specification of what will happen if the project runs into problems is especially important to safeguard the interests of the signatories of the contract and for the bankability of the PPP. The early termination clauses of the contract are therefore crucial.

There are several reasons why the contract may be terminated before the expiry of its normal term:
- major breach of contract by the private contractor (for instance the private contractor persistently fails to offer the service level specified in the contract or to pay the agreed concession fee);
- insolvency of the private contractor;
- major breach of contract by the contracting authority (for instance failure to undertake complementary investments);

- mutual consent of both parties;
- unilateral termination by the contracting authority for reasons of general interest.

An important condition for the bankability of the project is that the private contractor must always be compensated in case of early termination of the contract, ***regardless*** the reason of the early termination. Otherwise the private contractor will be unable to attract external financing. The reason of termination has nevertheless an impact on the amount of compensation. If the reason is not due to a fault by the private contractor, then the compensation is equal to the "Fair Value". This is the market value of the project, including a compensation for the loss of future profits. The compensation at "Fair Value" applies in case of a major breach or a unilateral termination of the contract by the contracting authority. If the termination is due to a fault of the private contractor, the compensation is equal to the net book value of the investments and the outstanding debt. This allows the private contractor to redeem the external providers of funds, but does not include a compensation of foregone profits.

Even if enough compensation is provided to pay off the external creditors an early termination of the contract causes delays and costs. It is therefore preferable if an early termination can be avoided. That is the purpose of step-in-rights. They allow the lender to appoint, with the consent of the contracting authority, a new contractor if the existing contractor fails to fulfil its obligations. The step-in-rights are arranged by a direct agreement between the contracting authority and the lenders of the private contractor. The presence of step-in-rights is often an essential condition for lenders to be willing to fund the project.

Findings and recommendations on areas of improvement

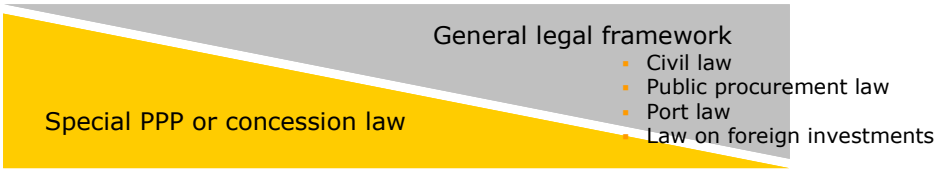
Good model contracts and expert legal advice are widely available. If a good PPP model has been selected, a competitive tender procedure has been followed and a skilled contracting agency is in charge, this aspect does not raise any significant problems.

4.6 An adequate legal framework

The purpose of the legal and regulatory framework is to establish a firm foundation for the conditions we have described in the previous sections. The framework can comprise decision-making procedures regarding the choice of the most optimal PPP model for a particular project, tender procedures and model PPP contracts.

An adequate legal framework does not imply the existence of a special PPP law. PPP is essentially a particular way of public procurement. Hence in many countries legal provisions regarding PPP are included in overall public procurement law (as is the case in EU law). Also civil law, port law, administrative law and foreign investment law may contain provisions that are relevant for PPP. The more complete the general legal framework, the less need for a special PPP or concession law. If a special PPP law is enacted care should be taken that there no contradictions between the PPP law and the general legal framework.

Figure 3: Trade-off between general legal framework and special PPP law



In fact, even a legal framework is not absolutely necessary. The aspects that are not regulated in the legal framework can be settled in the PPP contract.

Figure 4: Trade-off between legal framework and contract

Having said that a legal framework has some important advantages.

- A legal framework offers investors more certainty than only a contract.
- An adequate legal framework is an instrument of efficiency. If more aspects are settled by the legal framework, then contracts can be shorter resulting in a saving of transaction cost.
- The enforceability of the contract is a key issue. The possibility to appeal to international arbitration may be necessary for the bankability of PPP projects.

Ultimately, the trust in competence and reliability of the public contracting authority is the most important enabling condition for a PPP. An excellent legal framework and a solid contract are no substitute for trust.

Findings and recommendations on areas of improvement

As will be demonstrated in the next chapter, legal instruments to implement PPP in ports are available in all five project countries. In some countries explicit PPP or concession legislation is available. In other PPP is governed by general public procurement and contract law.

The main area of improvement is institutional rather than legal. The main problem is a too large fragmentation of port policy and planning, resulting in a mismatch between authority, skills and financial responsibility. A public agency procuring a port investment project must have a clear authority to do so (so that the private partner has legal certainty that the public contracting agency has the authority to enforce and comply with the contract), must possess the skills to manage the tender process (i.e. it must know the port business, so that feasible and well-prepared projects are put on the market) and must be financially responsible (so that the agency has the required resources and the financial incentive to manage the PPP projects as efficiently as possible). If the contracting authority does not combine these three requirements (skills, authority and financial autonomy) it can not be a fully competent and reliable public partner in a PPP.

This recommendation does not amount to a plea for a landlord port model as is followed in many (but not all) EU member states. Several institutional arrangements can achieve the desired degree of integration of skills, authority and financial autonomy. Even within the landlord port model there are large variations between countries depending on their institutional history and traditions.

5 Country assessments

5.1 Bulgaria

Legal framework

Bulgarian public procurement and concession law has been made in conformity with the relevant European directives (2004/17/EC and 2004/18/EC).

The new Concession Act (2006) provides for two types of concession that are applicable to investments in seaport infrastructure

- public works concession: building, maintenance and management of a construction work (object of the concession) with the compensation consisting of the concessionaire's right to operate the object of the concession, possibly augmented by an additional payment by the concession grantor.
- service concession: maintenance and management of an existing object, with the compensation consisting in the concessionaire's right to operate the object of the concession, possibly augmented by an additional payment by the concession grantor.

A service concession may in addition include the execution of partial construction work to complete the object or partial extension/partial rehabilitation of the object.

This means that the public works concession can be used to implement integrated contracts with finance and BOT concession. The service concession is applicable for operating concessions, ROT (Rehabilitate, Operate, Transfer) concessions and even for concessions of management rights.

There are three types of procedures for awarding a concession: open, restricted or competitive dialogue. Concessions are awarded for periods up to 35 years.

Amendments to the Concession Act currently discussed by Parliament would add another procedure aimed at mixed public/private ventures. Such public-private partnerships would be awarded concession contracts without tender. The private partners would be picked in a tender, but then the contracts would be awarded directly, making it easier and faster to give out concessions on airports and ports.

Other proposed changes aimed at speeding up the procedure include a provision that the choice made by local or central authorities cannot be challenged in court and that no feasibility studies need to be carried out prior to awarding concessions. The standard concession period is increased by five years to 40 for highways, ports and airports.[11]

Full privatisation is ruled out for the ports covered by this project (Varna and Burgas). They belong both to the category of “public transport ports of national significance”. The land and port infrastructure can only be state property, except for the zones for keeping of cargo, which may belong to private parties. (Bulgarian Maritime Space, Inland Waterways and Ports of the Republic of Bulgaria Act

Institutional framework

The Bulgarian Ports Infrastructure Co is the landlord of all sea and river ports in Bulgaria (except for a few terminals owned by industrial companies and shipyards, representing less than 5% of cargo turnover and labelled as ports of “regional significance”). In addition the Bulgarian Ports Infrastructure Co maintains all maritime access channels (but harbour masters belong to the Maritime Administration).

[11] Alex Bivol, sofiaecho.com, 19 March 2008.

Concessions of port infrastructure are granted by the Council of Ministers (art 17 of Concession Act). The bidding documents are drawn up by the Concessions directorate of the Ministry of Transport.

The Bulgarian Ports Infrastructure Co is currently not involved in the granting of concessions of port terminals, although it manages the port area in which the terminals that are given in concession are located. Port terminals are in this respect very different from airports or mines: they are not self-contained but are part of a larger whole, i.e. the port. Their functioning depends on the provision of basic port infrastructure (navigation channels, breakwaters,…) by the landlord port authority. For this reason most landlord ports everywhere in the world are themselves responsible for the management of concessions within the port territory. The Concession Act includes a provision which would allow the delegation of the competence of granting concessions to the Bulgarian Ports Infrastructure Co (art 17, point 3). However, this possibility has not been exploited yet.

According to the law the revenues from the concession fees accrue to the state treasury. This is logical in the case of concessions for the extraction of natural resources, where no public investments are required. In the case of port infrastructure, however, the activities of the concession holders are made possible by the investment and maintenance efforts of the Bulgarian Ports Infrastructure Co in basic infrastructure. It is therefore logical that the Company should receive the revenues from the concession fees. In practice, this is now settled by ad hoc agreements with the Ministry of Finance. A structural solution is however preferable.

Experience with PPP in ports

Two seaport terminals have been given in concession under the rules of the old concession law:
- Lesport (Varna port district), 30 years;
- Port Balchik (Varna port district), 25 years.

The objective was to liberalise the provision of port services and improve the quality of the services. The best candidate was selected using a number of criteria, including the concession fee, investment commitments, and cargo flow perspectives. The goal was not to press the maximum revenue out of the port facilities but to motivate the concessionaires to upgrade their technical infrastructure.

The tender procedure took 21 months in the case of Port Balchik and somewhat longer in the case of Lesport. The most difficult part of the procedure was to find the balance between the objectives/conditions of the government and the concessionaire (with respect to concession fee, investment commitments, service quality, safety and security standards and environmental protection).

The tender procedure proceeded as follows. A call was issued. Candidates applied: 10 in the case of Lesport and 3 in the case of Port Balchik. Lesport was the first concession to be awarded and attracted a lot of interest. Port Balchik is a specialised facility (grain) and interested fewer candidate investors. The best candidate was selected on the basis of a number of criteria. Negotiations were started and concluded with the best candidate. In case it would have been impossible to conclude a deal with the best candidate, then the second best candidate could have been invited to negotiate.

A few dedicated terminals used by privatised industrial enterprises were given in concession to these enterprises without competition as agreed in the privatisation contracts with these firms.

A BOT concession for the construction and exploitation of a liquid bulk/dangerous goods terminal in Varna was unsuccessful. The call attracted too few candidates. Potential investors deemed the investment cost too high.

The policy intention is to give all existing port terminal in concession (service concession) and to construct all new facilities under BOT schemes (public works concession). The container terminals in Varna and Burgas, however, will be built according to the conventional landlord model. They are financed by the state (in large part with a foreign loan) and will after construction be given in concession to an operator. The alternative of BOT was considered but ruled out. The procedure for setting up a BOT

was expected to take too long, given the urgency of both projects. The projects were also considered to be too risky and small for potential operators.

The National Program for Development of Public Transport Ports 2006-2015 lists eight building or rehabilitation projects that are meant to be realised through BOT or operating concessions:

- building of passenger terminal with business center in Port of Varna-East;
- building of Container Terminal - Varna-East;
- building of Grain terminal on the North shore of Varna Lake;
- building of liquid cargos terminal in Konstantinovo - South shore of Varna Lake;
- extension of container terminal - Varna West;
- building of liquid hazardous cargos terminal - Varna-West;
- building of passenger terminal with business-center in Port of Burgas;
- reconstruction and building of new infrastructure of Port terminal Rosenets Burgas.

Tender procedures have not yet been started up for any of these projects. The Ministry of Transport regards the concession procedures available in the present Concession Act as too cumbersome for these projects.

5.2 Romania

Legal framework

In the period 2003-2006 there was a special legislation for PPP. This legislation has been replaced in 2006 by new public procurement laws implementing the European directives 2004/17/EC and 2004/18/EC. The present legislation does not contain any specific references to PPP. PPP arrangements are implemented using concession contracts for works or services.

The main relevant legislative texts are:

- Ordinance 34/2006 regarding the award of public procurement contracts, public works concession contracts and services concession contracts;
- Government decision 71/2007 on approving the application norms of the provisions referring to the award of the public works concession contracts and services concession contracts from the Governments' Emergency Ordinance no. 34/2006;
- Ordinance 54/2006, regulating domain concessions (these are issued by the Ministries of Finance and Justice and fall outside the scope of public procurement).

There are four awarding procedures corresponding to those in the European directives: open, restricted, competitive dialogue and negotiated.

Institutional framework

The National Company 'Maritime Ports Administration' SA Constantza fulfils the landlord port authority function in the port of Constantza. The port land and infrastructure are owned by the State and given in concession to the port authority. Until 2006 the port authority could not give the infrastructure in sub-concession to terminal operators. Instead the infrastructure was rented.

The rental agreements provided insufficient security to private operators. On the basis of these rental agreements they could not obtain external finance to invest in specialized terminal equipment, let alone infrastructure. BOT schemes could not be implemented.

To remedy this problem a law was adopted in 2006 enabling public port administrations to give public port infrastructure in sub-concession. However, apart from this provision there is no developed

contractual or legal framework for the granting of port concessions. Before the extra possibility created by the 2006 law can be used, such a framework needs to be established.

Experience with PPP in ports

The experience with PPP in Romania is limited and falls largely within period 2003-2006. No port projects are included

Port infrastructure is financed from public funds (state budget, port authority, Community funds) and external loans from international financial institutions. Only recently has a concession of works been considered as an option to finance new port infrastructure. The Master Plan and the Short Term Development Plan of the port of Constantza specify a number of projects that need to be built in the period up to 2020: Pier III S, Pier IV S, extension of the North breakwater, road links, a barge terminal and railway links. For the construction of Pier III S private financing through a concession of works is being considered. If successful the same formula would probably be applied to the construction of Pier IV S. The other projects of the Master Plan will be financed by the State or the port authority.

5.3 Ukraine

Legal/institutional framework

The legal status and functions of seaports are stipulated by The Merchant Shipping Code of Ukraine. Seaports are state-owned enterprises offering all types of port services for vessels, cargo and passengers. Private companies can be allowed to operate on the territory of the port.

The land and water areas within the territory of the seaport are state-owned (often through local authorities) and can not be alienated in any way. The seaport state enterprise has the right to use the land, but does not own it.

In principle there are several legal instruments available to set up a PPP for the building and operating of a terminal. In practice the dominant form of public/private cooperation is the Joint Activity (JA).

Joint Activity
JA is a cooperation model provided by Ukrainian civil and tax law. It involves the creation of joint venture between several enterprises on a contractual basis, i.e. without the establishment of a new, separate legal entity. The JA agreement determines the distribution of responsibilities and operational activities between the partners and how profits are shared. Although the JA is not a separate legal entity, it has its own bookkeeping accounts and is registered as a separate tax payer for income taxes and VAT. The administration of the JA is entrusted to the managing partner of the JA. In the context of PPP in ports the JA is set up between a state port operator and a private terminal operator. The port operator provides the berths and may also perform quay operations. The terminal operator is responsible for cargo handling away from the quay, and depending on the agreement possibly also on the quay.

The drawback of the JA model is the profit sharing mechanism. It gives the partners insufficient incentives to maximise efficiency and may create conflicts between the partners.

Establishment of joint enterprise
State enterprises can not found companies or organisations of any kind. A joint enterprise would have te be set up by the State Property Fund with the approval of the Ministry of Transport. This makes the scheme unattractive to the state port operator.

Private terminal
In case of greenfield investments it is possible that a private company receives an allocation of land (for instance adjacent to the existing port territory) to construct a terminal. The project will need to obtain

planning approval from local authorities (in accordance with standard procedure, including public hearings). The company will have to make arrangements with the port state enterprise for land connection and maritime access. The investor becomes owner of the land, except for the waterfront area, which by law can not be privately owned.

Concessions

The Law on concessions of 1999 provides this instrument. However, concessions are only possible for items included on a list established by the cabinet of Ministers. At this moment no seaports or parts of seaports are included in this list. However, in principle they could be added to the list by a decision of the Cabinet.

The granting of concessions follows a standard procedure.

- The Cabinet of Ministers designates an awarding authority. In case of seaport infrastructure this would probably be the Ministry of Transport.
- The awarding authority prepares the terms of reference and announces the tender in the official newspaper.
- Candidates have 60 days to submit an offer.
- Offers are evaluated on the basis of financial standing, demonstrated operational capability and a number of criteria. The law is vague about the contents of these criteria. It only stipulates that the concession must be awarded to the candidate offering the most advantageous conditions. The criteria are defined by the awarding authority. In practice, they usually include the concession payment, investment commitments and employment commitments.
- The concession agreement is concluded with the State Property Fund. The agreement stipulates the rights and obligations of the concessionaire. Concession agreements can run from 10 to 50 years.

The land allocation is not covered by the concession agreement but is arranged by a separate lease agreement. In case the land is owned by the municipal government, then local approval is needed.

Improvements to the infrastructure made by the concessionaire become state property without compensation. However, if at the end of the concession period it has been decided to privatize the object, and if the improvements represent more than 25% of the value, then the concessionaire has the first right to buy the object (for a price of 100%, i.e. including the value of the improvements.

Concession is a very unusual practice in Ukraine. Currently less than ten items are on the list of concessions. As a result there are many discrepancies between the Law on concessions and the general Civil Code, which does not know the notion of concession.

Lease

It is not clear to what extent port infrastructure can be leased to terminal operators. Berths seem to be excluded. As soon as real estate is involved lease is anyways not attractive to the State port operator as it only receives 30% of the lease payment (the remainder accruing to the State Property Fund).

Experience with PPP in ports

In the ports of Odessa and Illiychevsk (and other Ukrainian ports) several terminals are operated under JA agreements. The model has also been used for the construction of the new container terminal in Illiychevsk with considerable investments by the terminal operator.

For the operation of the container terminal in Odessa a different cooperation model was chosen in order to avoid the drawbacks of JA. It is based on a number of contracts between the terminal operator and the port authority. The main contracts are:

- service contract for the cargo operations;
- several contracts for the lease of individual assets (warehouses, cranes,…).

Finally there are also some private terminals. They often rely on the state port authority for quayside handling services, which are supplied on arm's length basis.

5.4 Turkey

Legal/institutional framework

BOT

There is specific law governing BOT schemes. Law no 3996 on the Grant of Works and Services under the Build Operate Transfer Model (1994) is applicable for the construction and operation of the seaports and related works.

According to the Law No 3996 and the Cabinet of Ministers Decision No: 94/5907 on the Application of the Law No 399611, the relevant state administration which demands the construction work shall apply to the State Planning Committee for approval. Upon the approval of the State Planning Committee, the Administration shall appoint the private operator through one of the following tender procedures: sealed bid, sealed bid among designated bidders or negotiation.

Following the tendering process and the approval of the State Planning Committee, the BOT contract is executed between the Administration and the selected company. The contract shall be subject to private law. The parties may agree to refer their disputes in relation to the contract to arbitration. The term of the contract cannot exceed 49 years. The private operator finances the construction, operates the terminal during the term of the contract and transfers the terminal to the administration free from any defects and encumbrances. The private operator pays a concession fee to the administration which is escalated at a constant annual rate.

Privatisation

The most important ports are or were owned and operated by the state through two state economic enterprises: the Turkish Maritime Administration (TDI) and Turkish republic State Railways (TCDD). Under the privatisation policy all of these ports will be privatised. Since coastal land, including ports, can not be privately owned, the privatisation of ports is realised through lease or a transfer of management rights (Article 15 of the Law on Privatization Applications). The duration of the lease or transfer of management rights cannot exceed 49 years.

The procedure for the privatisation is as follows.

1. The port must be put on the privatization portfolio by a decision of the Privatization High Council (PHC) whereby the methodology and timing of the privatization procedures are stipulated. The decision of the PHC is carried out by the Privatization Administration ("PA").
2. The PA sets up a value assessment commission to carry out a value assessment.
3. A tender commission is set up for each tender in accordance with the provisions out in Law No. 4046. The Commission may decide to employ one of the following tender methods: sealed bid, negotiation, public auction, sealed bid among designated bidders.
4. A pre-notification and final notification to the Competition Authority may be required depending on the market share of the entity to be privatized and the acquiring parties.
5. After the tender process, the results of the tender are submitted to PHC for approval. The decision is published at the Official Gazette.
6. The Transfer of Operation Rights or Lease Agreement is executed between the PA and the selected operating company.
7. The decision of the PHC is subject to the jurisdiction of Administrative Courts.

Experience with PPP

All Turkish ports covered by this study (Hopa, Samsun, Derince) have been privatised with a transfer of management rights, or will be in the near future. Once the port has been privatised, the private investor becomes fully responsible for the development and operation of the port infrastructure. While the privatisation can be considered as a form of PPP, it excludes any future PPP schemes for the duration of the transfer of management rights.

For the construction of new port facilities the Turkish government prefers the BOT model. However, so far all BOT schemes have involved relatively small projects (marinas and piers). There is no market appetite for large scale BOT port infrastructure projects. One of the reasons frequently cited is the maximum duration of the concession of 49 years, which may not be sufficient to recover investment costs. However, another important reason is surely the demand risk, which is much larger for new facilities than for existing ports.

To make BOT more attractive to investors amendments to the "Law on Grant of Works and Services under the Build Operate Transfer Model" have recently been submitted to the Turkish Grand National Assembly.[12] The amendments include the possibility for the Administration to make financial contribution in the form of fee payments to the private operator. This increases the application field of BOT to the construction of basic port infrastructure, which does not directly generate user revenues.

5.5 Georgia

Legal framework

Georgia has no specific concession, BOT or port laws. The concession agreements for the ports of Batumi and Poti have been drafted especially for that purpose.

Institutional framework

The ports of Batumi and Poti have been privatised by a transfer of management rights for 49 years. The private operators were selected on the basis of the price they offered for the concession and their investment plans.

After the privatisation the government does not interfere in any way in the financing, operation and administration of the port. Safety and security issues are handled by regulation and monitored by local representatives of the Ports and Maritime Administration.

Experience with PPP in ports

The privatisation of the ports of Batumi and Poti can be regarded as a form of PPP. However, since the development of the port infrastructure becomes a purely private responsibility, it excludes any future PPP schemes for the duration of the transfer of management rights.

[12] Draft Bill on Amendments to the Law on Grant of Works and Services under the Build Operate Transfer Model dated 04/12/2007.

Annex A Background information 4P framework

A.1 Definition of PPP

At the risk of stating the obvious we will nevertheless start this report with a definition of PPP. Many definitions of PPP can be found in the literature. They are all different, though also very similar. For the purpose of good understanding by the reader of this report we want to be clear about the definition we will use.

We have taken our general definition of PPP from the Green Paper on PPP published by the European Commission in 2005. The Green Paper has no ambition to establish an official definition of PPP, but observes that the term "in general … refers to forms of cooperation between public authorities and the world of business which aim to ensure the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service."[13]

The Green Paper goes on to identify a number of distinctive characteristics of PPPs.

- joint development whereby the role of the public partner mainly consists of defining the objectives of the project (in terms of price and quality of services to be delivered and conditions to be met), while the private partner focuses on achieving these objectives in the most efficient way;
- sharing of project risks between the public and private partners in accordance with their respective abilities to control these risks;
- relatively long duration of the relationship, which encompasses different project stages (design, construction, operation);
- participation of private partner in the funding of the project.

Almost every action of public authorities involves some interaction with private companies. However, the mere existence of interaction does not imply that there is a public-private partnership. The following frequently occurring relationships between public and private entities each lack several characteristics listed in the above definition and can therefore not be regarded as PPP:

- purchase of goods and services from private suppliers on spot markets (no risk-sharing, no duration, no private finance, no joint development);
- arm's length contracts with private suppliers, such as outsourcing contracts (very limited risk sharing and joint development, no private finance);
- regulation of private companies (no risk-sharing, no joint development, no private finance).

PPP is not a new, separate legal instrument. It is a mechanism for the procurement and delivery of public infrastructure and services. PPP is implemented using various existing legal instruments as needed, for instance standard public works contracts, concession agreements, the establishment of a corporation with mixed public and private shareholders and contracts governed by civil and commercial law.

A.2 Types of PPP in port infrastructure

There is a wide spectrum of procurement and delivery models, ranging from the public model to full privatisation. Between these two extreme options there is a variety of delivery models, each characterised by a different mix of public and private responsibilities.

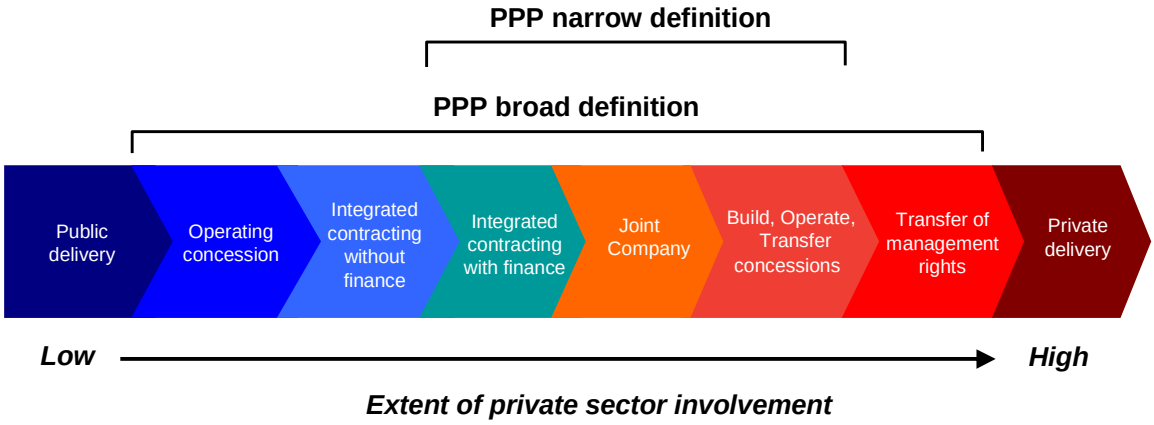
At a conceptual level (i.e. abstracting from specific contractual forms) the delivery models can be characterised along three dimensions:

[13] European Commission. ***Green Paper on public-private partnerships and community law on public contracts and concessions.*** COM(2004) 327 final.

- the extent of private sector involvement in the different delivery stages (financing, concept, engineering, construction, operation, …);
- the degree of integration of different delivery phases;
- the identity of the payer for the infrastructure services: a public sector agency or the (private) end-users of the infrastructure.

On the basis of these dimensions we distinguish eight delivery models. In Figure 5 they are ranked according to the extent of private involvement, starting with the public option on the left to the full private option on the right. All intermediate models can be considered as different forms of PPP. However the name “PPP” is often reserved for a smaller subset of options involving private finance and operations in joint companies or concession formulas.

Figure 5: Range of delivery/procurement models for public infrastructure (including port infrastructure)



The delivery models in Figure 5 apply to all types of public infrastructure, including port infrastructure. In the following paragraphs the models are described in more detail from the perspective of investments in port infrastructure.

Public delivery

The key characteristic of this model is that the public sector assumes responsibility for all stages of the delivery of the port infrastructure: concept (i.e. determining the port infrastructure requirements and defining a port infrastructure programme), design, construction, maintenance and operation. The fact that the public sector is responsible does not imply however that it performs all the activities in the delivery process. The design and construction of the infrastructure are always outsourced to specialised private firms (engineering firms, dredging firms and building contractors). Maintenance and operations are usually carried out by the public sector but may also be partially or wholly outsourced. However, even when operating activities are outsourced, the public port authority retains the responsibility for transacting with the end-users of the port facility. The private operator does not offer its services to the end-user but to the public port authority.

There are two options with respect to pricing of the port infrastructure. In the first option the public port authority makes the port facility available to users free of charge. The costs of the port authority are covered by grants and subsidies from national or local governments. In the second option the public port authority charges port dues to the users of the port infrastructure. If a full cost-recovery pricing policy is pursued, then the level of port dues is set to cover recurring costs (maintenance and operation) and capital costs (depreciation and interest costs). Combinations of partial cost-recovery and public subsidies are also observed.

The contract forms used in the public delivery model are public works and services contracts. With traditional procurement the design and construction of the facility is divided among several public procurement contracts. In the concept phase several consulting firms are hired to perform technical, environmental and economic feasibility studies. Next an engineering firm is contracted to design the facility and draw up detailed terms of reference for the construction (bill of quantities). The works are parcelled into distinct parts (dredging, construction of quay walls, building of access roads,…) and put up for separate tenders.

A more innovative procurement approach involves the integration of design and construction in a single Design and Build (DB) contract. DB contracts share a few of the features of PPP arrangements: output-based contracting and transfer of construction risk from public to private sector optimization. However, the public sector remains ultimately responsible for delivering the infrastructure to the end-user. Therefore DB contracts are generally considered as a variant of traditional procurement rather than as a type of PPP. But some of the advantages and disadvantages of PPP that will be described below also apply to DB.

For the same reason Design, Build, Finance, Transfer (DBFT) contracts and financial leases are not included among the PPP options. Although the infrastructure is privately financed in these schemes, the private sector is not involved in the service delivery.

The public delivery model is commonly used by public port authorities all over the world for the construction of the infrastructure under their management.

Operating concession

The public sector finances and constructs the port infrastructure through traditional procurement (outsourcing the actual design and construction activities as described in the preceding paragraph). The infrastructure is then leased or given in concession to a private operator for a specified period. The operator invests in superstructure and equipment and operates the facility on a commercial basis, selling the infrastructure services directly to the end-user. In return for the concession rights the operator pays a concession fee to the public sector, which remains owner of the facility. Depending on the contractual agreements the concession payment takes the form of a one-time sum, periodic fixed payments or a variable payment in function of the level of use. The public sector may also impose operational requirements on the concessionaire in the concession agreement. In this way the public sector can ensure that public interests are safeguarded. At the end of the concession period the assets are returned to the public owner, which will usually launch a tendering procedure to select a concessionaire for the next concession period. The length of the concession period depends among other on the size of the investment in superstructure and equipment and the bargaining power of the contract parties. It varies from 10 years for a small general cargo terminal to 40 years for large container terminals.

The key feature of this delivery model is that the public sector finances and builds the infrastructure in a traditional way, while the private sector operates it on a commercial basis. In contrast to the public delivery model the private operator sells its services directly to the end-users. Consequently, this model excludes that infrastructure is made available free of charge. It is possible that the infrastructure is provided at a price below full cost. This will be the case if the concession fee paid to the public port authority is insufficient to cover the capital costs (depreciation and interest). If the public sector is in addition prepared and permitted to subsidize the operator (i.e. the concession fee is negative) it is even possible to provide the infrastructure at a price below operational costs.

We consider this delivery model as a type of PPP because the private sector finances the investment in superstructure and equipment, and is responsible for the delivery of the infrastructure services to the end-user. Some authors reserve the name PPP for arrangements involving private financing of the infrastructure. The operating concession falls outside this more restricted definition of PPP.

This delivery model is widely used in the port sector for the provision of cargo-handling infrastructure (berths, jetties, docks). For instance the new container terminals in the ports of Varna and Bourgas will be financed, built and operated following this model.

Integrated contracting without finance

As in the public delivery model the public sector finances and owns the port infrastructure. However, instead of outsourcing engineering, construction and maintenance/operations with separate contracts, these services are procured with a single integrated contract: a Design, Build, Maintenance (DBM) or a Design, Build, Operate (DBO) contract. The contractor (usually a consortium of specialised firms covering the required expertise) is required to design and build an infrastructure meeting the functional specifications of the responsible public sector agency, and to maintain/operate it afterwards for a specified period. The integration of construction and maintenance/operation makes one contractor responsible for the whole life-cycle of the project.

The contractor does not sell its services directly to the end-user of the port infrastructure, but to the public port authority (or an other competent public agency). At the acceptance of the infrastructure, the contractor is paid in full for the construction costs (so it does not finance the infrastructure). During the maintenance/operation period it receives a price for the performance of agreed maintenance and operating activities.

The public port authority transacts with the end-users of the facility. As in the public delivery model the port authority can choose to provide the infrastructure free of charge, at a price equal to full cost or at a price between zero and full cost.

Since the private contractor does not contribute to the financing of the infrastructure, integrated contracting without finance does not fall within a strict definition of PPP. We employ a broader definition and include this model in the range of PPP arrangements because the private sector plays an important role in the delivery of the service to the end-user.

A recent example of this model is the construction of Maasvlakte 2 in Rotterdam (extension of port area on land reclaimed from the North Sea). The construction has been procured through a design and build contract, but also includes maintenance and repair elements. The contractor is responsible for maintenance of the seawalls for the first five years after delivery. In addition, the contractor must repair the damages of smaller storms (frequency less than once every 50 years). The damage risk of larger storms is borne by the port authority.

Integrated contracting with finance

As above, but the integrated contract now also includes partial or full private financing of the port infrastructure. Hence, the private contractor finances, designs, constructs, maintains and often also operates the infrastructure (DBFM or DBFMO), all according to the specifications of the public port authority (or other competent agency). The private contractor does not directly sell its services to the end user of the infrastructure. Its client is the public port authority. It is paid by the public sector in the form of availability fees (payment in function of the availability of the infrastructure) or shadow tolls (fee per user, but paid by the public sector instead of the user) for the duration of the contract only starting after the acceptance of the infrastructure. The revenues from these fees are used to cover costs and earn a return on investment.

The port authority retains the commercial contacts with the port users. It can choose to provide the infrastructure free of charge, at a price equal to full cost or at a price between zero and full cost.

DBFM(O) is a type of PPP even according to the most narrow definition. The public sector concentrates on specifying the infrastructure services that are needed, and the private sector carries out all stages of the delivery process. DBFM(O) contracts are widely used for the delivery of public buildings (hospitals,

schools, prisons) and land infrastructure (roads, railroads). In principle they are also suitable for port infrastructure. However, we have not been able to find examples. Private finance of port infrastructure is usually arranged through a BOT concession (discussed below).

Joint company

Port facilities are managed by a mixed public/private joint enterprise. This joint enterprise is responsible for all stages of the delivery process: finance, design, construction, maintenance and operation. Part of the actual activities (notably design and construction) may be outsourced. The joint enterprise sells the infrastructure services directly to the end-users on a commercial basis.

Usually the joint venture is an incorporated company with public and private shareholders, but depending on the legal framework of the country involved other legal forms may be possible.

This model is not commonly used in the port sector, but there are a few examples in the Black Sea region. Some terminals in Ukrainian ports are operated by joint public/private ventures. The port of Poti has become a service port with mixed shareholders after the sale of 51% of the shares owned by the Georgian state to an outside investor. Since the outside investor is itself a state-owned company, this is strictly not an example of a public/private joint enterprise. However, the outside investor is owned by a foreign state and acts within the Republic of Georgia as a private company.

Build, Operate, Transfer (BOT) concession[14]

A private contractor finances and builds port infrastructure on publicly-owned land and maintains and operates it for a specified period (20-30 years and more) on a commercial basis. In return for the concession the private contractor pays a concession fee (one-time lump sum, periodic fixed payments or use-dependent payments). In addition the public sector may impose operational requirements on the concessionaire in the concession agreement in order to safeguard public interests. At the expiry of the concession the assets are transferred to the public sector.

This delivery model resembles integrated contracting with finance, but differs from the latter in one essential respect: the private concession holder sells its services directly to the end-user of the port infrastructure and assumes the commercial risk. It is not paid by the public port authority. In contrast, it pays a concession fee to the public port authority.

BOT concessions also differ from operating concessions in the fact that the latter do not involve private finance and construction of port infrastructure, but only operations (including investments in superstructure and equipment).

There are a number of variants of the BOT concession:

- BOOT (Build, Own, Operate and Transfer). The concessionaire obtains ownership of the land as well as the infrastructure during the concession period. At the end of the concession period the ownership rights are returned to the public sector at an agreed price. A BOOT arrangement offers more collateral to the concessionaire.
- BTO (Build, Transfer, Operate). The ownership of infrastructure is transferred immediately after the construction to the public sector. In contrast with a BOOT contract a BTO arrangement reduces the asset basis of the concessionaire that can be used for collateral. In a BTO scheme the only collateral is the concession contract itself.

[14] In this report we have defined the terms DBFMO, BOT and concession in a consistent way on the basis of a few essential contract features, in particular the identity of client of the private contractor (public sector agency or private end-users). Notice that in the literature other and sometimes mutually contradictory definitions of these contract types can be found.

- BLT (Build, Lease, Transfer). A private sponsor builds a new infrastructural facility at its own risk, transfers ownership to the public sector, leases the facility from the public sector and operates it one for-profit basis up to the expiry of the lease.
- ROT (Rehabilitate, Operate, Transfer): A private sponsor rehabilitates and expands an existing facility, then operates and maintains the facility at its own risk for the contract period.

BOT concessions (and variants) are widely used for the construction or rehabilitation of infrastructure, including port infrastructure. The model requires that the underlying assets directly generate user revenues. It is therefore more suitable for cargo handling infrastructure than for individual items of basic infrastructure (such as a breakwater). For instance several large container terminals in India (Vallarpadam, Tuticorin) have been developed with BOT contracts. For the development of the new port of Fylios in Turkey a BOT concession is considered. But since this project involves the construction and management of an entire port rather than a single facility, the delivery model resembles more a transfer of management rights (see next).

Transfer of management rights

A BOT concession as described above relates to a single construction project and a single infrastructure item. A concession of management rights covers the entire port and multiple construction moments. The concessionaire acquires the right to manage and operate an existing port during a certain period (30-50 years) on a for-profit basis. In return it pays a concession fee (one-time lump sum, periodic fixed payments, payments per cargo unit or revenue sharing). During the concession period the concessionaire is responsible for financing the expansion and renovation of the port infrastructure. At the end of the concession period all assets are returned to the public sector (which may conclude a new concession agreement with the same or another operator).

A transfer of management rights amounts to a quasi privatisation of the port during the concession period. The concession agreement usually specifies infrastructure investments that need to be undertaken by the concession holder within a certain time frame. Beyond these commitments the private concession holder is free to develop the port in function of the market opportunities it perceives. It therefore takes over a large part of the concept stage of the delivery process (i.e. determining the port infrastructure requirements and defining a port infrastructure programme), which in a BOT concession model remains largely public.

The instrument of the transfer of management rights has been used in Turkey and Georgia for the privatisation of ports. The ports of Hopa, Derince and Batumi have already been privatised in this way.[15] The decision to privatise the port of Sasmun has been taken, but the preparations are still ongoing.

Privatisation

Port infrastructure is sold to a private company, which subsequently develops and operates it on a commercial basis. The sale can be made subject to commitments by the buyer to undertake specific investments in the renovation, upgrade or expansion of the basic port infrastructure. The public sector loses, however, its influence on the further development of the port beyond the investments specified in the sales agreement.

In the case of an investment in new infrastructure a Build, Own, Operate contract is used. A private contractor builds a new facility at its own risk, then owns and operates the facility at its own risk.

Notice that the public sector can capture most of the effects from port privatisation through a concession of management rights, without the need to abandon ownership of the port land and as a result any future ability to pursue a port development policy. Therefore full privatisation is only rarely observed in multi-

[15] The ports of Hopa and Batumi are already under private management. For the port of Derince a private manger has been selected in a bidding competition, but the actual transfer of management has not yet taken place.

purpose ports (with the main exception of the United Kingdom and New Zealand). Most fully private ports belong to oil, mining or industrial companies and serve only internal requirements.

The key characteristics of the delivery models are summarised in Table 5.

Table 5: Characteristics of delivery/procurement models for port infrastructure (and other public infrastructure)

	Public delivery	Operating concession	Integrated contracting without finance	Integrated contracting with finance	Joint Company	Build, Operate, Transfer concession	Transfer of management rights	Private delivery
Contract types	Works and services contracts	Lease, concession	DBM, DBMO	DBFM, DBFMO	Corporation, joint venture agreement	BOT, BOOT, BTO, BLT, ROT,…	Concession	Sale, BOO
Time horizon	Short	10-15 yrs, up to 40	10-15 yrs	10-30 yrs	In perpetuity or fixed duration	20-30 yrs	30-50 yrs	In perpetuity
Own	Public	Public	Public	Public	Public/private	Private→Public	Public	Private
Delivery phase*								
Concepte	Public	Public	Public	Public	Public/private	Public	Public Private	Private
Design	Public	Public	Private	Private	Public/private	Private	Private	Private
Build	Public	Public	Private	Private	Public/private	Private	Private	Private
Maintain/Operate	Public	Private	Private	Private	Public/private	Private	Private	Private
Finance	Public	Public	Public	Private	Public/private	Private	Private	Private
Client	Public or private	Private	Public	Public	Private	Private	Private	Private

**** The table entries show the responsible party for each delivery phase: public authority or private contractor. The responsible party may outsource the actual activities to specialised subcontractors. For instance, designing and building are always outsourced to engineering firms and building contractors. Also maintenance and operating sources may be partly or wholly outsourced.***

A.3 PPP and port management models

The delivery of port infrastructure and the management of ports are closely related. The involvement of private parties in the provision of port infrastructure through PPPs is one of the ways to reform port management. In addition some delivery and management models are not compatible.

Management models of World Bank Port Reform Tool Kit

The best known typology of port management models has been published in the World Bank Port Reform Tool Kit and is reproduced in Table 6. The management models of the Port Reform Toolkit are mainly characterised by the public/private mix of the ownership of infrastructure and superstructure/equipment. In principle many combinations are possible but in practice four main models can be distinguished. Ranked from high to low public involvement, they are:

- public service port;
- tool port;
- landlord port;
- private service port.

Table 6: Types of port management models in World Bank Port Reform Tool Kit

Management model	Infrastructure	Superstructure	Port labour	Other functions
Public service port	Public	Public	Public	Majority public
Tool port	Public	Public	***Private***	Public/private
Landlord port	Public	***Private***	***Private***	Public/private
Private service port	***Private***	***Private***	***Private***	Majority private

Source: World Bank Port Reform Tool Kit (http://www.ppiaf.org/documents/toolkits/Portoolkit/toolkit.html)

In the **public service port** model a public port authority owns and operates all port assets (land, infrastructure, superstructure, handling equipment) and performs all port functions (pilotage and towage, cargo handling, regulatory functions,…). All port activities are carried out by labour employed by the port authority.

In the **tool port** model the public port authority also owns and operates all port assets (land, infrastructure, superstructure, handling equipment) and performs all port functions (pilotage and towage, cargo handling, regulatory functions,…). However, the cargo-handling activities are divided between the port authority and private cargo-handling firms. The port authority operates the handling equipment (cranes, forklifts) and rents equipment services to private cargo-handling companies. The latter are contracted by shipping agents and perform the other handling activities (i.e. except operating equipment) on-board the vessels, on the apron and on the quay.

In the **landlord port** model a public port authority owns the land and infrastructure. The infrastructure is leased to private cargo-handling companies. The latter own and operate the superstructure and equipment and carry out all handling activities. The landlord port authority performs the regulatory functions.

In the **private service port** model all port assets (land, infrastructure, superstructure, handling equipment) are owned and operated by a private port authority. The latter also performs most of the regulatory functions.

Each model has specific strengths and weaknesses.

The integration of functions under a unified command in the **public service port** model could in theory achieve high efficiency. In practice most public service ports show low levels of inefficiency due to various reasons. Public entities lack the drive to be user-oriented and cost-efficient. Political interference may further impede efficient operations. The timing and size of investments is more determined by the state of the budget than by market demand, generally resulting in under-investment.

The **tool port** model emerged in response to the inability of small cargo-handling companies to invest in superstructure and handling equipment. The public port authority undertook the required investments, so that the port could modernize and expand unimpeded by the small investment capacity of the private sector. However, the split operation of cargo-handling is a source of conflicts of interest and inefficiencies. The model worked satisfactorily as long as handling equipment was relatively simple and generic. Today well-designed and efficiently operated superstructure and equipment are an important source of competitive advantage for cargo-handling companies. To exploit these competitive advantages they must own and operate the equipment. While the tool port provided a solution to small cargo-handling companies, it prevented these companies from expanding into strong, international port terminal operators.

The **landlord port** model strikes according to many authors the right balance between public and private responsibilities. Most port operations are performed by private companies, ensuring a high level of efficiency and user-orientation. However the public sector keeps its regulatory and infrastructure development role, allowing the safeguarding of public interests. A weakness of landlord ports is a

tendency to over-invest leading to excess capacity. The demands of private terminal operators for additional capacity often show overlap because several companies chase the same demand. The landlord port model is the dominant governance structure observed in large ports worldwide.

The **private service port** model enables maximal operational efficiency and market-orientedness. However, there are also some important weaknesses. They are all related to the fact that the pubic sector has little or no stake in the ports. The government loses the ability to pursue its own port development policy. The private port operator may even decide to convert or sell the port area for the development of non-port functions. The relinquishing of regulatory functions to the private port operator creates significant risks of abuse of market power and of regulatory slackness with regard to safety and environment. Since the private operator does not take into account wider economic benefits of port development, but only shareholder value, there is also a risk of under-investment from a societal point of view.

The strengths and weaknesses of the four port governance models are summarised in Table 7.

Table 7: Strengths and weaknesses of World Bank port management models

Management model	Strengths	Weaknesses
Public service port	Unity of command	Not user/market-oriented Lack of internal competition, resulting in inefficiency Risk of under-investment as a result of dependence on government budget Risk of waste and inefficiency as a result of government interference
Tool port	Lower entry barriers for cargo-handling companies (since they do not have to invest in superstructure and equipment)	Split cargo-handling operations, resulting in conflicts of interest Risk of under-investment as a result of dependence on government budget Private operators stay small and do not develop into strong firms
Landlord port	User/market oriented, while maintaining public role in regulation and port development	Risk of excess investments
Private service port	Maximal user/market-orientedness	Government loses ability to implement port development policy Privatization of regulatory powers may lead to regulatory slackness and cause harm to public interests (competition, safety, environment) Risk for under-investment

Source: Adapted from World Bank Port Reform Tool Kit (summarised and slightly altered)

Management models of the ports covered by this project

The management structures of the ports covered by this project do not fall neatly into the models listed in Table 6. Most ports exhibit a more complex mix of public and private sector roles and responsibilities. The typology in Table 6 (or alternative typologies such as in Baird 1995 and 1999) is not meant to encompass all possibilities but should be considered as a guide to the main options for port management. It allows identifying the main characteristics of the management structure of the ports covered by this project.

The governance structure of the port of Constanta in **Romania** fits relatively well into the landlord port model, with the NC Maritime Ports Administration SA Constanta acting as landlord port authority. The cargo handling is performed by a large number of mostly private terminal operators.

The ports in **Bulgaria** (Varna and Burgas) can also be considered to adhere to the landlord model. Port land and infrastructure are managed by the Bulgarian Ports Infrastructure Company. Most of the cargo handling is carried out in each port by one state-owned operator. However, some terminals are operated by private concession holders.

The management structure of ports in the **Ukraine** (Odessa and Illiychevsk) is closest to a public service port. Port land and infrastructure are managed (although not strictly owned) by a public port authority, which also carries out vessel- and cargo-handling operations. However, in these ports there are also some privately built and operated terminals on publicly owned land.

In **Turkey** the port of Hopa has been privatised. For Derince a private port manager has already been selected, but the actual transition has not yet taken place. In Samsun the privatisation procedure is ongoing. The privatisations have been achieved through a concession of management rights. This involves the transfer of the right to operate a circumscribed port area during a certain period (in this case 36 years) to a private company. The private company acquires the right to carry out all land management and operational activities. It is responsible for maintaining and developing the general port infrastructure. It also performs some regulatory functions and becomes in fact a private port authority. The landownership, however, stays with the government. In return for the management and operating rights the private port manager/authority pays a concession fee to the government.

Since some regulatory powers and the ownership of the port land remain public, a concession of management rights resembles the landlord port model, and will often be categorised as such. However, it is crucially different from the landlord port model because apart from the landownership all landlord functions are transferred to the private port manager/authority. A concession of management rights therefore fits more closely the model of the private service port (in case the private port manager/authority also performs all operating activities) or the private landlord port (in case the private port manager/authority chooses not to operate all terminals in the port but leases some or all terminals to cargo-handling firms).[16] Compared to full privatisation (i.e. including ownership) the government retains nevertheless a stronger influence on long-term port development, albeit not as strong as in the public landlord model. The government can impose conditions in the concession agreement, for instance the obligation to carry out certain investments or the restriction of the use of the port area to port-related activities. An at the end of the concession period all assets return to the public sector, including the investments made by the private port manager/authority during the concession period.

The port of Batumi in **Georgia** has been privatised through a concession of management rights (49 years) and is currently run as a private service port. The port of Poti has been partially privatised through the sale of 51% of the shares of the state-owned port company to an outside investor. Poti has become a service port with mixed public/private ownership.

Relations between PPP and port management models

PPP is an alternative mechanism for the delivery of ***public*** infrastructure. Consequently it is not an available option for private ports or for ports that have been privatised through a transfer of management rights. A concession of management rights is itself a type of PPP, but once the transaction has taken place the delivery of port infrastructure becomes a purely private responsibility for the duration of the concession.

[16] The typology of the Port Reform Toolkit does not allow for private tool or landlord ports, but they can be easily imagined. If one abstracts from the public or private nature of the port authority, the port management models in Table 6 are characterised by the extent of the integration of assets and functions within the port authority. In a service port the port authority manages all port assets and carries out all port functions. In a landlord port it only manages the basic port infrastructure and the port land (including some regulatory functions), while the exploitation of terminals is entrusted to independent operators.

Public ports can regardless of their management model employ all types of PPP. However, some types of PPP will result in a change of their management structure. In this respect PPP can be used as an instrument to achieve port reform.

Consider first the perspective of **public service ports**. Integrated contracting without or with finance increases the role of the private sector in the provision of the port infrastructure, but does not fundamentally alter the management structure. The public sector remains responsible for defining the services that need to be delivered and for transacting with the end-users. The outsourcing of activities to a private contractor allows making use of the greater efficiency and management skills of specialised private firms, while keeping ultimate control of the delivery process in the hands of the public port authority. The private contractor offers its services to the public port authority and is paid by the latter.

Concession formulas (operating concession or BOT concession), on the other hand, not only increase the role of private sector in the provision of port infrastructure, but also give the private contractor the right to sell services directly to the end-user. This fact represents a fundamental change of the management model. The port can no longer be considered a public service port. Operating and BOT concessions are usually conferred for cargo-handling infrastructure (terminals). The port becomes then a public landlord port (at least with respect to the terminals that are given in concession).

The conversion of the port authority to a mixed public/private company does not change the scope of its activities: it remains a service port. However it is no longer a public service port, but a public/private one. A transfer of management rights or privatisation has a similar impact: they convert the public service port into a private one, respectively for the duration of the concession or permanently.

Consider next **public tool ports**. As in public service ports integrated contracting increases the role of the private sector in the provision of the port infrastructure without fundamentally altering the management structure. The potential scope of the integrated contracts is smaller than in the case of service ports. Some cargo-handling activities are excluded because they are already performed by private operators.

Concession formulas (operating concession or BOT concession) change the management structure of public tool ports. Private contractors take on responsibility for the management (and in BOT schemes also the financing) of terminals, as well as for investing in superstructure and equipment. Hence the port becomes a public landlord port.

A conversion of the port authority to a mixed public/private company, a transfer of management rights or a privatisation preserves in first instance the organisation model of the tool port, but reduces or eliminates its public character.

Finally we look at the impact of PPP on **public landlord ports**. As in public service and tool ports integrated contracting increases the role of the private sector in the provision of the port infrastructure without fundamentally altering the management structure. The potential scope of the integrated contracts is further reduced compared to tool ports. The operation of terminals (including investments in superstructure and equipment) is already performed by private companies.

The use of operating concessions corresponds to the normal practice of public landlord ports. In case of a BOT concession the private terminal operator also finances, builds and maintains the terminal infrastructure, which in landlord ports is done by the port authority. However, this does not significantly change the management structure. The port authority remains responsible for the management and the development of the port land.

A conversion of the port authority to a mixed public/private company, a transfer of management rights or a privatisation changes the ownership structure of the port. It remains a landlord port, but a public/private or private one instead of a public one.

The possible PPP options depending on the port management model are summarized in Table 8.

Table 8: Available PPP options in function of port management model

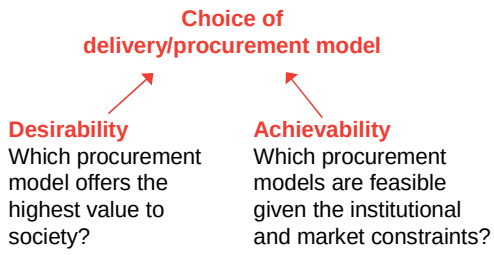
Port management model	Operating concession	Integrated contracting without finance	Integrated contracting with finance	Joint Company	Build, Operate, Transfer concession	Transfer of management rights	Full privatisation
Public service port	Yes with change management model	Yes	Yes	Yes with change management model	Yes with change management model	Yes with change management model	Yes with change management model
Public tool port	Yes with change management model	Yes	Yes	Yes with change management model	Yes with change management model	Yes with change management model	Yes with change management model
Public landlord port	Yes	Yes	Yes	Yes with change management model	Yes	Yes with change management model	Yes with change management model
Private port (or privatised with concession of management rights)	No	No	No	No	No	No	No

A.4 Choice of the best delivery model for port infrastructure

In the preceding paragraphs we have demonstrated that a wide variety of delivery/procurement models is available for the provision of port infrastructure, involving different degrees of private involvement. Moreover, many of these models have already been applied in the Black Sea Region. Consequently, the port policy maker can choose from different options in function of policy objectives and public interest considerations.

The selection of the optimal delivery and procurement model depends on two sets of factors: desirability and achievability.

Figure 6: Choice of delivery model



The desirability of the model relates to the costs and benefits of the model from the point of view of society. The question is which delivery model yields the best cost/quality combination.

The achievability of the model relates to its practical implementation. The benefits of the theoretically most desirable model will only materialize if the model is well implemented. This depends among other on the presence of the required skills in the public procurement agency and with the potential private partners, the legal and institutional framework, the availability of sufficiently developed capital markets,…

The determinants of the desirability and achievability of PPP are addressed in sections A.6 and A.8.

A.5 Why is government intervention in ports needed?

Before examining the determinants of the desirability of PPP we must first recall the public interest of ports. PPP involves the cooperation of the public and private sector in the provision of infrastructure or a public service. Consequently PPP appears only as an option if the public sector is involved in port operations. In fully private ports PPP is not relevant.

The classical economic analysis of government intervention is based on the concept of market failure. In principle goods and services are most efficiently produced by private enterprises operating in free

markets. Private enterprises have the strongest drive to be cost-efficient and market-oriented. However in some cases markets do not function properly. If such market failures occur then government intervention is economically desirable.

In standard economic textbooks a number of frequently occurring market failures are described. Most of these also apply to some degree to seaports, especially to basic seaport infrastructure (maritime access channels, breakwaters, vessel traffic management system).

Public good

"Public goods" is the technical term reserved for goods that satisfy at least one of two characteristics:

- non-rivalry of consumption: consumption (or use) of the good by one consumer (user) does not diminish the availability of the good to other consumers (or users).

- non-excludability of consumption: once the good is supplied, it is impossible or very difficult to prevent non-paying consumers (or users) from consuming (using) it.

A textbook example of a public good is a lighthouse marking the position of dangerous rocks on a shipping lane. The observation of the lighthouse signal by one ship does not make it less visible to other ships. It is not impossible but nevertheless rather difficult to prevent ships from using the lighthouse signal when they do not pay the light dues.

In the economically most efficient equilibrium, the price of a good must be equal to its marginal cost (i.e. the cost of producing one additional item). Non-rivalry in consumption implies that the optimal price of the good is equal to zero, as the marginal cost of serving one more customer also equals zero.[17] Non-excludability of consumption makes it impossible to charge a price higher than zero, as non-paying consumers (users) can not be prevented from consuming (using) the good.

A price of zero obviously does not allow a private producer to cover its costs, so that the public good will be underprovided or not provided at all. The public sector must intervene as provider or buyer of the good in order to elicit its supply.

Basic port infrastructure possesses public good characteristics. As long as the port is not congested, there is non-rivalry in its use. One extra vessel calling the port does not increase the costs of the general port infrastructure. The optimal price charged to the users should then be zero, preventing the seaport infrastructure provider from recovering its costs. Non-excludability of use is generally not a problem in the case of seaports. The port users can be easily identified and made to pay port dues.

The non-rivalry in use of basic port infrastructure points to the conclusion that the public sector should step in. It can either supply the general infrastructure services itself, or it can purchase them from a private supplier and make them available to users free of charge. However, the issue is more complex. The provision or purchase of the good by the public sector requires tax funds (even if initial investments are financed by a loan, this loan must eventually be paid back). Taxes also create inefficiencies in the economy, for instance by reducing labour supply or by discouraging entrepreneurship. The inefficiency of an increase in taxes to cover the costs of basic port infrastructure must be compared to the inefficiency of charging the costs to users (which is possible in this case because non-excludability does not pose a problem).

[17] The optimal price maximizes welfare for all members of society. The optimal price is not equal to the profit-maximizing price, which is not optimal from the point of view of society but only from the point of view of the producers. Generally, the optimal price will be lower than the profit-maximizing price.

High fixed costs and indivisibilities

Most of the costs of basic port infrastructure are fixed, i.e. they do not vary in function of the traffic volume. For instance, depreciation, interest charges and maintenance costs are all fixed once the infrastructure has been built.[18] Moreover, the provision of port infrastructure is characterised by indivisibilities. A port can not be constructed below a certain minimum size. Afterwards, capacity is added not continuously in function of rising demand but in large lumps.

The combined presence of high fixed costs and indivisibilities creates several difficulties for the provision of basic port infrastructure by private companies.

- As long as the port is not congested, the marginal cost (and hence optimal price) of serving one additional ship is almost zero. This has already been pointed out above in the paragraph on public goods. High fixed costs are in this case the cause of non-rivalry of use. Only when the port is congested the optimal price rises above zero (because it includes congestion charges), allowing a private port infrastructure provider to earn revenues and recover its costs. However, due to the presence of indivisibilities there are long periods in which capacity by far exceeds demand and no congestion occurs.

- Indivisibilities also increase the risk for an infrastructure provider. The minimally required investment is large and sunk (i.e. if demand turns out smaller than expected, the investment can not be undone and the funds invested elsewhere).

- As a result of high fixed costs and indivisibilities the provision of basic port infrastructure is a local natural monopoly. This means that the demand for port infrastructure services in a given region only leaves room for one or a few ports. However, the establishment of a monopoly or oligopoly opens the door for the abuse of market power in the form of charging prices above costs. This problem is mainly present in regions with only a few ports so that there is little or no inter-port competition. It is then important to have sufficient intra-port competition between several terminal operators. However, this poses the problem of who provides the shared basic port infrastructure.

The problems of high fixed costs and indivisibilities also arise in the case of investments in operational port infrastructure (e.g. terminals), but to a much smaller extent. Hence in many (but not all) ports there is room for several operators competing with each other.

Externalities

Externalities are effects on third parties outside the scope of the market. Since the costs or benefits of these effects are borne by third parties and carry no price, the enterprises causing these external effects do not take them into account when making investment decisions. This leads to outcomes that are economically inefficient from the point of view of society: investments of the wrong size (too large or too small) and/or of the wrong kind.

The construction and exploitation of port infrastructure generates several types of externalities, both negative and positive:

- disturbance or even destruction of wetlands and coastal habitats;
- pollution emitted by ships and hinterland transport;
- consequences of ship accidents;
- congestion on hinterland roads and railroads (or extra costs to expand the capacity of hinterland infrastructure to cope with increased port-related traffic without congestion);

[18] Before the construction of the infrastructure, its size and therefore cost can be chosen in function of the expected traffic volume. However, once the infrastructure has been built the costs are fixed regardless the number of ships calling the port.

- strengthening of the competitiveness of national industries depending on overseas imports or exports;
- attraction of investments in logistics and industry (growth pole effect).

Private port infrastructure providers, when guided solely by their own interests, take these externalities insufficiently into account. This results in port infrastructure that has a suboptimal capacity (i.e. too large or too small to obtain the best balance of costs and benefits to society), that is insufficiently coordinated with land use and transport infrastructure in the vicinity of the port, or that includes too few measures to prevent or mitigate the environmental and safety impacts. Some form of public sector intervention is needed to remedy these market failures.

State ownership of water areas

Ports extend both over land and water areas. In most countries private individuals or enterprises can not obtain full property rights to water areas. The state is the owner of the water areas in navigable rivers and in front of the coast. This means that the construction and operation of a port requires the cooperation and involvement of the public sector.

Forms of government intervention in ports

The previous paragraphs demonstrate that there are several reasons for the public sector to intervene in the provision of port infrastructure, especially basic port infrastructure (i.e. shared facilities such as maritime access, breakwaters,…). However, this does not imply that ports should be built, owned and operated by state or local authorities. There are less intrusive ways for ensuring the public interests in port development and operation, which leave a role for the private sector alongside the public sector.

For instance many of the market failures described above can be remedied through appropriate regulation. Regulation can ensure that private companies do no engage in anti-competitive practices and pay attention to safety and the environment, or at least that socially harmful actions are substantially reduced. The public sector must then focus on the implementation of an efficient regulatory and enforcement framework, while leaving most of the management and operation of the port to the private sector.

Nevertheless the analysis presented suggests that there is one important area where direct public intervention is often necessary: the provision of port infrastructure and especially basic port infrastructure. In many cases the provision of port infrastructure is not commercially viable, either because the traffic is too low and the risks too high (due to indivisibilities and sunk costs), or because it is socially optimal to make the infrastructure available to users at a low price below the full cost level (non-rivalry in use, promotion of growth pole effects). In those instances the public sector has to step in by financing and/or paying for the infrastructure.

A.6 Desirability of PPP in ports

A.6.1 Advantages and disadvantages of PPP

Figure 7 shows the main advantages and disadvantages of PPP compared to traditional procurement.

The advantages of PPP fall into two categories.

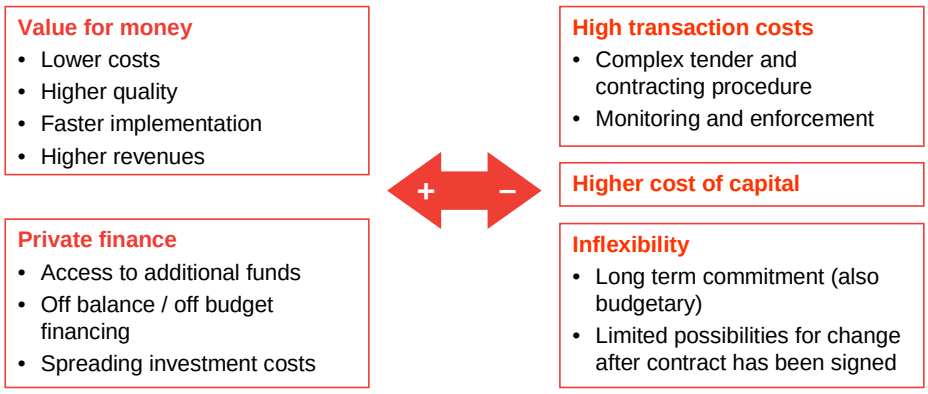
- The first category is grouped under the term “Value for Money”. Experience across the world has shown that PPP can supply public services with a better price to quality ratio than the traditional public delivery model.

- The second category of benefits of PPP derives from the use of private finance. Governments often lack the funds to make the investments that are required to provide public infrastructure and services, especially in areas with fast-growing needs. Using PPP gives access to private capital and allows accelerating the required investments so that needs are met in a more timely fashion.

The advantages of PPP must be weighted against the disadvantages. Three groups of disadvantages can be distinguished.

- First, PPP contracts entail higher transaction costs than traditional procurement. Due to the transfer of risks to the private sector and the long-term nature of PPP arrangements the contracts are much more complex. The preparation and negotiation of these contracts is very time-consuming and labour intensive.
- Secondly, the private sector generally faces higher borrowing costs than the government, so that PPP increases the cost of financing the infrastructure.
- The third disadvantage of PPP is inflexibility. All service requirements that the private partner must satisfy are specified in the contract. Once the contract has been signed the possibilities for altering these requirements are limited.

Figure 7: Advantages and disadvantages of PPP compared to traditional procurement



The different categories of advantages and disadvantages of PPP are discussed in more detail in the next paragraphs.

A.6.2 Value for Money

What is "Value for Money"?

Experience across the world has shown that PPP can contribute to achieving service delivery with a better price to quality ratio than traditional public service delivery through the use of private sector management skills and competencies. PPPs are able to:

- **increase supply of services**. Some governments have found it difficult to accelerate the development of infrastructure, even if funding was available. This is mainly caused by limited implementation capacity in national and local governments. Experience has shown that introducing PPP expands the implementation capacity.
- **increase efficiency**. Through better risk allocation, whole life costing and stronger incentives to perform, PPP can contribute to increasing cost efficiency of public infrastructure provision.
- **increase quality of service**. Experiences show that PPP contribute to increasing the quality of service. This may reflect the better integration of services with supporting assets, improved economies of scale and scope, introduction of innovation in service delivery, a higher responsiveness of the private sector to users' needs. The incentive regime incorporated in a PPP

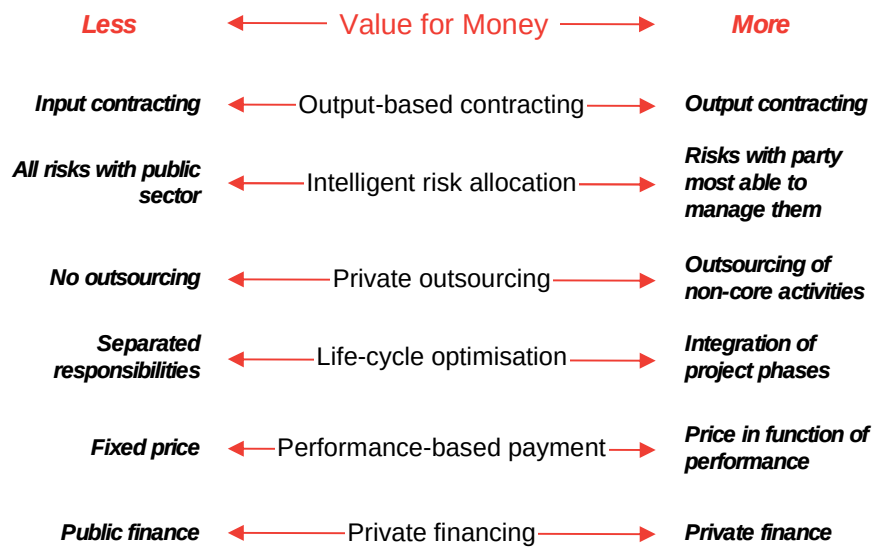
contract helps achieving these goals, since it introduces another important reason for the private sector to perform well.

- **increase speed of implementation**. Experience shows that delegating an integrated service provision responsibility to a private sector may increase the speed with which the services become available, due to the fact that a number of process steps in developing and procuring a projects are eliminated and due to the project development process being placed partially outside the bureaucratic process.
- **generating commercial value from public sector assets.** The private sector can assist in unlocking commercial value of public sector assets. The private sector's entrepreneurship or creativity will push it to exploit the full (commercial) potential of a project at hand; thus potentially optimizing the project's use for (or value to) the government and/or end-user. This may generate additional revenues that can be used to provide additional public services.

"Value for Money" drivers

Figure 8 shows an overview of the drivers behind the creation of "Value for Money". They are explained below the figure.

Figure 8: "Value for Money" drivers



A.6.2.1 Output-based contracting

Output-based contracting leaves room for the private sector to decide how to deliver the envisaged services. It enables the public sector to tap into the private sector's creativity to deliver the agreed public service at lower costs, or to provide better quality at the same cost to the user.

Project characteristics conducive to efficiency gains from output-based contracting

In order to reap the efficiency gains of output-based contracting, the project must offer sufficient scope for optimisation and creativity. If the project involves the construction of standard infrastructure in a standard physical setting, or if the design of the infrastructure has been largely fixed in environmental and planning permits then the scope for optimisation and creativity is small.

In the design and construction of port infrastructure the scope for optimisation is generally limited. The technologies are known.

In the operation of terminals (which we take to include designing the terminal layout and investments in superstructure and equipment) the room for optimisation is much larger. A clever terminal design tailored to the characteristics of the vessels, the cargo and the port land is a key source of competitive advantage for a terminal operator. A wide range of loading and unloading equipment is available to choose from, which increasingly incorporates automation software.

PPP models conducive to efficiency gains from output-based contracting

Integrated contracting without or with finance (DBM/O, DBFM/O) offer the largest possibilities for output-based contracting. In principle any service requirement can be included in the contract, leaving the responsibility for determining how to meet these requirements to the private sector. This explains why this type of PPP is used for the delivery of a wide range of services (transport infrastructure, utilities, school and hospital building, etc.).

Concession-based formulas (operating concession, BOT concession and transfer of management rights) also leave the choice on how to deliver the port services largely to the private sector. In contrast with integrated contracting, however, the public sector has limited freedom in specifying the output. The concession holder receives its revenues from the end-user, and operates the infrastructure on a commercial basis. The public sector can impose conditions in the concession agreement (for instance an indexed maximum price), but can not deviate from the commercial orientation of the service delivery. However, if a commercial exploitation of the service is desired then this restriction of poses no problem and concession-based formulas yield the right output. For port infrastructure this is usually the case.

Privatisation leaves little or no room for the public sector to determine output specifications. The infrastructure services are delivered on a purely commercial, profit-maximising basis. The influence of the government on the service delivery is limited to the conditions included in the sales agreement (but these have a limited duration) and to its regulatory powers.

A.6.2.2 Intelligent risk allocation

The basic principle is that risks should be held by those parties best able to manage them. For instance the building contractor has the strongest influence on the management of construction activities ensuring a delivery on time and within budget. Therefore the contractor should assume the construction risk and receive a financial penalty in case delivery is late or over budget. However, the risk of delays due to planning in approval or changes in the output specifications should be allocated to the public sector. Intelligent risk allocation, based on the principle that the party best able to manage a risk should indeed bear it, reduces the costs of delivering the service. The public delivery model puts most risks in the hands of the public sector. Intelligent risk allocation requires that many risks are transferred to the private sector. PPP achieves this to some degree.

Project characteristics conducive to efficiency gains from intelligent risk allocation

Intelligent risk allocation yields significant efficiency gain in any project with large risks. Most port infrastructure projects satisfy this condition. Investments in port infrastructure have some characteristics that make them very risky.

- They often involve a very high capital expenditure. The larger the value of the investment, the larger the negative surprises when problems occur (for instance cost overruns or delays of the completion). Small mishaps can be easily diversified. This may be more difficult in case of adversities with large projects s and hence with large financial consequences.
- Investments in port infrastructure are largely sunk. If the project does not generate as much revenue as expected, the investment can not be undone and the funds invested elsewhere. Many items of

port infrastructure (access channel, breakwaters, berths,…) can not be moved, nor used for another purpose.

- The investments are indivisible. The construction or expansion of a port facility has a relatively high minimum size. One can not build a port and then expand it gradually in line with demand. A certain minimal investment has to made ahead of demand. As a result the port infrastructure is used below capacity for a long period, during which revenues do not cover costs. Only after this long startup period a return on investment is built up. But in the mean time many unexpected events could have occurred (recession, competition by an other port, overrun of operating costs,…) preventing from achieving the required rate of return.

Table 9 shows an overview of the main risk categories of large infrastructure projects (including port projects). The table describes how these risks should be divided between public and private parties from the perspective of intelligent risk allocation.

Table 9: Risks and their preferred allocation in port infrastructure projects

Risk	Description	Preferred allocation
Planning approval	Risk that necessary approvals may not be obtained or may be obtained only subject to unanticipated conditions which have adverse cost consequences or cause prolonged delay.	Preferably planning approval is obtained before beginning the tender process. If that is not feasible, then the public sector should assume the risk in complex or sensitive projects. If the risk is small, it can be well managed by the private contractor.
Construction risk	Risk that events occur during construction which prevent the facility being delivered on time and on cost	Private contractor, unless the adverse event is caused by public intervention (public responsibility preferred) or force majeure (risk sharing if the risk is too large to be borne by the private party alone)
Maintenance and operating risk	Risk that maintenance and operating costs are higher than anticipated (for instance because design and/or construction quality is inadequate, the costs of inputs are higher than expected,…)	Private contractor
Demand/revenue risk	Risk that the demand for the project services is lower than expected, resulting in a shortfall of revenues. Demand risk has both external causes (general economic downturn, uncertainty about traffic volume) and causes that are partially under the control of the private contractor (competitiveness of facility in comparison with facilities in rival ports).	The preferred allocation depends on the predominant cause of the demand risk (external or within private control). In case of the concession of an existing facility with a track record the external demand risk is relatively small and can be borne by the private concession holder. In case of new port facilities without traffic history the external demand risk may be very substantial and unacceptable for the private contractor (unless with a very high risk premium on the rate of return). The risk should be assumed by the public sector, or at least shared.
Financial risk	Risk that financing costs are higher than expected due to unanticipated changes of interest rates, exchange rates,… Risk that that when debt and/or equity is required by the private party for the project it is not available then and in the amounts and on the conditions anticipated.	Private contractor, which can insure or hedge these risks to an important degree
Regulatory risk	Risk of a change in legislation/policy that could not be anticipated at contract and that has adverse cost consequences for the private party	Public sector, but only for changes that are not anticipated. The risk of general changes in tax law or decisions made by regulators under existing legislation should be borne by the private party. Extreme political risks (breach of contract,

		expropriation, civil war,…) are necessarily borne by the private party, although it can not control these risks. But they can be partially insured (MIGA)

PPP models conducive to efficiency gains from intelligent risk allocation

The models for the delivery and procurement of infrastructure are each characterised by a different allocation of risks. The distribution of the main risk categories is shown in Table 10. The second column in the table shows the preferred risk allocation on the basis of the information in Table 9. This permits a (rough) comparison of the risk allocation scheme of the various delivery models to the preferred allocation.

The reader must be warned that the allocation schemes shown in Table 10 are only indicative. Depending on the characteristics of the specific project the preferred risk allocation may be different. Within a delivery model there are many contract variants, some of which result in a different allocation scheme from that shown in which may result in Table 10. In the analysis of a specific project the risks are usually mapped at a more detailed level, with several risks under each category listed in Table 10.[19]

Table 10: Indicative risk allocation under alternative delivery/procurement models

Risk category	Preferred allocation*	Traditional procurement	Operating concession	Integrated contracting without finance	Integrated contracting with finance	Joint Company	Build; Operate, Transfer concession	Transfer of management rights	Full privatisation
Planning approval risk	Public	Public	Public	Public	Public	Public/private	Public	Private	Private
Construction risk	Private	Public	Public	Private	Private	Public/private	Private	Private	Private
Maintenance and operating risk	Private	Public	Private/public	Private	Private	Public/private	Private	Private	Private
Demand/revenue risk	Private or public	Public	Private	Public	Public	Public/private	Private	Private	Private
Financial risk	Private	Public	Private**	Public	Private	Public/private	Private	Private	Private
Regulatory risk	Private or public	Public	Private	Public	Public	Public/private	Private	Private	Private

**** See Table 9 for explanation***
***** Private financial risk only relates to investment in superstructure and equipment***

It is not possible to rank the delivery models according to the optimality of the risk allocation. Which model features the most efficient risk allocation depends on the preferred risk allocation, and this depends in turn on the characteristics of the project.

Nevertheless we can conclude that the integrated contract models permit the most refined risk allocation. They can be tailor-made to achieve a very detailed and almost optimal risk allocation in function of the project. The drawback is greater complexity and transaction costs.

An essential characteristic of concession agreements is that they transfer the demand risk to the private operator or investor. Whether this is efficient depends on the project characteristics, as was pointed out in Table 9. The concession framework does not permit as much flexibility with regard to risk allocation as the integrated contract models. More complex risk sharing mechanisms could be built in (for instance to share the demand risk), but in practice concession agreements are relatively standardised.

[19] A more extensive risk matrix can be found in Victorian Department of Treasury and Finance (2001).

In a joint company all risks are by definition shared among the public and private shareholders. Sharing risks does not imply, however, that they are efficiently allocated. In fact, it is difficult to fine-tune the risk allocation in a joint company.

Notice that the risk allocation scheme is not only determined by the mix of public/private roles in the provision of infrastructure (finance, design, construction, operations) but also by the payment mechanism. Through the rewards and penalties in the payment mechanism risks are transferred to the private contractor (for instance penalty for late delivery). Again the integrated contract models allow the greatest flexibility in this respect.

A.6.2.3 Private outsourcing

The main strength of the private sector is its business process management skills, which enable it to implement projects effectively and efficiently, thus saving costs for the government and/or the end-user. PPP introduces private sector management skills and competencies in the provision of public infrastructure and services.

Project characteristics conducive to efficiency gains from private outsourcing

All port activities stand to benefit from better management skills, a stronger drive for cost efficiency and greater user/market-orientedness. If public sector skills are found to be inadequate in a particular stage of the port infrastructure delivery process there is scope for the pursuit of efficiency gains through PPP.

PPP is not the only instrument to improve efficiency of public port authorities. Instead of increasing the extent of private sector involvement in the delivery of port services, one can try to improve the organisation and management of the public delivery model. A commonly used strategy is the corporatisation and commercialisation of the port authority. In many countries public port authorities are part of the administration. This may be the ministry of transport or public works in case of a national port, or a city public works department in case of a local port. The different port functions may be even distributed among several different departments with separate hierarchies: a public works department for the landlord functions, a maritime administration for the regulatory functions and an operating department for cargo-handling. Corporatisation involves integrating all port authority functions in a separate, independent entity with its own revenues and profit-and-loss account. It may also have a separate legal identity, but that is less important than the financial independence and accountability. Commercialisation means that the port authority is run following commercial principles. The corporate model is much more conducive to operational efficiency and market-orientedness than the administrative model.

PPP models conducive to efficiency gains from private outsourcing

All PPP models introduce private sector management skills and competencies in the provision of public infrastructure and services. The extent of private involvement varies between models and depends on which stages of the delivery process are included in the PPP (recall Table 5).

A.6.2.4 Lifecycle optimisation

Integrating the design, construction and operating phases of public infrastructure allows minimizing interface problems. A contractor that is responsible for all phases of the life-cycle has an incentive to minimize life-cycle costs. In contrast if several contractors are each responsible for a single phase, they tend to minimise their own costs or maximise their own revenues even if this increases costs/lowers revenues in other stages. For instance the building contractor has no incentive to spend resources on higher quality resulting in lower maintenance costs.

Project characteristics conducive to efficiency gains from lifecycle optimisation

The potential to achieve efficiency gains from life-cycle optimisation obviously depends on the presence of interface problems and sufficiently strong linkages between the different phases of the infrastructure delivery process.

PPP models conducive to efficiency gains from lifecycle optimisation

Operating concessions only bear on the operating phase and do not allow realising gains from lifecycle optimisation. All other PPP models integrate design, construction and operations and contribute to optimisation of the linkages between these stages.

A.6.2.5 Performance-based payment

Performance-based payment sustains the "value-for-money" drivers that have been described in the preceding paragraphs. It provides the financial incentives to effectively pursue the efficiency gains of output-based contracting, intelligent risk allocation, private outsourcing and lifecycle optimisation. A few examples illustrate this.

- As was already pointed out above, the payment mechanism co-determines the risk allocation between public and private partners. Through the rewards and penalties in the payment mechanism risks are transferred to the private contractor. For example, if the building contractor receives a fixed price upon completion of the infrastructure, he effectively assumes the risks of cost overruns and delays. When the costs of construction are higher than anticipated, the profits of the contractor are reduced. If the infrastructure is completed to late, the contractor will be paid later and will incur higher costs of financing his working capital. The transfer of the risk of delay to the building contractor can be further sharpened by stipulating a penalty for late delivery in the contract. A second example is the transfer of demand risk to the private partner by payment schemes that depend on revenues from end-users (as in a concession).
- The private sector can be best incentivised through both carrots and sticks. Above-par performance should improve the private sector's profits directly (through higher service payments by the public sector) or indirectly (through lower operating costs). Sub-par performance should trigger penalties, which will suppress the private sector's financial performance. Such penalties should be set to 'tickle', then 'hurt', but not 'kill' a private operator.
- If the contractor is paid for the delivery of an infrastructure service (and not for the construction of an infrastructure facility), then he will automatically have an incentive to optimise costs across all stages of the delivery process. Any efficiency gains are directly translated into profits.

Since performance-based payment supports the other "value-for-money" drivers, we refer to the preceding paragraphs for an analysis of the project characteristics and the PPP models where it may be applied.

A.6.2.6 Private financing

The role of private financing in the funding of projects is discussed in the next paragraph. But even if private financing is not needed for funding a project, it confers other benefits.

- First, private financing plays a similar role as performance-based pay. It sharpens the incentives by increasing the financial stakes and in this manner pushes private contractors to pursue vigorously the "value-for-money" drivers. Private financing provides especially strong incentives for timely delivery of the infrastructure. Every delay increases the financial costs of the project because the revenues to service the debt are postponed.
- Second, private finance brings forth additional project monitoring capacity. The private financiers have strong incentives and are often better placed to monitor the financial performance of the project

than the public-sector entity. This will help avoid defaults by the private operator due to financial problems.

Since private financing supports the other "value-for-money" drivers, we refer to the preceding paragraphs for an analysis of the project characteristics and the PPP models where it may be applied.

A.6.3 Private financing

What are the benefits of private financing in the funding of projects?

The access to private capital for the funding – and in particular the off-balance funding – of public projects constitutes in practice the predominant motivation for the public sector to engage in a PPP. (Sottiaux 2000[20] en Struik en Jansen 2002[21]).

Many authors regard this benefit as a false motive for PPP (Martens 2000[22] en Sottiaux 2000). They argue that the financing structure has by itself no impact on the value of an infrastructure project. This follows from the Modigliani-Miller theorem. Unless PPP confers real efficiency gains of the kind described in paragraph A.6.2, there is no reason to abandon the public delivery model. Without "value-for-money" benefits PPP only leads to higher transaction and capital costs.

We do not entirely subscribe to the above reasoning. Even if PPP delivers no gains in the efficiency of the delivery of port infrastructure services, it might still be beneficial to engage in PPP in order access sources of private financing. Suppose that public delivery is the most efficient option for a specific port investment project, but that the public sector has no budget available to finance it. In that case a more expensive delivery through PPP will often be more beneficial to society than postponing or canceling the project for lack of public funds. PPP allows accelerating the investment in the project, so that the economic benefits (i.e. port capacity to serve import and export needs) are enjoyed sooner.

Financing and paying for infrastructure

An important distinction needs to be made between financing infrastructure on the one hand and paying for infrastructure services on the other hand. Both are separate issues that are often confused when discussing PPP.

The term "financing" refers to the furnishing of funds to cover the initial investment expenses. The term "paying" refers to the payment of a price for using the infrastructure. The revenues from the payments by users are employed to cover operating and maintenance costs, as well as to remunerate the providers of the investment funds (redemption of debt, payment of interest charges and dividends).

Both the financing of and the paying for infrastructure can be either public or private, resulting in the four combinations shown in Table 11.

[20] Sottiaux, M. (2000), ***Public Private Partnership: Better Value for (Public) Money***, Presentation at the seminar "Public Private Partnership in practice", organised by the Institute for International Research in Brussels on 29-30 30 May 2000.

[21] Struik, Peter en Bart Jansen (2002), ***State of the art report in Financing and Public/Private Partnership***, World Road Association.

[22] Martens, Filip, ***Hoe een PPS-project aanpakken?, presentatie voor Studiedag Publiek-Private Samenwerking georganiseerd door Ministerie van de Vlaamse Gemeenschap***? 28 January 2000

Table 11: Options for financing of and paying for infrastructure

		Paying for infrastructure	
		Public	**Private**
Financing of infrastructure	**Public**	The state finances and operates the infrastructure and makes it available to users free of charge.	The state finances and operates the infrastructure and collects user fees from the users of the infrastructure.
	Private	A private company or consortium (banks, equity investors) finances the infrastructure and may also operate it. The state pays user fees to the private investor, allowing it to recover its costs and earn a return. The infrastructure is made available to users free of charge.	A private consortium finances and operates the infrastructure and collects user fees from the users of the infrastructure.

Starting from the fully public top left quadrant there are three options to increase the financial contribution of the private sector to the provision of infrastructure.

1. The first option is to ask payments from private users (top right quadrant). This allows the state to recover financing costs (i.e. interest charges and repayment of the debt incurred to finance the infrastructure) as well as maintenance and operational expenditures, thereby easing the burden on the public budget. However, the state still has to finance the infrastructure. Hence this option provides no solution for short term budget and borrowing constraints.

2. The second option is to call on the private sector for the financing, and possibly also the maintaining and operating of the infrastructure (bottom left quadrant). The state remains however responsible for paying for the infrastructure. The state pays user fees to the private investor in place of the actual users. The latter can use the infrastructure free of charge. Examples of such payment mechanisms are the shadow toll (the state pays a price for every individual user like in a toll system), the availability fee (the state pays a price for every time unit – hour, day, month,… – that the infrastructure is available in good condition) or lease payments. The impact on the budget of this option is opposite to that of the first option. In the short term the budgetary burden is taken away. However, the state assumes a long-term engagement of typically 30-50 years to pay fees to the investor in the form of shadow tolls, availability fees or lease payments.

3. In the third option the private sector is asked to finance as well as pay for the infrastructure (bottom right quadrant). A private company finances the construction of the infrastructure and operates it afterwards. It collects fees from the users of the infrastructure. The revenues from the user fees are used to recover costs and earn a return on investment. In this option the infrastructure is provided at no cost to the budget neither in the short run nor in the long run. The role of the state is limited to the issuing construction and operating permits and regulatory functions.

It is obvious that only the options involving private payment for the infrastructure achieve a real reduction of the budgetary burden of the infrastructure. Private financing without private payment merely shifts the budget impact from the present to the future. This does not imply, however, that the combination of private financing and public payment (bottom left quadrant) must be ruled out as an invalid option. It provides a real solution if the government mainly faces short term budget constraints. In that case private financing allows accelerating the supply of new, urgently needed infrastructure. In addition private financing may bring about efficiency gains and cost savings as described in paragraph A.6.2, thereby also reducing demands on the budget.

Relation between PPP models and the strategies for financing/pricing port infrastructure

Depending on the quadrant in Table 11 that is chosen, other models for the delivery/procurement of port infrastructure are eligible, as shown in Table 12.

Table 12: Financing of and paying for infrastructure under alternative delivery/procurement models

		Paying for infrastructure	
		Public	**Private**
Financing of infrastructure	**Public**	▪ Public delivery without user charging	▪ Public delivery with user charging ▪ Operating concession
	Public/ private		▪ Joint Company
	Private	▪ Integrated contracting with finance	▪ BOT concession ▪ Transfer of management rights ▪ Full privatisation

Depending on the budget constraints and the pricing objectives of the government, the relevant quadrant of Table 12 shows the available delivery models.

- If the government has no budget available for the financing of port infrastructure, not in the short run nor in the long run, then the options are BOT concession, a concession of management rights or full privatisation. In the case of a concession there are two alternative criteria for awarding the concession: the highest concession fee (or more exactly the present value of the expected fees) or the lowest price for the end-user. Usually the first option is chosen, which maximises financial benefits for the government but is not necessarily the best option from the perspective of national economic development.

- If the government wishes to provide the infrastructure free of charge (or at a price below cost), but has no funds to finance the infrastructure then integrated contracting with private finance (DBFMO contract) offers a solution. This allows spreading the budgetary cost over a long period. Moreover, although the port infrastructure is privately financed, the public sector retains full control over its development.

  There are several reasons why a price below cost (and even close to zero) may be economically efficient from the point of view of society. In many cases the provision of port infrastructure is not commercially viable, either because the traffic is too low and the risks too high (due to indivisibilities and sunk costs), or because it is socially optimal to make the infrastructure available to users at a low price below the full cost level (marginal cost pricing, promotion of growth pole effects). In those instances the public sector has to step in by financing and/or paying for the infrastructure. This is especially the case for basic port infrastructure (maritime access channel, breakwaters,…).

- If the government has the required funds to finance port infrastructure, wants to some retain control over its development and operation, but also wants to recover the infrastructure costs from users, then the options in the top right quadrant are available. This quadrant applies is particular to cargo handling infrastructure (basins, jetties, quay walls). The arguments to provide this infrastructure free of charge are weaker than for basic port infrastructure. However, there are still reasons to preserve

some degree of public control, such as the management of externalities and the prevention of the abuse of market power.

A.6.4 Transaction costs

Setting up a PPP entails higher transaction costs than traditional procurement, both for the procurement agency and the private contractor. Due to the transfer of risks to the private sector and the long-term nature of PPP arrangements the contracts are much more complex. They must allow for a far larger set of contingencies than traditional procurement contracts. The preparation and negotiation of these contracts are very time-consuming and labour intensive. Moreover, during the execution of the contract the activities and performance of the partners must be monitored in order to verify compliance with the contract conditions. If needed corrective actions must be taken.

Project characteristics influencing transaction costs

Transaction costs have fixed component that does not depend on the size of the investment. There is a minimum amount of contract preparation and monitoring activities regardless the value of the contract. The value of the potential efficiency gains, on the other hand, is strongly related to the size of the investment. Consequently PPP should only be considered for sufficiently large investments. For investments in infrastructure a threshold value of 100 million euro is often recommended. This value should not be taken as a given, however. PPP delivery can be efficient for smaller projects. If standard contracts are available and/or if the market participants already have experience with similar PPP projects as envisaged, then transaction costs are lower. Drawback is that the use of standard contracts reduces the scope for optimization, creativity and fine-tuning of risk allocation.

Relation between PPP models and transaction costs

Private finance, extensive transfer of risks and long term commitments are factors contributing to the complexity of contracts. From this perspective one expects transaction costs to be highest for DBFM/O, BOT concession and concession of management rights contracts.

A joint company may incur transaction costs of a different nature. The public and private shareholders of the joint company are likely to have partially different interests. This may hamper the efficient management of the joint enterprise.

A.6.5 Cost of capital

The use of private finance should not by itself affect the cost of financing a project. This follows from the Modigliani-Miller theorem, which says that the cost of capital (required rate of return on total assets) depends only on the risk characteristics of a project, and not on how it is financed.

One of the benefits of PPP described in A.6.2 is a more intelligent risk allocation and therefore a better risk management. If this benefit is present, then project risk and the cost of capital are lower with PPP than with traditional public procurement.

This conclusion contradicts the observed fact that the private sector generally faces higher borrowing costs than the government.[23] However, this difference is not caused by differences in the project risk, but by differences in the default risk. The government's power to tax reduces the likelihood that it will default on its debt, and the private sector is therefore prepared to lend to the government at close to the risk-

[23] This is true in most cases, but not all. In countries where there are serious concerns about government liquidity and solvency the private sector may face lower borrowing costs than the government.

free interest rate even to finance risky projects. As a result PPP with private finance increases financing costs, although project risk is lower.

There are two views on how to deal with the discrepancy between project risk and borrowing costs in the comparison of PPP and traditional public procurement. One view says that the comparison must be based on the "true" cost of capital reflecting the project risk. Performing the calculations with the low public borrowing costs would amount to an implicit subsidy by taxpayers and would give an unjust advantage to the public delivery option. The other view takes the perspective of the cost of the project to the budget. In this view the comparison is made on the basis of actual borrowing costs. PPP is then only the preferred option if efficiency gains more than offset higher private sector borrowing costs. If taxation did not cause macroeconomic costs, then the first option would be the correct one. But taxation does cause macroeconomic costs: for instance the tax wedge between gross and net income discourages labour supply and entrepreneurship. It is therefore important to minimize the budgetary impact of the project as advocated by the second view.[24]

Project characteristics influencing the cost of capital

The larger the project risks, the larger the default risk and the higher the private borrowing costs.

Relation between PPP models and the cost of capital

All PPP models with private financing (DBFM/O, BOT concession, concession of management rights) are characterised by a higher cost of capital. The risk premium will be especially high if the private investor is required to assume large risks that he can not well manage (for instance the demand risk for a new port facility without track record). To avoid high capital costs these risks must be partially or wholly transferred to the public sector by the choice of a PPP model without private finance, or by the inclusion of a risk transfer clause in the contract.

A.6.6 Inflexibility

A PPP contract generally has a long duration, during which the public sector only has a limited influence on the provision of the infrastructure. All requirements that the private partner must satisfy are specified in the contract. Once the contract has been signed the possibilities for altering the requirements are restricted. This limits the ability of the public sector to respond to changes in the external environment.

What are the costs of inflexibility?

The origin of the costs of inflexibility resides in the fact that the public and the private sector have different interests with respect to port infrastructure. Formulated in a simplified manner: the private sector pursues business development and profit maximisation, while the public sector has a broader set of socio-economic objectives (see paragraph A.5). In a PPP the interests of public and private sector are reconciled through the output specifications and the payment mechanism. The public sector defines the infrastructure service requirements and leaves the responsibility for constructing the infrastructure and providing the service according to specifications as much as possible to the private sector. The problem is that the PPP contract has a long duration, during which the external environment and the desired service specifications change. It is not feasible to anticipate all possible contingencies in the PPP contract. Consequently, as time passes it becomes more difficult for the public sector to maintain a

[24] Ideally the macroeconomic costs of taxation are explicitly taken into account. The French guideline for cost-benefit analyses of infrastructure projects prescribes that project costs paid out of the budget must receive an extra weight of 30% reflecting the macroeconomic costs of taxation (***Instruction cadre relative aux methods d'évaluation économique des grands projets d'infrastructures de transpor***t. 25 Mars 2004, mise à jour le 27 mai 2005).

socially optimal provision of services. One may safely assume that the private partner will respond to changes in the environment in its own interest, but not necessarily in the public interest.

Project characteristics influencing the costs of inflexibility

The potential costs of inflexibility are highest if:

- the project environment is subject to substantial changes that are difficult to forecast;
- public (social welfare) and private (profit maximisation) interests diverge so that the response of the private contractor to changes in the environment differs from what is desirable from the perspective of society;
- the public interests of the project are large.

Paragraph A.5 concluded that the public interests are likely to be larger for basic port infrastructure (maritime access, breakwaters,…) than for operational port infrastructure (terminals), and larger in the concept, design and construction stages than in the operating stage. The government needs to ensure that sufficient port infrastructure is available to meet the needs of national economic development. Once this infrastructure is built, it should be run as efficiently as possible according to commercial principles. So in the operating stage public and private goals coincide.

Relation between PPP models and inflexibility

Full privatisation and concession of management rights are characterised by the greatest inflexibility from the perspective of the public sector. In these delivery models the public sector relinquishes most or all of its influence on port development, respectively permanently or for the duration of the concession. The port is both developed and exploited according to commercial principles. The private contractor can adjust his strategy freely in response to changing market conditions, but does that solely in its own interest.

With an operating or BOT concession the public sector retains the responsibility for port development. The operation of terminals is entrusted to the private sector, but in this area the objectives of public and private sector largely coincide. So if the private partner responds to changes in market conditions he promotes both private and public interests.

Integrated contracting is a very flexible delivery model, at least in the short run. The public sector has a large freedom in setting the service requirements and devising a payment mechanism that induces the private contractor to meet these requirements as efficiently as possible. Compared to the concession-based schemes the private contractor has much less freedom to change his strategy in response to changes in the environment. He does not supply services to the end-user but to the port authority and is bound by the contract with that authority. This gives the public sector a greater control over the output of the private service provider, also in the long run. This control comes with a drawback, however. The rigidity of the contract makes it difficult to adjust the service requirements to changing circumstances. Once the contract has been signed altering the output specifications involves a costly renegotiation. To avoid this the contract should include procedures for making adjustments in response to anticipated changes. However, it is not possible to anticipate all possible contingencies, nor is it practical to include them all in the contract.

In principle a joint company is very flexible both in the short and the long run. The establishment of a joint company eliminates the need to conclude a long-term contract. Decisions with respect to the delivery of infrastructure services can be taken as events unfold. In practice the diverging interests of the public and private partners in the company can easily result in indecisiveness and rigidity.

A.6.7 Summary of advantages and disadvantages of PPP

Table 13 gives an overview of advantages and disadvantages of the different delivery models.

The scores in the table are indicative and refer to an average for the delivery model. An actual assessment must need to take account of the specific contracts being considered. For instance a design and build contract can be fairly standard, or may incorporate a more complex allocation of risks (as in the Maasvlakte 2 contract). In the first case the transaction costs are low, in the second case they may be very high.

The table shows that there is a correlation between the advantages and the disadvantages of delivery and procurement models. Models that exploit many "Value for Money" drivers tend to have higher transaction costs and less flexibility. Costs and benefits must be weighted against each other in order to select the most optimal model.

Table 13: Comparison of delivery/procurement models with respect to desirability criteria

	Traditional procurement	Operating concession	Integrated contracting without finance	Integrated contracting with finance	Joint Company	Build; Operate, Transfer concession	Transfer of management rights	Full privatisation
Presence of "Value for Money" drivers								
Output-based contracting	0	+	+	++	+	+	0	0
Intelligent risk allocation	0	+	+	++	+	+	0	0
Private outsourcing	0	+	+	++	+	++	++	++
Life-cycle optimisation	0	0	+	++	++	++	++	++
Performance-based payment	0	+	0	++	+	++	++	++
Private financing	0	+ (*)	0	++	+	++	++	++
Presence of disadvantages of PPP								
Transaction costs	0	–	–	– –	– –	–	–	0
Higher cost of capital	0	0	0	– –	–	– –	– –	– –
Inflexibility	0	0	–	–	–	0	– –	– –

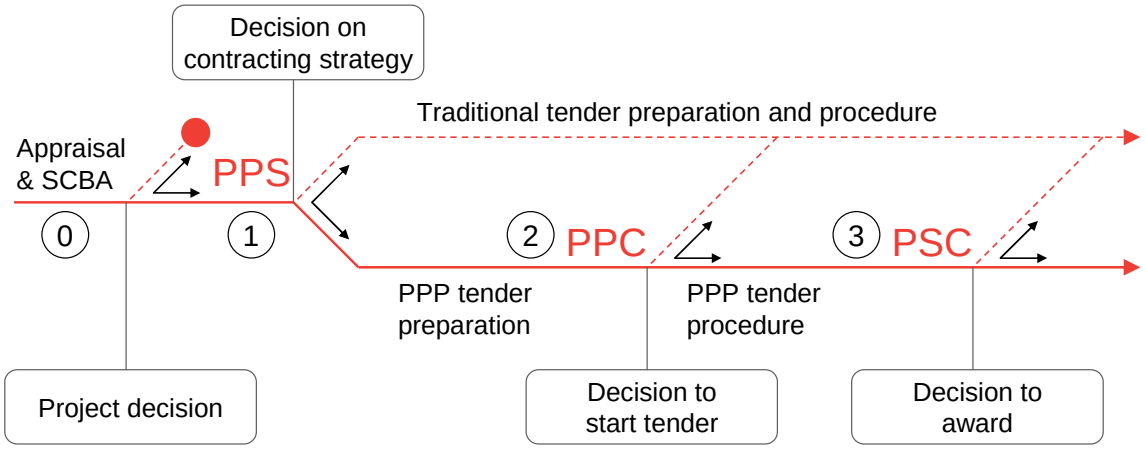
0 = none/limited; +/– = some advantages/disadvantages; ++/– – = strong advantages/disadvantages
**** The concession holder does not invest in infrastructure, but in superstructure and equipment.***

A.7 Assessment of desirability of PPP

There are three PPP assessment tools, corresponding to three moments in the decision-making process of an investment project (see Figure 9):

1. PPS: public private scan;
2. PPC: public-private comparator;
3. PSC: public-sector comparator.

Figure 9: PPP identification and assessment tools



PPS: Public Private Scan PPC: Public Private Comparator PSC: Public Sector Comparator

We will now introduce the tools in Figure 9 and describe their role in the tender and contracting process.

A.7.1 Appraisal studies

The first stage of the planning cycle of a public investment project consists of various appraisal studies: technical, environmental, economic (social cost-benefit analysis), and financial. This study process assesses the feasibility and desirability of the investment project. It leads to a decision whether or not to undertake the investment, and, in case several project alternatives exist, to a choice of the preferred alternative.

The feasibility and appraisal studies precede the PPP assessment process. They are about the project itself and not about the delivery mechanism of the project (i.e. conventional procurement or some form of PPP). However, the project and its delivery mechanism are not fully independent. As we have demonstrated above the use of PPP can improve the economic and financial value of the project (efficiency gains, higher revenues, faster implementation,…). The feasibility and desirability of the project may as a consequence sometimes depend on its realisation through an appropriate PPP structure. Therefore, the economic and financial appraisal often already contains a summary examination of the impact of the possible use of PPP.

A.7.2 Public Private Scan (PPS)

Once the investment project has received the "go ahead" signal, the selection of the optimal delivery mechanism comes to the forefront. The available options range from conventional procurement to privatisation. Between these two extreme options there is a variety of delivery models, each characterised by a different extent of private involvement and risk-taking. The purpose of the PPP assessment tools is to assist the public sponsor of the project in deciding whether it is beneficial to engage in PPP, and if yes, what the most suitable PPP model is.

The first of these tools is the Public Private Scan. It is a qualitative assessment of the advantages and disadvantages of the different delivery models taking into account the specific characteristics of the investment project being undertaken. It leads to a decision whether it is worthwhile to further investigate PPP delivery mechanisms for the project, and if yes, which PPP model. In most cases this qualitative assessment suffices to select the most suitable PPP model and discard the other ones. Sometimes, however, it is not possible to rank all PPP options and a small selection (two or three) is retained for further consideration.

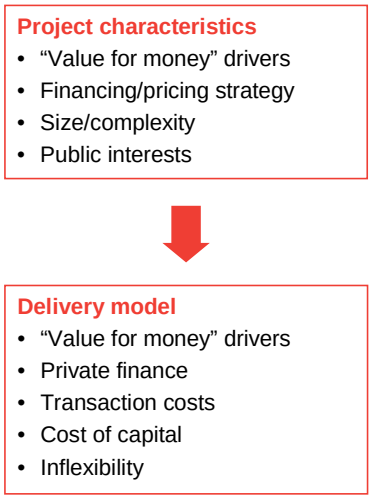
The PPS consists of two steps. In the first step the characteristics of the project are analysed to determine:

- the presence of "Value for Money" drivers;
- the objectives of the government with respect to the financing and pricing of the infrastructure;
- the size and complexity of the project;
- the public interests that the government wants to safeguard.

In the second step the optimal delivery model is selected in function of the project characteristics. This delivery model:

- exploits as much as possible the "Value for Money" drivers present in the project;
- incorporates a financing structure and payment mechanism that correspond to the objectives with respect to financing and pricing;
- has acceptable transaction costs given the size and complexity of the project;
- offers sufficient flexibility to safeguard public interests.

Figure 10: PPS



Paragraphs A.6.1 to A.6.7 contain the analytical background to conduct this assessment.

A.7.3 Public Private Comparator (PPC)

The PPP model selected in the PPS is elaborated in more detail (risk allocation, payment mechanism,…) and subjected to the Public Private Comparator. This is a quantitative cost-benefit analysis in which the PPP delivery model is compared to conventional procurement. If the PPC concludes that the PPP option offers the highest value, then the tender documents are finalised and the tender procedure started.

The PPC consists of two steps. In the first step the cost, revenue and risk parameters of the public delivery option are determined, as well as the differences in the PPP option are estimated (see Table 14). The data needed for this step are collected from project documentation, experience in similar earlier projects, literature sources and expert opinions.

In the second step the costs, revenues and risks of both delivery options are set out in time, and their net present value computed. The option with the highest net present value (present value of revenues less

present value of costs) delivers the “highest value for money” (see Table 15). Costs and revenues are discounted using the risk-adjusted required rate of return for the project.

The execution of a PPC is a very labour and data intensive task. The required data are difficult to collect and their reliability varies. In many cases the qualitative assessment in the PSC already results in a fairly strong conclusion regarding the preferred delivery model. If insufficient data is available or if the PPC has little information value for decision-makers compared to the qualitative PPS, then the PPC may be skipped.

Table 14: Estimate of differences between traditional procurement and selected PPP option

	Cost/revenue parameters with traditional procurement	Difference of PPP compared to traditional procurement
Costs and revenues		
Preparation and transaction costs	x	+/- y%
Realisation costs	x	+/- y%
Maintenance and operating costs	x	+/- y%
Revenues	x	+/- y%
Risks		
Planning approval risk	x	+/- y%
Construction risk	x	+/- y%
Maintenance and operating risk	x	+/- y%
Demand/revenue risk	x	+/- y%
Financial risk	x	+/- y%
Regulatory risk	x	+/- y%

Table 15: PPC

Year	1	2	3	…	…	T-2	T-1	T
Public delivery								
Costs and revenues								
Preparation and transaction costs	x	x	x	…	…	x	x	x
…	x	x	x	…	…	x	x	x
Net present value of project without risks	x							
Risks								
Planning approval risk	x	x	x	…	…	x	x	x
…	x	x	x	…	…	x	x	x
Net present value of risks	x							
Net present value of project risks included	**x**							
PPP								
Costs and revenues								
Preparation and transaction costs	y	y	y	…	…	y	y	y
…	y	y	y	…	…	y	y	y
Net present value of project without risks	y							
Risks								
Planning approval risk	y	y	y	…	…	y	y	y
…	y	y	y	…	…	y	y	y
Net present value of risks	y							
Net present value of project risks included	**y**							

A.7.4 Public Sector Comparator (PSC)

The Public Sector Comparator is used to assess the bids against conventional procurement. It is a more refined version of the public delivery option in the PPC. If the bids offer less value than conventional procurement, the PPP tender procedure may be stopped and a conventional procurement procedure started. In practice this is rarely necessary.[25] The use of the PSC signals to bidders that their bids should achieve certain minimal value thresholds. Sometimes the PSC is distributed to bidders so that they can assess their own bids before submitting them.

To make a fair comparison between the PPP bids and the public delivery option, the net present value of the risks that are transferred to the private contractor must be added to the net present value of the costs and revenues of the public delivery option. Since the risks are transferred, their value will be included in the bids. Hence, we must also include them in the public delivery option. We estimate the expected value of the transferred risks in a scenario with public delivery and add it to the costs and revenues of the public delivery model. In Table 16 the relevant value that needs to be compared with the private bids is "x+y". Depending on the view one takes with respect to financing costs (see paragraph A.6.5) the discount rate is equal to the risk-adjusted project rate of return or to the interest rate at which the government can borrow.

The information that is needed to carry out a PSC is much easier to collect than the data for a PPC. A PSC only requires information on the public delivery option, and most of that is in hands of the public sponsor of the project. Only the estimation of the value of the transferred risks may pose some difficulties.

Table 16: PSC

Year	1	2	3	…	…	T-2	T-1	T
Costs and revenues public delivery model								
Preparation and transaction costs	x	x	x	…	…	x	x	x
…	x	x	x	…	…	x	x	x
Net present value of project without risks	x							
Transferred risks in PPP								
…	y	y	y	…	…	y	y	y
…	y	y	y	…	…	y	y	y
NPV of project including transferred risks	**x+y**							
Retained risks in PPP								
…	z	z	z	…	…	z	z	z
…	z	z	z	…	…	z	z	z
Net present value of project risks included	x+y+z							

[25] It is often not possible to change the tender procedure at this moment without having to pay indemnities or incurring long delays. In practice the results of the PSC are mainly used as a negotiation instrument to induce bidders to lower their price.

A.8 **Achievability of PPP**

The fact that a particular PPP model offers the best overall "value for money" does not imply it is achievable. The efficiency gains of the most desirable PPP model can only materialize if the model is well implemented. Table 17 shows some conditions that need to be satisfied for a successful PPP. They relate to the skills and commitment of the public sector to PPP and the project, the market appetite of the private sector and, last but not least, the level of trust between public and private parties.

Table 17: Conditions of achievability

Condition	Assurances needed
Public sector requirements	
Political and social commitment	• Is the government regarded as a credible partner in PPPs? • Is there strong political commitment to the PPP approach? • Will a PPP solution be socially and politically acceptable?
Local and National government policy	• Does the policy environment favour PPPs and does it cater for the different components required for a PPP? • Is PPP consistent with other government policies i.e. land use, social policies etc.?
Legal Framework	• Is there a sufficiently stable and comprehensive legal framework for enabling the use of PPPs? • Is there sufficient legislation and transparency to support the management and supervisory role of the public sector in a PPP?
Taxation, reporting and accounting framework	• How are PPPs treated in corporate accounting? • How are PPPs treated in national authority accounts? • How are public disclosure requirements defined? • What is the tax status of a PPP? • Are there any particular advantages (tax breaks, depreciation mechanisms, subsidies, etc.) to stimulate the development of PPPs?
Technical and organizational issues	• Is there sufficient data available about existing service provision (quality, quantity, users, etc)? • Is there sufficient data available about assets currently in use? • Can competitive tendering be assured? • What quality control mechanisms exist? • Is the government capable of monitoring and assuring quality control?
Private sector requirements	
Market structure	• Are private service providers sufficiently autonomous? • Are efficient private sector operators available and are they competent, sufficiently capitalized and interested in PPP? • Are private sector operators willing and able to scale up the service provision?
Financing issues	• Is access to capital markets easy for the private sector? • Does a national capital market exist, or is international funding needed? • Can private sector financing compete with public financing? • What financial support mechanisms by government are available?
Trust	
Trust	• Do private sector operators trust the partnering government? • Does the government trust the partnering private sector operator? • Does the general public trust private sector providers, or is there a strong "anti-privatization" sentiment?

Annex B Country reports of legal assessment

B.1 Methodology

B.1.1 Introduction

A comprehensive analysis of the legal and institutional falls outside the scope of result 5 (a number of such comprehensive assessments has already been made in the last few years, and their results can be incorporated in the present study). What is required is a focused advice on the advantages and disadvantages of the options that exist in the various countries to employ PPP in the implementation of TRACECA projects. Therefore it has been decided to base the analysis on a virtual case study which involves the construction of a seaport terminal with private financing and/or co-financing.

With this case study, it should be determined what are the available options given the institutional and legal framework; what are the obstacles that might make such a venture unattractive to investors; which approach is preferred; and which aspects might constitute a risk and require special attention. This method results in an advice that is of immediate relevance to the TRACECA projects and that covers all relevant aspects without redundancy.

In brief, the work plan had the following steps:

1. definition of virtual case: description of investment project and context;

2. identification of options for private co-financing in the various countries (taking into account expected/announced changes in the legal/institutional framework in the course of 2008);

3. assessment of advantages and disadvantages of the different options (with respect to length op procedure, protection of investors' rights, optimal risk sharing, business efficiency), given the institutional and legal framework (port laws, concession laws);

4. recommendations on best options, acceptable options and unacceptable options (from the point of view of the private investor).

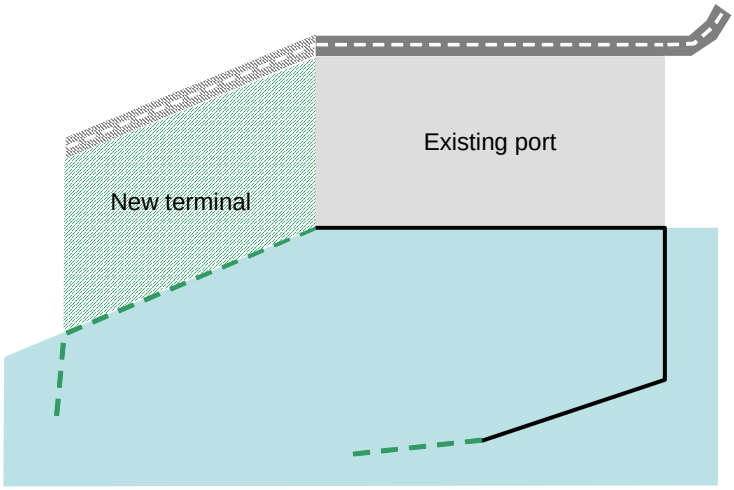
B.1.2 Description of virtual case study

B.1.2.1 Virtual project

Construction of a new terminal (for handling of containers or general cargo) on a greenfield site adjacent to an existing port area.

The infrastructure works include:
- dredging of water area in front of new terminal;
- construction/extension of breakwater;
- construction of quay wall;
- leveling of terminal area (surfacing is the responsibility of the operator);
- extension of road connection to main road.

Total investment cost: 120 million euro



Investments in superstructure and equipment will be made by the terminal operator and are not included in the infrastructure project.

B.1.2.2 Financing models to be considered

There are several models to finance and operate the new terminal, involving different mixes of public and private responsibilities.

1. **State finances and operates.** The state finances the construction of the terminal infrastructure using means from the general budget and loans (from international financial institutions, domestic and foreign banks, issue of state bonds,…). Afterwards the state operates the terminal through a state enterprise, which will also finance the superstructure and equipment. The profits from the operation are used to service the debt. Any remaining profits are reinvested in the state enterprise or flow to the budget.

2. **Lease or domain/services concession.** The state finances the construction of the terminal infrastructure as in the first model. The terminal is state property but is leased or granted in concession (services or domain concession) to a private operator. The latter is responsible for investing in the superstructure and equipment. The revenues from the lease payments or concession fees are used to service the debt. Any surplus flows to the state budget (general budget or budget of port authority).

3. **BOT – works concession.** The construction and operation of the terminal is granted in a concession of works to a private operator. The private operator finances the construction of the terminal infrastructure, superstructure and equipment. It operates the terminal during the concession period. The operating profits are used to service the debt and to provide an adequate remuneration of the equity. After the concession period the terminal is transferred to the state, at no cost or at a pre-determined price. The terminal is then operated as in the second model (lease or domain/services concession).

4. **Partial BOT.** This model is a combination of models nr. 1 and 3. The infrastructure is divided into two parts: general infrastructure which does not directly generates revenues (breakwater, access road) and the terminal infrastructure. The first part is financed by the state, the second part is financed through an BOT model.

5. **Private ownership of terminal.** The terminal itself is financed and operated by the private operator, who becomes the owner. The general infrastructure (breakwater and possibly the road) is financed

and maintained by the state (central, local or port authority). The costs of the general infrastructure are covered by revenues from port dues.

6. **Private sector owns terminal and finances general infrastructure.** Variation of model nr. 5. The terminal itself is financed and operated by the private operator, who becomes the owner. The general infrastructure is also financed by the private sector, but immediately transferred to the state, which from then on is responsible for its maintenance.

Models 2-6 involve varying degrees of public-private partnership, and are the object of the present study.

B.1.2.3 List of questions to be answered

- Which of the above models are in principle feasible given the available legal and institutional framework? Which legal instruments are used to implement the feasible models (reference to specific laws or standard contracts)? Why are the other models infeasible?
- What are the strengths and weaknesses of the different feasible models (comparative table)?
- Considering all strengths and weaknesses, which model is preferred?
- If this preferred model is implemented, which aspects might constitute a risk and require special attention?

Note. While our point of view is in first instance that of the private investor, the interests of the public stakeholders should also be taken into account. If a model is for some reason not liked by the public stakeholders, they will not cooperate and the transaction is likely to incur difficulties.

B.2 **Reports**

On the following pages the five country reports have been inserted. They have been prepared by local legal consultants on the basis of an analysis of the virtual case.

ÖZKAN
Law Office

Legal Study for TRACECA Projects
Virtual Project on a New Terminal and Financing Models

We were provided with various financing models for the financing of a new terminal stated in the Legal Study. We set forth below evaluation of each of the models under Turkish law and practice.

1. **Lease or domain/services concession:**

The model described is similar to the privatization method used in the privatization of the existing Turkish state owned ports. An important part of the Turkish ports are owned and operated by state through two major state economic enterprises namely, Turkish Maritime Administration (TDI) and Turkish republic State Railways (TCDD).

According to the provisions of the Turkish Constitution the shores are under the jurisdiction of the State and public interest has to be pursued in using the shores[1]. As the coasts are considered to be public good, the Ports Law[2] provides that the State is responsible for the administration, cleaning, dredging the water area, extension and deepening of the ports, placing of the buoys and their maintenance and all other activities related to the ports[3]. The State can establish joint-stock company for each port for its operation[4].

With the privatization wind of the 1990s, most of the ports owned by state owned companies have been put under the privatization portfolio. The law applicable to privatizations including the privatizations of the ports is the Law on Privatization Applications[5]. Due to above-said provisions of the Constitution and the Ports Law, the methods of privatization stipulated under the Law on Privatization Applications for the ports are transfer of operation rights or lease (or other methods excluding any the transfer of ownership)[6]. In this model, the construction of the infrastructure (and sometimes the superstructure) is financed by the state. The construction works are carried out by the private sector under Public Procurement regulations. The right of operation belongs to the state owned company. The port can then be leased or the operation rights can be granted to a private operator under Article 15 of the Law on Privatization Applications. It is specifically provided

[1] Article 43 of the Turkish Constitution
[2] Law No:618
[3] Article 1 of Ports Law
[4] Article 8 of Ports Law
[5] Law No: 4046 dated 24/11/1994 on Privatization Applications
[6] Article 15 of the Law on Privatization Applications

that the ownership rights cannot be transferred[7]. The term for the lease or transfer of operation rights cannot exceed 49 years. An outline of required staged are as follows:

a. The port must be put on the privatization portfolio by a decision of the Privatization High Council (PHC) whereby the methodology and timing of the privatization procedures are stipulated. The decision of the PHC is carried out by the Privatization Administration ("PA")

b. The PA sets up a value assessment commission to carry out a value assessment.

c. A tender commission is set up for each tender in accordance with the provisions out in Law No. 4046. The Commission may decide to employ one or more of the tender methods listed below:
   - Sealed bid
   - Negotiation
   - Public auction
   - Sealed bid among designated bidders

d. A pre-notification and final notification to the Competition Authority may be required depending on the market share of the entity to be privatized and the acquiring parties.

e. After the tender process, the results of the tender are submitted to PHC for approval. The decision is published at the Official Gazette.

f. The Transfer of Operation Rights or Lease Agreement is executed between the PA and the selected operating company.

g. The decision of the PHC is subject to the jurisdiction of Administrative Courts.

Tekirdag, Hopa, Giresun, Ordu, Sinop, Rize, Antalya, Alanya, Marmaris, Cesme, Kusadası, Trabzon and Dikili ports, which are all owned by Turkish Maritime Administration, were privatized by transfer of operation rights for a period of 30 years, and ownership of the registered inventories such as machinery and equipments, vehicles and others were transferred by sale method.

The Transfer of Operation Rights Agreements usually have a payment term of a lumpsum payment supplemented by payment by installments and profit share during the 30 year period. The other provisions of such agreements include provisions dealing with labor and personnel, investment, asset utilization, tariff cap for a certain period of time[8].

The TCDD ports, namely, Izmir, Mersin, Iskenderun, Derince, Bandirma and Samsun Ports have been included in the privatization portfolio by the decision of

[7] Article 37 (a) of the Law on Privatization Applications
[8] Hulya Gunaydin, Globalization And Privatization of Ports In Turkey, IEHC 2006, Session 58

the Privatization Higher Council in 30 December 2004. The main reason for privatizing TCDD ports is that the container traffic at these ports increases about 20% per year, and to meet the demand infrastructure and superstructure investments are necessary. The privatization strategy has been decided as transfer of operational rights, in which the ownership of the ports and the port assets and land will remain to be public property. The operational rights will be transferred to the private sector for a period of 49 years for Izmir Port and 36 years for the other ports. TCDD will be further responsible for the post-privatization performance monitoring of the private sector performance of the port operations.

Among all of the models evaluated hereunder, this model is the one which requires the largest amount of finance by the State. Therefore the Administration's decision on each stage of the process is subject to close judicial review. The criteria that the courts take into consideration in their review as to whether the decision and the operation contract are in accordance with the public interest. For example the Council of State cancelled the privatization of the Iskenderun port under transfer of operation model by its decision numbered 2005/7997E 2006/4380K [9] on the grounds that the operation contract does not stipulate any binding investment requirements in the superstructure and equipment of the facility for the operator. The provisions of the operation contract should be carefully drafted in order to prevent cancellation by the administrative courts.

The state ports, privatized ports and the so-called private ports have to obtain permission for the operation of the terminals. The procedure for obtaining such permits are explained in Part 4 hereof.

2. BOT- works concession:

Infrastructure and/or superstructure works of the terminal may be granted to a private operator under a BOT model. The Law No 3996 on the Grant of Works and Services under the Build Operate Transfer Modal[10] is applicable to the appointment of private companies for the construction and operation of the seaports and related works. According to the Law No 3996 and the Cabinet of Ministers Decision No: 94/5907 on the Application of the Law No 3996[11], the relevant state administration which demands the construction work shall apply to the State Planning Committee for approval. Upon the approval of the State Planning Committee, the Administration shall appoint the private operator through one of the tender methods listed below:

- Sealed bid
- Negotiation
- Sealed bid among designated bidders

[9] 13rd Council of State Decision No: 2005/7997E 2006/4380K
[10] Law No 3996 on the Grant of Works and Services under the Build Operate Transfer Modal published at the Official Gazette dated 13/06/1994 and numbered 21959
[11] Cabinet of Ministers Decision No: 94/5907 on the Application Procedure of the Law No 3996 on the Grant of Works and Services under the Build Operate Transfer Modal published at the Official Gazette dated 1/10/1994 1 and numbered 22068

Following the tendering process and the approval of the State Planning Committee, the BOT contract is executed between the Administration and the selected company. The contract shall be subject to private law. The parties may agree to refer their disputes in relation to the contract to arbitration. The term of the contract cannot exceed 49 years. The private operator finances the construction, operates the terminal during the term of the contract and transfers the terminal to the Administration free from any defects and encumbrances. The private operator pays a concession fee to the Administration which is escalated at a constant annual rate.

Some of the current terminal construction works in Turkey are conducted under the above-defined BOT model, but due to the high investment required and the problems of reflecting the costs of investment to end users in terms of usage price, the private investors do not have sufficient incentive to undertake large scale BOT projects with respect to seaports under the existing regulations. Most of the infrastructure work in this type of projects may not be reflected in the pricing to the end users. The current works completed under these modal are mostly consist of marina or pier constructions. The Government, however, considers this model to be the most feasible model to carry out terminal construction works and therefore is in an effort to provide more incentive to the private investors. A Draft Bill on Amendments to the Law on Grant of Works and Services under the Build Operate Transfer Modal ("Draft Bill")[12] has recently been prepared and submitted to the Turkish Grand National Assembly to achieve the aforesaid aim. In order to create an incentive for the private sector, the Draft Bill stipulates the possibility for the Administration to make financial contribution in the form of fee payments to the private operator for the goods and services provided by the private operator which are of the type that cannot be paid by the users of those goods and services.

One other problem faced in the BOT model as well as other models was delay in payment by the state to the private operator. The Draft Bill provides explicit provisions for default interest payment obligations for the Administration in the event of delay in payments in order to address this problem.

The government also seeks to expand the scope of the Law No 3996. According to the Draft Bill, the scope of the BOT Law shall be expanded to include among others the roads, logistics centers, cruiser ports and integrated facilities, border gates, railway station facilities.

The Draft Bill is expected to be enacted in the very near future and in the event that the above stated provisions are accepted in the final version, BOT model is likely to become the best model of financing all or parts of seaport infrastructure and superstructure works.

The procedure for obtaining the required operation permits are explained in Part 4 hereof.

[12] Draft Bill on Amendments to the Law on Grant of Works and Services under the Build Operate Transfer Modal dated 04/12/2007,

3. Partial BOT

In addition to a complete BOT model described above, it is possible to employ a partial BOT model. The State Administration may finance the construction of the infrastructure of the terminal and have the works carried out under public procurement regulations. Following the termination of the infrastructure, the Administration may appoint a private operator to construct the superstructure, the superstructure of the terminal can be constructed by the private operator and the terminal may be operated by that operator for a term which cannot be more than 49 years under the provisions of Law No. 3996 and the Cabinet of Ministers Decision No: 94/5907. Following the end of term of the contract the terminal is transferred to the Administration free from any defects and encumbrances. The procedure stated in Part 2 hereof shall be applicable to the second part of the works.

One example to this model is Canakkale Kepez Port. The project details were as follows:

- The substructure of the port was completed through public procurement.
- The Project Company constructed the superstructure of the port in exchange for the operation revenues.
- The construction cost is 14.6 million dollars.
- Duration of contract is 29 years.
- The Project Company pays a concession fee to the government which is escalated at a constant annual rate.

This model addresses the problem of reflecting the costs of infrastructure work to the prices to be charged to end users as the infrastructure is financed by the state. The state, however, tends to prefer that the substantial part of the investment is financed by the private sector and the future projects are preferred to be made under the complete BOT model. In order to address some of the problems in the complete BOT model, the new Draft Bill explained in Part 3 hereof has been prepared and submitted to the Turkish Grand National Assembly.

The procedure for obtaining the required operation permits are explained in Part 4 hereof.

4. Private ownership of terminal

As stated in Part 1 hereof, according to the provisions of the Turkish Constitution and the Ports Law, the coasts and the port services are under the jurisdiction of the State. However the congestion and lack of investment at the public ports forced the state to seek ways to have private sector involvement. In addition to the privatization and BOT models described hereabove, the state also paved the way to the so-called “private ports”. “Private ports” initially evolved through state practice rather than through proper legislation. The practice and the legal basis for “private ports” are as follows:

Article 4 of the Ports Law provides that terminals, piers and similar coastal structures may not be constructed at the shores without the permission of the

Harbor Master (General Directorate of Shipping). This provision has started to be interpreted in a way to allow that those can actually be constructed by the private sector based on permission of the Administration. Accordingly, the private operator is granted with a restricted ownership right in the form of an easement and based on that right the private operator may construct the terminal on the area granted to them with restricted ownership provided that the permissions of the relevant authorities are obtained. The General Directorate of Shipping has recently enacted the Regulation on Grant of Operation Permission to Coastal Facilities[13] which deals with the operation permits once the construction of the facility is over. A rental fee at an amount of 15% of the proceeds of the private port is levied. No such levy is imposed on other type of ports and therefore it is criticized in the sector and by the Competition Board. The aforesaid levy affects the competitiveness of the private ports negatively.

The procedure to be followed for obtaining construction and operation permits is as follows:

- Construction plan approval must be obtained from the Ministry of Construction and related authorities
- Restricted ownership rights in the form of an easement must be granted to the private operator on the relevant coast by the Ministry of Finance Directorate of State Real Property
- The construction project of terminal must be approved by the General Directorate of Construction of Trainways, Seaports and Airports
- Operation permission of the General Directorate of Shipping must be obtained

The operation permit is for a term of five years and can be extended consecutively.

The above procedure is extended to all of the port facilities and the existing ports as well as those to be constructed under any of the models shall have to fulfill the above procedure in order to start construction and operation. As the opinion of various authorities must be obtained, it is likely to face substantial delays in the finalization of the procedure. The General Directorate of Shipping seeks to limit the period of time required for the submission of the opinions of the relative authorities. According to the recent Circular published by the Ministry of Construction, the total period of time for submission of the opinions of relative authorities is limited to 90 days.

5. Private sector owns terminal and finances general infrastructure

There are no examples to such model under Turkish regulation and practice.

[13] Regulation on Grant of Operation Permission to Coastal Facilities published at the Official Gazette dated 18.02.2007 numbered 26438

6. Concluding Remarks

Transfer of operation rights and lease model is used in the privatization of the existing port facilities and therefore is subject to very close judicial review. The process takes time and the risk of intervention by the administrative courts is high. The BOT model is the model which is mostly encouraged by the State. A Draft Bill for the amendment of the existing BOT regulations in order to remedy certain disadvantages of the model is on the agenda of the Turkish Grand National Assembly. The private ownership of the port terminals cannot be possible technically due to the legal restrictions which prohibits the ownership of the shore areas, but the so-called “private ports” can operate based on the regulations stated in Part 4 and this model is encouraged by the state as well.

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REPORT ON THE USE OF CERTAIN PUBLIC-PRIVATE PARTNERSHIP CONTRACTUAL STRUCTURES FOR THE CONSTRUCTION AND OPERATION OF A HARBOUR TERMINAL

I. INTRODUCTION

This report (the "**Report**") has been prepared by Ţuca Zbârcea & Asociaţii upon the request of International Law Offices, an Ukrainian law firm, subcontractor of the consortium appointed by the European Commission to carry out the work in relation to the project entitled *"Improvement of Maritime Links between TRACECA and TENs Corridors*" (the "**Project**").

The Report speaks as of its date and does not reflect any changes in Romanian law or practice after that date. In drafting the Report, we have relied on the laws and regulations issued by the central authorities, as published in the Official Gazette of Romania.

II. RELEVANT LEGISLATION

The analysis herein is based on:

(i) the legislation regulating the management of harbours, navigable channels and the use of the harbour infrastructure - Government Ordinance no. 22/1999 on the management of harbours and navigable channels, the use of naval transport infrastructure belonging to public domain, and the carrying out of the naval transport activities in harbours and internal navigable channels, republished, with subsequent amendments and completions ("**GO no. 22/1999**"), and

(ii) the legislation on public procurement and concessions:

- Government Emergency Ordinance no. 34/2006 on the award of public procurement contracts and concession contracts of public works and services, approved, with amendments and completions, by Law no. 337/2006, with subsequent amendments and completions ("**GEO no. 34/2006**"), transposing the European Union Directives in this field in the Romanian legislation, and
- Government Emergency Ordinance no. 54/2006 on the regime of concession contracts of public assets, approved, with amendments, by Law no. 22/2007 ("**GEO no. 54/2006**").

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III. GENERAL LEGAL ISSUES RELATED TO THE OWNERSHIP OVER HARBOURS

According to GO no. 22/1999, a harbour is the portion of the national territory, located on the seashore or on the coastline of navigable channels, properly built

and equipped in order to shelter the ships and to facilitate the naval transportation.

Article 7 (3) a) of GO no. 22/1999 provides for two types of harbours differentiated on the basis of the regime of ownership over the harbour lands:

(a) public harbours – the infrastructure thereof being public property of (i) the state or (ii) the territorial-administrative units; and

(b) private harbours – the infrastructure thereof being private property.

It results therefore that the harbours may also be owned by private entities.

It should be mentioned that, irrespective of the type of ownership over the harbours, the construction plans for new harbours, as well as the plans for the development of the existing harbours shall be endorsed by the Ministry of Transport, as the public authority responsible for the general management of the transport activities in Romania.

IV. ANALYSIS OF THE CONTRACTUAL STRUCTURES APPLICABLE FOR THE CONSTRUCTION AND OPERATION OF HARBOUR TERMINALS

1. General

We have been provided with several methods of financing the construction and operation of the harbour terminal that would be taken into consideration:

(i) Public works contract and subsequent lease or services/assets concession;
(ii) BOT – public works concession;
(iii) Partial BOT;
(iv) Private ownership of terminal.

You may find below an analysis of the feasibility of each of the above methods from a Romanian law perspective.

2. Public works contract and subsequent lease or services / assets concession

a. <u>General legal considerations</u>

This option is based on a contractual separation between the construction and the operation phases of the harbour terminal.

For the construction phase of the harbour terminal the public authority may use a public procurement contract (*i.e.*, public works contract). After the completion of the construction the public authority is entitled to decide how the harbour terminal would be operated.

Thus, the harbour terminal could be operated either (i) by the public authority itself or the entities subordinated thereto or (ii) by a private entity.

In order for the private entity to be able to operate the harbour terminal, several contractual structures may be taken into account, as follows:

(i) lease agreement (whereby the harbour terminal is leased to the private entity),

(ii) assets concession agreement (whereby the harbour terminal is granted for concession to the private entity) and

(iii) services concession agreement (whereby the services related to the operation of the harbour are granted for concession to the private entity).

b. Distinction between lease and concession agreement

The differences between the lease and concession agreement are not clearly regulated by the relevant legislation.

However, we consider that an essential criterion for establishing the distinction between a lease agreement and a concession agreement is the nature of the rights granted to the private entity through each type of the above agreements.

Thus, in the case of a lease agreement, the right granted thereby to the lessee is the right to use the object of the agreement in exchange of a rent.

On the contrary, in case of concession agreement, the concessionaire is granted with more than the right to use the object of the agreement. The concessionaire also undertakes the obligation to exploit the object of the agreement (assets or services), on its own risks.

Given the above mentioned and the specific nature of public services of the harbour-related services, we deem unlikely that the harbour terminal is operated under a lease agreement. Consequently, if the public authority decides the harbour terminal to be operated by a private entity, a concession agreement should be concluded to this effect.

c. Distinction between assets concession and services concession

In principle, the differences between assets concession and services concession are regulated by GEO no. 34/2006 and GEO no. 54/2006. However, there is no clear-cut distinction between these two types of concession agreements.

It should be mentioned that the services concession is regulated as a rule, while the assets concession is deemed to be of a rather exceptional nature.

Pursuant to the relevant provisions of GEO no. 34/2006 and GEO no. 54/2006, it results that, as a principle, whenever the exploitation of an asset involves the provision of services, the contract having as object the exploitation of the asset would rather be qualified as services concession agreement.

In the case at hand, the exploitation of the harbour terminal involves the provision of specific harbour-related services, which could be performed by the public authority as well.

It may be construed that in such cases the provision of the services constitutes the main object of the concession agreement, while the exploitation of the assets remains ancillary, representing only a tool for carrying out the main object of the agreement.

Thus, the likely contractual structure to be used in order to appoint a private entity to operate the harbour would be the services concession agreement.

d. Conclusions

As regards the legal feasibility of this option, we believe that further to the completion of the construction of the harbour terminal under a public works contract, the public authority should conclude a services concession contract with the private entity for the operation of the harbour terminal, rather than a lease contract or an assets concession contract.

Although this option may have the advantage of offering a higher degree of freedom to the public authority in deciding the manner of operating the harbour terminal and in negotiating the terms and conditions of the services concession contract based on the factual and legal circumstances existing at the date the harbour terminal is commissioned, it also requires the availability of funds to pay the construction works for the harbour terminal by the public authority.

Given the above mentioned, this option is often excluded due to lack of available funds for such purposes.

Also, this option would require the public authority to go twice through the public procurement procedure in order to award both the public works contract and the services concession contract, situation which may prove more time and resource-consuming.

3. BOT – Public works concession

a. Legal considerations

The public authority may use the public works concession contract for the construction and operation of the harbour terminal. The object of such contract

would be then twofold: (i) the construction of the harbour terminal and (ii) the operation of the harbour terminal.

Thus, the public works concession contract incorporates the object of both public works contract (the construction) and the services concession contract (the operation), presented at Section 2 above.

As opposed to a regular public works contract, in case of a public works concession contract, the consideration to be paid by the public authority for the works performed consists in:

(i) grating the concessionaire with the right to exploit the works completed (*i.e.*, to operate the harbour terminal); in exchange of this right the concessionaire pays to the public authority an amount of money during the operation phase, as royalty;

(ii) grating the concessionaire with the right to exploit the works completed without the payment of any amount by the concessionaire;

(iii) granting the concessionaire with the right to exploit the works completed, accompanied by the payment of an amount of money from the public authority to the concessionaire.

The first and the second of the three variants mentioned above do not involve the payment of any amount from the public authority. The third variant may be seen as similar to a certain extent to the use of a public works contract.

However, in all the three above options most part of the availability risks and market risks entailed by the operation of the harbour terminal should be transferred to the concessionaire and any payment from the public authority should be made taking into consideration such requirement.

b. Conclusions

The conclusion of a public works concession contract may be seen as an advantageous structure for the construction and operation of the harbour terminal, especially in cases where the public authority does not pay the concessionaire during the operation phase.

It offers legal certainty over the construction and operation of the harbour terminal for a certain number of years and the lack of freedom of the public authority in establishing the methods of operation may be mitigated by negotiating contractual clauses allowing it to exert a higher degree of control over the manner the concessionaire carries out the relevant activities.

Also, from a procedural perspective, the public authority would have to conduct only one public procurement procedure for the award of the contract.

4. Partial BOT

a. Legal considerations

By "partial BOT" it should be understood that the construction of the harbour infrastructure is split between the public authority and the private entity as follows:

- The public authority shall be responsible for financing the construction of the general infrastructure (which does not directly generates revenues);
- The construction of the core infrastructure of the harbour terminal (which directly generates revenues) shall be financed by the private investor.

Such option may be implemented according to the Romanian legislation in a rather similar manner with the options mentioned above at Sections 2 above and 3 above.

The construction of the general infrastructure shall be financed by the public authority under the terms and conditions of a public works contract, while the core infrastructure of the harbour terminal shall be financed by the private investor under a public works concession agreement.

After the completion of the construction of both types of infrastructure of the harbour terminal it is operated by the private entity.

b. Conclusions

Given that this option is a mixture of the options mentioned above at Sections 2 above and 3 above, in general it combines the advantages and disadvantages thereof.

However, given that the construction costs of the whole infrastructure of the terminal are split between the public authority and the private entity, this option seems to be more advantageous for the private sector than the one mentioned at Section 3 above on the public works concession of both the general infrastructure and core infrastructure. On the other hand, the public authority should have available funds in order to cover the construction costs of the general infrastructure, as in the case of the option of concluding a public works contract and a subsequent services concession contract, mentioned at Section 2 above.

5. Private ownership of terminal

a. Legal considerations

As mentioned above, the Romanian legislation allows private entities to own harbours and the infrastructures thereof.

Thus, the owner of the land may construct with its own financial resources and further operate a harbour terminal.

If the land where the core infrastructure should be located is originally in the private property of the state or of the territorial-administrative units it might be transferred as such to a private entity in exchange of the private entity building and operating a harbour terminal under certain terms and conditions. However, the relevant legislation does not clearly provide for the conditions for the transfer of assets private property of the state or of the territorial-administrative units.

As regards the general infrastructure, it could be built by the private entity as consideration for the transfer of ownership over the land where the core infrastructure of the harbour terminal shall be erected. At completion of the construction, the general infrastructure is handed over to the public authority.

b. Conclusions

Such option may be seen as advantageous for the private sector given that it entails the transfer of ownership right thereto. However, there are also disadvantages deriving from the circumstance that the relevant legal provisions are not clear enough as to the terms and conditions the state or the territorial-administrative units are entitled to transfer the assets held under private property. By implication, the structure of such contract may be seen as unusual in the Romanian legal environment.

Likewise, if the land is originally in public property it should be first transferred into the private property through a normative act (Government Decision or decision of the local administration, as the case may be) and then it could be legally transferred to the private entity.

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Public Private Partnership for the Terminal Construction Project In Georgia

Legal Study based on the Virtual Case

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1. Definition of the Virtual Case

Construction of a new terminal (for handling of containers and general cargo) on a greenfield site adjacent to an existing port area on the territory of Georgia. The total investment cost is 120 million Euros. The terminal itself is financed and operated by the private operator, who becomes the owner. The general infrastructure (the breakwater and possibly the road) is financed and maintained by the state (central, local, or port authority).

The proposed scheme is a Private-Public Partnership involving a joint venture between foreign/domestic private companies and the Government of Georgia acting through its corresponding agencies.

2. Basic Structure

Based on the current legal and business environment in Georgia, we have elaborated the most suitable legal structure for the implementation of a Public Private Partnership scheme. The typical structure is set out below:

A single purpose project company (special purpose vehicle-SPV) will be formed to build and operate the proposed project. The shares in the project company are owned by project sponsors, in our case by private investors and the government, who enter into a shareholders agreement between themselves governing their rights and duties as shareholders. The government is expected to become a minority shareholder by providing necessary infrastructure and governmental permits/licenses for the project. Private investors will hold a majority, as they undertake a significant part of required contributions.

The financing is provided by a syndicate of banks which enters into a credit agreement to finance the construction of the project. The banks are paid out of the proceeds of the project product after completion. There may be several classes of lending banks – international banks lending foreign currency or local banks lending domestic currency for local costs. The project company grants the financiers the maximum security available locally over the assets. In order to be bankable, the project will require initial feasibility study prepared by experts, e.g. engineering, construction, and technical consultants instructed by the sponsors.

The main commercial contracts in brief are as follows: a construction contract, equipment supply contract, contract with suppliers once the project is operational (for example electricity for the terminal), contracts with future purchasers of the project product and a maintenance agreement. Other typical ancillary contracts are: interest hedge agreements (protection of the project from interest rate changes), currency hedge agreement (protection from the depreciation of the local currency receipts), insurance policies, contracts with independent experts and etc.

3. Which corporate form will be the most feasible for the special purpose vehicle (SPV) in Georgia?

From the outset of the presented case, including specifically the terminal construction project, there are several solutions under Georgian Law for the determination of the legal forms for the possible Private-Public Partnership scheme.

Civil Code of Georgia (26.05.1997) regulates specific joint-venture arrangements – the so called silent or unregistered partnerships. These schemes are based on the contract and the liability of the members is unlimited. Such relationships are frequently used in relatively minor construction business, such as apartment house building. They are widely used in many CIS countries. These partnerships do not provide flexible corporate governance structures and the allocation of risks are not optimal for our case.

The Law of Georgia on Entrepreneurs (28.03.1994) presents available types of incorporated legal entities and regulates incorporation methods, registration requirements, governance structures and other corporate matters. All types of enterprises must be registered in the Company Registry attached to relevant Tax Authorities. The registration process may take from 3 to 7 days period depending on the legal form.

We will present only the possible choices in relevance with PPPs and suggest the most feasible solution, however the two models (*JLC and CP)* presented below cannot be used as a legal structure for the PPP project. They are presented for the purpose of understanding legal partnership schemes under Georgian Company Law. The Code itself was developed on the basis of the German Company Law.

3.1.1. Joint Liability Company (JLC)

It is somewhat similar to General Partnerships (*societe en nom collectif (SNC)*) in Belgium and France and OVR''s *(Openbare vennootschap met rechtspersoonlijkheid)* in the Netherlands. The formation of JLC is exercised by one or more private persons, with the common company name, where all partners are fully liable for the partnership's debts, their liability is not limited.

The governance of JLC, if not prescribed otherwise by the company charter, is conducted by all partners by separation of different directions of company management. All important decisions, which are outside of the scope of day-to-day business matters, are decided by the meeting of partners where partners participate jointly. The formation is only allowed by private persons, which are physical persons.

3.1.2. Commandite Partnership (CP)

Similar to société en commandite in France and Kommanditgesellschaft in Germany, the Commandite Partnership (CP) is formed by several persons with the goal of conducting business activities jointly, regularly, independently, under single company name and the third-party liability of some partners (Commandites) is limited to certain guaranteed amounts, while the liability of the other partners (Complementaries) is not limited.
Complemetaries are only allowed to be physical persons. The governance and the power of representation are exercised by the full partners, whereas limited partners as a rule are excluded from the company's management.

3.1.3. Joint Stock Company (JSC)

Similar to the German Aktiengesellschaft (AG), the Georgian JSC is a corporation where share capital is divided in capital stocks par value. The liability of partners is limited. The share capital must be minimum 15,000 GEL. A company which has more than 50 partners must be formed as a joint stock company.

There are two types of shares – the ordinary shares and privileged shares. The holders of privileged shares can exercise the right on receipt of dividends or proceeds from liquidation prior to the holders of ordinary shares.

The Law on Entrepreneurs requires all JSCs to operate with a two-tier board structure - with a management board, a supervisory board and the shareholder's meeting. In general it is the function of the management board to manage, that of the supervisory board to control the management board, but not to instruct it on management, and for the members to have an input into supervisory board and to approve certain basic transactions such as alteration of the articles and capital alterations.

Protection of minority shareholders is granted by the ownership of at least 5% of share capital, the owners of such portion of shares may ask for a special examination of certain business transactions or the annual balance sheet, if they assume irregularities. In addition, there are compulsory tender offer requirements (in case of more than 50% shareholding) and the right to purchase the remainder of the share capital (in case of at least 95% shareholding).

There are several provisions concerning the participation of the Government. Particularly, if the government owns more than 50% stake in the joint stock company, the partners may opt out in the charter from the creation of the supervisory board, in which case the supervisory functions are transferred to the general meeting.

We propose to avoid the incorporation of the SPV into a Joint Stock Company for a number of reasons. In our case the necessity for the formation of the public company is not observed. The complexity of the board structure, disclosure requirements, provisions on Government participation and variations in different types of stocks gives us the possibility to opt for a less complex legal form, which is a Limited Liability Company.

3.1.4. Limited Liability Company (LLC)

The LLC is a legal entity, consequently independent from its founders, whereby the company is liable to the creditors with its entire property. Shares of the company can be inherited or transferred. The LLC cannot be admitted to the stock exchange. The minimum contribution of shareholders in total must be at least 200 GEL. The contributions to the share capital can be done by monetary means or by other types of valuable property which after registration will be at the free disposal of the LLC.

Similar to German GmbH, the management is vested in one or more managing directors with general control and certain residual powers being vested in the general meeting of shareholders.

In internal relations, directors are restricted by limitations that follow from the charter and the decisions of the shareholders. The shareholders can give instructions to the management. In contrast to the rules related to Joint Stock Companies (JSC) the strict separation of ownership and control does not exist in the LLC. However, according to Article 48 of the Law a supervisory council may be established in the LLC, for which the norms on the supervisory council of the JSC apply. An LLC may be founded by one person as well. Key company matters are decided by the general meeting with a simple majority, if not prescribed otherwise by the charter.

The advantages of the local project company – a Limited Liability Company include: a project company isolates the sponsor's risk (except to the extent of sponsor guarantees); it isolates the project from the risk of bankruptcy of the sponsor; it facilitates the vesting of project assets, the introduction of new sponsors and divestment of non-performing sponsors; the foreign sponsors are not directly subject to the risk of jurisdiction of the local courts; it is easier to grant security to the banks without becoming involved in the security laws of different jurisdictions of the sponsors and finally a project facilitates administration by one or more directors instead of committee of joint venturers or a supervisory board (in case of JSC).

The disadvantages of a local project company might include: the tax position may be less advantageous, the political risk is increased because the company's shares are local. The management structure and voting specifics have to be carefully negotiated and agreed between the sponsors (by the shareholders agreement and the charter).

3.2. Possible Amendments in the Law on Entrepreneurs

Several key amendments are expected to occur later this year. We will analyze possible changes which are relevant only to the LLC. The new significant feature of changes is the doctrine of re-domicile which applies to all companies e.g. a foreign legal entity can move its registration to Georgia

without any interruptions in its activities only if the State law of the country where the foreign entity is registered recognizes the possibility of re-domicile.

Furthermore, according to draft amendments, it will be possible to found the LLC without any prescribed capital and offer shares of the LLC to the public. In the sphere of corporate governance of the LLC, the shareholders agreement becomes an instrument with more importance. For example, the shareholders agreement will regulate the governance structure of the company (it can be two-tier or one-tier board structure), the competencies of the shareholders meeting, the decision-making procedure and the director's liability.

4. *Understanding the local regime*

It is important to be aware of the basic legal framework in Georgia which will affect the implementation of the project. We present, in broad terms, the current laws and regulations which apply to:

4.1. *Any limits on foreign participation*

There are no limitations on foreign participation under Georgian Law. The Law of Georgia on Investment Activity Promotion and Guarantees (12.11.1996) defines the legal basis for realizing both foreign and local investments and their protection guarantees on the territory of Georgia. The law clearly grants the foreign investor the same rights and guarantees enjoyed by Georgian natural and legal persons. There is a special investment-promotional regime, in particular:

The enterprise with the foreign investment not less than 25% is considered and enjoys the same rights as the foreign investor. The investment can be realized in an object with any form of ownership, except for activities which fall under license regime, for example, the investor is not entitled to use forest resources and entrails (among other activities limited by the law) without the permit or license issued by the appropriate State agency.

4.2. *Regulatory approvals, foreign investment controls and investment incentives*

According to the Law of Georgia on Investment Activity Promotion and Guarantees (12.11.1996) a foreign investor shall be liable within sixty days from investing to register at the Foreign Investment Agency attached to the Ministry of Economic Development of Georgia with a value of 100,000 USD or more. A foreign investor shall register annually any possible increased investments. The documents required for registration are general and do not require the disclosure of confidential company information.

Furthermore, the Law of Georgia on State Assistance to Investments (30.06.2006) grants additional legal regime for assistance to foreign or local investments in obtaining approvals necessary for relevant corporate activities. Such assistance is exercised through the Foreign Investment Agency (although it is not obligatory according to the law). Based on the contract between the Agency and the investor, the Agency on the fee basis may act as a representative in relations with State agencies. In such way the investor can speed up any necessary procedures for regulatory approvals. The investor has a right to: demand the issue of any license/permit through the Agency, to purchase property and complete all required procedures connected to it through the Agency, demand relevant information on investment procedures and to exercise the guarantees granted by the Law of Georgia.

Moreover, there is a possibility of preliminary license/permit issuance. In case of such arrangement, the license/permit is granted to the investor with the condition that the latter will fulfill all requirements under the license during the investment period. Among others, the preliminary license/permit can be issued for the construction and usage of natural resources.

There are special benefits for investments which fall under the category of Extraordinary Purpose Investments. Such status is granted to all investments with the total investment cost above 8,000,000

GEL and which serve for the improvement of the State economy and infrastructure. Such arrangement grants the investor to use the Agency's services without any cost.

The Law of Georgia on Licenses and Permits (24.06.2005) is a general law governing the list of activities which require approvals. The law has been significantly simplified in order to ease constraints on business. The total number of licenses and permits was reduced by 84%, in reforms that eliminated 756 licenses and permits and streamlined procedures. Georgia's new licensing and permitting regime now provides:

Licenses and permits may be required only for:

  - Safety and health protection
  - Security of living conditions and cultural environment of individuals
  - Protection of state and public interests
- Reduced statutory time limits for government action: 30 days for issuing licenses and 20 days for issuing permits.
- "Silence is consent" - a permit or license is automatically granted if no government action is taken within statutory time limits.

4.3. *Repatriation of profits and capital and the currency or foreign exchange controls*

According to the law of Georgia on Investment Activity Promotion and Guarantees (12.11.1996), a foreign investor has, upon payment of taxes and necessary levies, the right to convert the profit (income) gained from investments at the market rate of exchange in Georgian banking institutions and the right of unlimited repatriation abroad.

4.4. *Taxation*

In 2005, Georgia enacted a new Tax Code that introduced lower, flat-tax rates. The total number of taxes was reduced to only seven in 2005 and further reduced to six (by removing social tax) since 2008. Five of the six are State taxes - personal income tax, corporate income tax, excise, value added tax, and customs tax. Property tax is a local tax established by local self-governing bodies within marginal rates regulated by the Tax Code of Georgia. Currently the rate of personal income tax is 25%. Corporate income tax is set to 15%. Corporate income tax is paid by Georgian enterprises on their worldwide income and by foreign enterprises on their Georgian-sourced income, except as otherwise provided by double taxation treaties with various countries. Dividends received by Georgian enterprises are subject to 10% rate taxation at the source.

An 18% value-added tax is compulsory for taxpayers whose turnover exceeds 100,000 Georgian Lari (about$60,240 USD) in any 12-month period and for importers. Export of goods, international transportation, tourism, and certain other services are subject to zero rated VAT. Financial and insurance services, oil and gas operations and certain other transactions are exempt from VAT. VAT paid for purchases can be offset against VAT payable or other tax liabilities. VAT paid for the purposes of investments in fixed assets, construction and export is refunded to the entrepreneur within 1 month and in all other cases within 6 months.

On July 3, 2007, the Parliament of Georgia adopted a bill regarding the creation of free economic zones (FEZ). The bill titled "Free Industrialized Zones" envisages zones located on at least 10 hectares. The zones may be established by government, a legal entity or private individual. Companies in the multi-currency zones will be free from profit, property and VAT taxes. Likely sites are the ports of Poti and Batumi, among others. Future governmental regulations will determine the criteria for the establishment of the zones. Enterprises set up in the zones will be free from profit and property taxes and bureaucratic procedures will be minimal.

4.5. *Right to acquire land and the regime of protection of property*

For the purchase of the agricultural land, only a Georgian citizen or household as well as the legal entity registered in Georgia in accordance with the laws of Georgia that conducts its main business in the agrarian sector may hold a proprietary right to an agricultural land plot. (Law of Georgia On Ownership of Agricultural Land 22.03.1996). The purchase may be realized through the special auction or a direct sale. However, in order to have the right of construction, the status of the land has to be converted to a non-agricultural. There are various specifics for this procedure and on privatization as well, which will not be analyzed in this study.

The right of property is granted by The Constitution of Georgia, on immovable property by the Civil Code and other normative acts – it is in line with legislations of many EU states and is based on common democratic principles. Nevertheless, there are some provisions in the Law concerning the right of the State to expropriate in case when property falls in the scope of special public interest. Expropriation provisions themselves are very liberal and set required compensations for the expropriated person.

3.6. Intellectual Property Protection

Georgia is a member of WTO and consequently a member to the TRIPs Agreement. The Georgian legislation regulating intellectual property accords to the nationals of other States treatment no less favorable than that it accords to its own nationals with regard to the protection of intellectual property. The Patent law is very similar to the European Patent Convention.

3.7. Labour Laws

New labor code of Georgia is very liberal, especially for the employers. Key features include:

- Only 1 month of severance pay is required when an employer terminates a labor contract.
- No severance pay is required if the employee is terminated during a probation period (up to 6 months) or for cause.
- An employee must give 30 calendar days notice to an employer upon termination of a labor contract.
- Salary is subject to agreement between the parties.
- Employees may be held liable for financial harm caused to an employer.

4. *Project Risks*

A brief outline of main project risks:

Completion Risk – because of the technology failures, cost overruns, force majeure or necessary variations the project may not be completed on time or at all. If the project is late, interest will run up and perhaps not be covered by the projected cash flows. Project lenders are often not prepared to take a non-recourse completion risk and require either a completion guarantee or insurance.

Permitting Risk – as mentioned above, the permitting procedure in Georgia became very simplified and requires less time, in our case the involvement of the government also gives advantages, however the important permits cannot be left to later, but must be settled or completely assured. Lenders are reluctant to lend so long as the project may be blocked or delayed by the absence of necessary permits.

Price Risk – This is for example, the risk of possible volatile markets or government price controls. The risk covers both the supplies to the project and the sales by the project.

Operating Risk – this covers, for example, manpower costs, maintenance costs, technology, operating supply costs and the like.

Resource Risk – this can occur during the construction period. For example, there can be a risk in supply of the raw materials for the construction of the terminal. However, due to the neighboring location of Georgia and Turkey, such risk can be easily avoided. These countries are the main trade partners, especially in raw materials for the construction sector.

Casualty Risk – This is the risk of damage to the project and is usually met as far as possible by insurance. These may also be delay in start-up and business interruption insurance.

Political Risk – it relates to such matters as increased taxes and royalties, employment controls, compulsory monopoly sales, sales in local currency only, revocations or changes to the concession, export prohibitions, exchange controls or proceeds, excessive environmental clean-ups, force governmental and local participation in shares, planning or construction controls and the refusal of import licenses for essential foreign equipment. These are the risks that any investor should pay close attention to, however due to the recent elections in Georgia, the government's policy remains the same – it promotes investments and enacts legislation that is very beneficial for investors. For this reason we can assume that the political risk is relatively low.

Environmental Risk – this contemplates such matters as pollution and clean-up costs on abandonment. These are difficult to meet completely but can be mitigated to some extent by an initial environmental audit and by insurance.

Exchange Rate Risk – This is the risk that, for example, the currency of the price paid for the project product depreciates in relation to the currency of the loan, so that the loan is uncovered from the sale proceeds.

Interest Rate Risk – This is the risk of higher interest rates than expected.

Insolvency Risk – This is the risk of insolvency of contractors, project sponsors, suppliers, purchasers, even insurers or the syndicate of banks.

Insurance – it attracts much lender attention in such projects and the credit agreement will contain elaborate and detailed insurance requirements. The main types of cover are insurance against physical damage or loss, third party liability, pollution, delay in start-up, business interruption and (unusually) political risk. However, Georgian insurance companies are not very experienced in providing policies for such projects, thus the involvement of international insurance companies may be required.

5. *Conclusion*

We can conclude that the present business and legislative environment in Georgia allows a successful implementation of Public Private Partnership in transportation and infrastructure sector. The main advantages for investing in Georgia are: liberal economic reforms, competitive trade regulations, liberal tax code, privatization of state property, modernized business licensing system and etc.

We propose the establishment of a local special purpose vehicle - a limited liability company, where private investors and the government become partners. In this study only the basic structure is presented in order to give a general description, upon request, we will be glad to lead and complete the legal side required for the implementation of such project, including the setting up of legal entities, preparation and completion of all necessary contracts, further structuring, obtaining approvals, conducting negotiations and avoidance of potential risks.

Applicable Laws:

1. The Constitution of Georgia (1995)
2. The Civil Code of Georgia (1997)
3. The Law of Georgia on Entrepreneurs (1994)
4. The Law of Georgia on Investment Activity Promotion and Guarantees (1996)
5. Law of Georgia on State Assistance to Investments (2006)
6. Law of Georgia on National Foreign Investment Agency (2002)
7. Law of Georgia on Licenses and Permits (2005)
8. Law of Georgia on Entrails (1996)
9. The Tax Code of Georgia (2004)
10. Law of Georgia on Privatization of State-owned Agricultural Land Existing in State Ownership (July 8, 2005)
11. Law of Georgia on Management and Alienation of State-owned Non-agricultural Land (October 28, 1998)
12. Law of Georgia Ownership of Agricultural Land (March 22, 1996)
13. Law of Georgia on Expropriation of Property of Special Public Interest (1999)
14. Law of Georgia on Customs Activities Related to Intellectual Property (1999)
15. Law of Georgia on Patents
16. The Labour Code of Georgia
17. Law of Georgia on Construction Permits (2004)
18. Law of Georgia on State Control and Regulation of the Transportation and Communications Sector (2001)

▪*(Please note that the above list is non-exhaustive, only the main legal instruments are presented)*

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March 10th, 2008

Mr Arthur Nitsevych
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13 Luteranskaya str., Office 21,
Kiev, Ukraine

Re: Legal and Institutional aspects of public private partnership (PPP) in Bulgaria with regard to the construction of a new seaport terminal

Dear Mr Nitsevych

We have been requested to provide our legal advice on the advantages and disadvantages of the options that exist in Bulgaria to employ PPP in the implementation of TRACECA projects based on a virtual case study which involves the construction of a seaport terminal with private financing and/or co-financing.

BACKGROUND:

- The European Commission – Europe Aid Cooperation Office – has appointed the consortium consisting of HASKONING NEDERLAND BV, NEA Transport Research and Training BV and BCEOM Société Française d'Ingènièrie SA to carry out the work of the project entitled "Improvement of Maritime Links between TRACECA and Tens corridors";

- HASKONING NEDERLAND BV has appointed International Law Offices to carry out the work of the project concerning 5 countries: Ukraine, Georgia, Romania, Bulgaria and Turkey;

- International Law Offices has appointed Delchev & Partners to carry out the work of the project concerning Bulgaria;

- A virtual case study which involves the construction of a seaport terminal with private financing and/or co-financing has been introduced as a basis for Delchev & Partners' work;

- In Bulgaria there is no specific act of legislation to regulate uniformly the matters related to PPP.

VIRTUAL CASE:

- The virtual case involves the construction of a new terminal (for handling of containers or general cargo) on a greenfield site adjacent to an existing port area.

- The virtual case study introduces 6 (six) models to finance and operate the new terminal, involving different mixes of public and private responsibilities:

(i) State finances and operates;

(ii) Lease or domain/services concession;

(iii) BOT – work concession;

(iv) Partial BOT;

(v) Private ownership of terminal;

(vi) Private sector owns terminal and finances general infrastructure.

- With regard to the various models the following list of questions has been raised:

(i) Which of the models are in principle feasible given the available legal and institutional framework? Which legal instruments are used to implement the feasible models (reference to specific laws and standard contracts)? Why are the other models infeasible?

(ii) What are the strengths and the weaknesses of the different feasible models (comparative table)

(iii) Considering all strengths and weaknesses, which model is preferred?

(iv) If the preferred model is implemented, which aspects might constitute a risk and require a special attention?

ASSUMPTIONS

For the purposes of the present analysis we assume that the intended terminal shall be a public transport port terminal of national significance.

Note: According to the Bulgarian Maritime Space, Inland Waterways and Ports of the Republic of Bulgaria Act (the Ports Act) the ports are divided into five groups: (i) for public transport; (ii) fishing; (iii) yachting; (iv) with special purpose and (v) military.

The public transport ports are further divided into two sub-groups: (i) of national significance and (ii) of regional significance which are respectively listed in Appendix I (national significance) and Appendix II (regional significance) to the Ports Act.

There are two main legal aspects of such subdivision of public transport ports:

(i) Property aspects

a. the property over the territory and the port infrastructure of public transport ports of national significance may be only public state property (except for the zones for keeping of cargo, which may belong to private physical persons and legal entities)[1];

b. the property over the territory and the port infrastructure of public transport ports of regional importance may belong to the State, as well as to private physical persons and legal entities[2].

(ii) Concession aspects

As the territory and the port infrastructure of public transport ports of national significance may be only public state property, they may be constructed,

[1] Reference to art. 106, para 1 of the Ports Act
[2] Reference to art. 106, para 2 of the Ports Act

extended, reconstructed and rehabilitated only through a concession agreement with the State.

STRUCTURE OF THE LETTER

This Letter is structured in two Appendices discussing each topic as follows:

Appendix I FEASIBILITY OF MODELS

I. STATE FINANCES AND OPERATES
II. LEASE OR DOMAIN/SERVICES CONCESSION
III. BOT – WORKS CONCESSION
IV. PARTIAL BOT
V. PRIVATE OWNERSHIP OF TERMINAL
VI. PRIVATE SECTOR OWNS TERMINAL AND FINANCES GENERAL INFRASTRUCTURE

Appendix II PREFERRED MODEL AND RISKS TO BE CONSIDERED

***

Yours truly,
DELCHEV & PARTNERS

By:

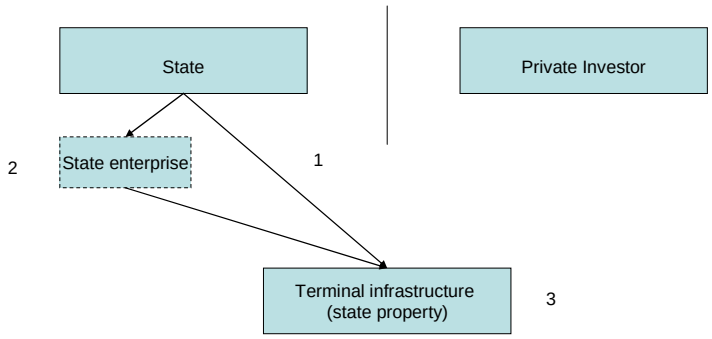
Ivan Marinov
Emil Delchev

Appendix I

FEASIBILITY OF MODELS

I. STATE FINANCES AND OPERATES

Model 1
State finances and operates



1. The State finances the construction of the terminal infrastructure using means from the general budget and loans.
2. Afterwards the State operates the terminal through a state enterprise, which also superstructure and equipment.
3. The profits from the operation are used to service the debts. Any remaining profits are reinvested in the state enterprise or flow to the budget.

D&P COMMENTS:

Feasibility

From a budget perspective Model 1 is not a feasible scenario as it requires that all financing be secured by the State.

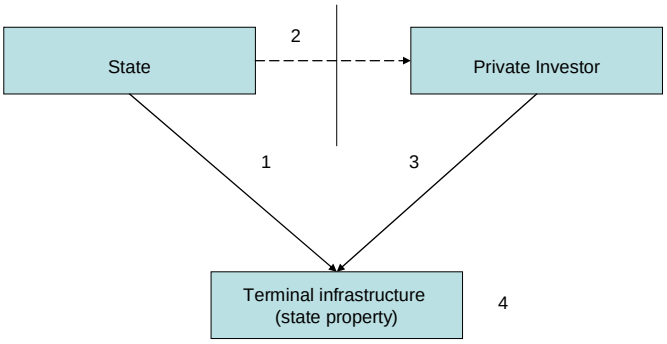
In addition Model 1 seems to be positioned remotely from the PPP concept as the Private Investor may have a participation which is unlikely to be qualified as PPP[3].

***

[3] In particular under Model 1 the private investor does not seem to assume any risk which is an inherent feature of the PPP concept.

II. LEASE OR DOMAIN/SERVICES CONCESSION

Model 2
Lease or domain/services concession



1. The State finances the construction of the Terminal infrastructure as in Model 1.
2. The Terminal, as State property, is leased or granted in concession (service or domain concession) to a Private Investor.
3. The Private Investor is responsible for investing in the superstructure and equipment.
4. The revenues from the lease payments or concession fees are used to service the debt. Any surplus flows to the state budget (general budget or port authority).

D&P COMMENTS:

Feasibility

Model 2 is legally feasible.

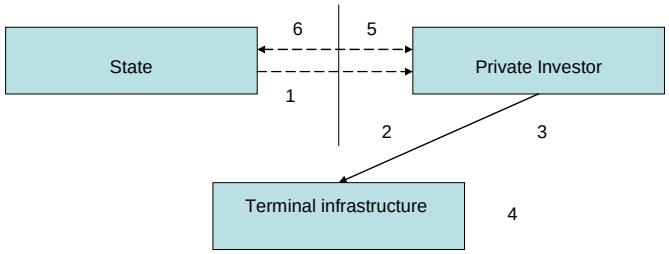
However, similar to Model 1, given that all financing of the construction is to be obtained by the State, Model 2 would be unbearable to the budget and hence most likely infeasible from a fiscal perspective[4].

***

[4] The "fiscal bearability" is central point of analysis for assessment of each PPP project in accordance with the Methodological Guidelines on PPP, published by the Bulgarian Ministry of Finance on July 2006.

III. BOT – WORKS CONCESSION

Model 3
BOT – works concession



1. The construction and operation of the Terminal is granted in a concession of works to a Private Investor.
2. The Private Investor finances the construction of the Terminal infrastructure, superstructure and equipment
3. The Private Investor operates the Terminal during the concession period.
4. The operating profits are used to service the debts and provide an adequate remuneration of the equity.
5. After the concession period the Terminal is transferred to the State at no cost or at a pre-determined price.
6. The Terminal is then operated as in Model 2, i.e. lease or domain/services concession.

D&P COMMENTS:

Feasibility

Model 3 is a classical example of PPP, where the Public Investor assumes both the construction risk and the business risk related to the availability services to be rendered by the Private Investor to third parties.

Legal, Institutional and Financial Framework

The State and the Private Investor have to conclude an agreement for concession of works[5].

The concession agreement is regulated by the Ports Act.

The resolution for grant of concession is taken by the Bulgarian Council of Ministers.

The Bulgarian Minister of Transport undertakes the preparatory action for the grant of the concession on port terminals for public transport with national significance, signs the concession agreements and monitors their execution.

Under Model 3 the Private Investor entirely bears both the risk of financing and business risk. Hence, under Model 3 the concession fee could be either minimal or there may be no concession fee.

As far as the property over the Terminal is concerned, given that the port is a public transport port of national significance, formally the title over the property will always remain with the State (i.e. the Terminal, as part of the port, is deemed public state property). On the other hand, from a financial reporting perspective of the Private Investor the cost of the Terminal shall be reflected in its financial statements. In other words, the legal title over the property shall always remain with the State while the cost of the terminal shall be reported by the Private Investor in its financial statements and depreciated accordingly.

[5] According to the Bulgarian Concession Act the maximum concession term is up to 35 years without option for consecutive term extension.

Further, at the end of the concession term the Private Investor may be required to transfer to the State the Terminal at net book value[6]. Formally, it is our understanding that this is not a transfer of title over a real property (title *in rem*) but rather a transfer of assets which has materialized in the financial statements of the Private Investor as a cost of the Terminal.

Finally, after the 'transfer of the Terminal to the State the Private Investor may continue to operate the Terminal under a new concession for services.

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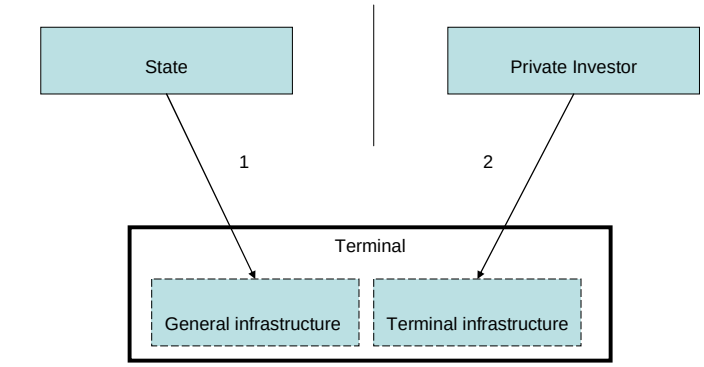
[6] The net book value shall be calculated as the historical (acquisition) cost of the Terminal less accumulated depreciation.

IV. PARTIAL BOT

Model 4
Partial BOT



The infrastructure is divided into two parts:

- General infrastructure (breakwater, access road) which does not directly generate revenues. This part is financed by the State.
- Terminal infrastructure – this part is financed through a BOT model.

D&P COMMENTS:

Feasibility

In essence Model 4 follows and is almost identical to Model 3 with the difference that the State finances the General infrastructure.

We do not see a problem that the General infrastructure be financed by the State as long as it is in compliance with the fiscal bearability.

In principle the State should finance and build the infrastructure related to Customs border control, road connecting the port to the republican roads network. Further it should also be noted that according to the Ports Act[7] the general technical infrastructure[8] of ports which is used under equal terms and conditions by all port operators and other persons having the right to use it may not be subject to concession.

Legal, Institutional and Financial Framework

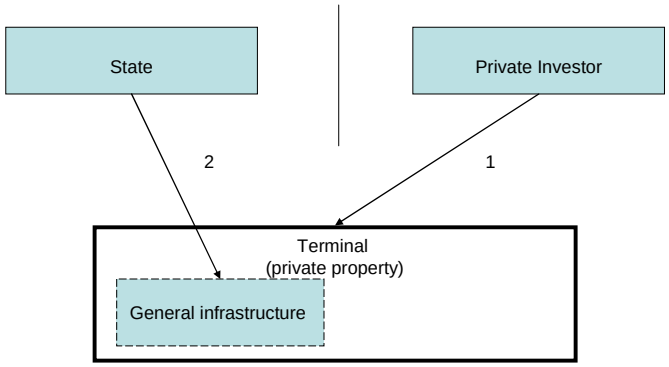
The elaborations made under Model 3 in this respect should be fully relevant as regards Model 4.

***

[7] Reference to art. 117a, para 5 of the Ports Act.
[8] The Ports Act does not give a definition or description of "general technical infrastructure". Given the limited facts conveyed to us at this stage of discussion we are not certain how this concrete provision shall relate to the concession. However, we shall reiterate that the general technical infrastructure may be used under equal terms and conditions by all port operators.

V. PRIVATE OWNERSHIP OF TERMINAL

Model 5
Private ownership of Terminal



1. The Terminal itself is financed and operated by the Private Investor who becomes the owner.
2. The General infrastructure is financed and maintained by the State (central, local port authority). The costs of General infrastructure are covered by revenues from port dues.

D&P COMMENTS:

Feasibility

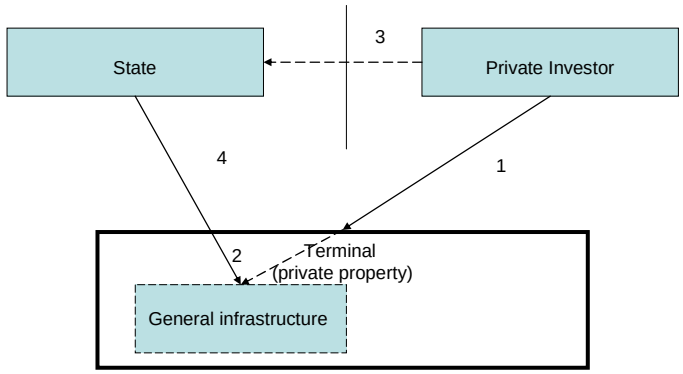
Following the assumption that the virtual case study concerns the construction of a terminal of a public transport port of national significance, no part of the terminal may become private property, i.e. it shall remain public state property.

***

VI. PRIVATE SECTOR OWNS TERMINAL AND FINANCES GENERAL INFRASTRUCTURE

Model 6

Private sector owns terminal and finances general insfrastructure



1. The Terminal itself is financed and operated by the Private Investor who becomes the owner.
2. The General infrastructure is also financed by the Private Investor but …
3. … Immediately transferred to the State.
4. After the transfer the State is responsible for the maintenance of the General infrastructure

D&P COMMENTS:

Feasibility

Following the assumption that the virtual case study concerns the construction of a terminal of a public transport port of national significance, no part of the terminal may become private property, i.e. it shall remain public state property.

***

Appendix II

PREFERRED MODEL AND RISKS TO BE CONSIDERED

MODEL I – STATE FINANCES AND OPERATES

As mentioned above, this Model I does not possess the characteristics of PPP.

MODEL II – LEASE OR DOMAIN/SERVICES CONCESSION

The weakness of Model II is that perhaps it will be considered to be very expensive to the State.

MODEL III BOT – WORKS CONCESSION & MODEL IV PARTIAL BOT

We consider that these two models are both feasible.

However, every Private Investor shall be willing to understand to what extent, if any, the State would engage in financing of construction of the Terminal (be it general infrastructure or else). Clearly, from the perspective of the Private Investor Model IV seems most preferable.

The risks that should be considered in both Model III and Model IV are of financial nature:

- Risk of construction;
- Risk of recovery of investment (and/or service of debts) from future revenues.

MODEL V – PRIVATE OWNERSHIP OF TERMINAL & MODEL VI – PRIVATE OWNERSHIP OF TERMINAL

It is our understanding that these Models are not feasible because the Terminal may not become private property.

***

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March 17th, 2008

Re: Public-Private Partnership Project Concerning Building Port Terminal in Ukraine

Mr. Paul van Eulem
Haskoning Nederland B.V.
Barbarossaweg 15, Nijmegen,
The Netherlands

Introduction.

The following submission was prepared by the **International Law Offices** on the request of Haskoning Nederland BV. appointed by the European Commission-EuropeAid Cooperation Office in connection with carrying out the work of the project entitled "Improvement of Maritime Links between TRACECA and TENs Corridors".

In order to make the subsequent exposition short, it appears necessary to make some remarks concerning legal and institutional framework which is related to the subject matter of the present study.

I. Following Roman law tradition all things are divided by Ukrainian civil legislation into three kinds: (a) things unrestricted in trade (res in commercio); (b) things restricted in trade; (c) things forbidden in trade (res extra commercium). List of things restricted or forbidden in trade must be prescribed by the law, i. e. any thing is presumed to be unrestricted in trade, if other is not directly prescribed by the law [1].

An above-mentioned dividing appears to be a general rule, in spite of the fact that it is not directly prescribed by the economical legislation in regard to property in the sphere of management. Here a basis a dividing are the types of economic activity, in accordance with which every businessman has a right without any limitations to carry out any activity that is not forbidden. The list of types of entrepreneurial activity subject to licensing, as well as the list of activities, wherein entrepreneurship is banned shall be established exclusively by the law [2].

Among other things the virtual project supposes constructing of a berth and new breakwater or multiplying the extent of existing breakwater, and also conducting of dredging works in the water area in front of a new handling complex.

In regard to water area it appears clear, that it can be exceptionally extra commercium, it can be only in a public property, because it is a territorial sea which makes exceptional property of Ukrainian nation and can be given only in usage. A territorial sea refers to the internal water-ways of common usage (res publicae), except

for the cases when their use for that reason is fully or partly forbidden by the legislation. Works, related to building of hydro technical constructions and deepening seabed for navigation, can be made on lands of the seabed. Locations and order of conducting of the indicated works are determined in accordance with projects, which are to be adjusted with the public bodies of guard of the natural environment, water economy and geology [3]. In addition, allotment of lands and water space for navigation, and also building or work in the area of action of shipping equipment and sea-lanes must be concerted with Ministry of Transport of Ukraine, local authorities [4].

The other things appear concerning berth and breakwater. On the one hand, the current legislation does not contain a direct prohibition or limitations to the indicated objects of properties to be in private property. At the same time, ab initio all such objects de facto were public property and, subsequently, their conversion was possible at that time only by means of privatization or passing to the private persons in the use on the terms of lease or concession.

However, the current legislation sets that water areas of ports, berths of all categories and settings, berth in ports and hydrographical constructions, front berths, port systems of engineering infrastructure, highways and railways (before the first fork outside the port territory) are the objects that provide the essential functions of the state and have national value, and accordingly, can not be transferred to the private individuals by means of privatization [5] or passed to them in a lease [6]. In spite of the fact that the property objects of state ownership can be given in concession for building and exploitation of freight and passenger ports, such transmission does not stop the right of state ownership on these objects [7].

Thus, the current legislation does not allow unequivocally conclude, whether berth and/or breakwater can be private property. At the same time, in Ukraine de facto there are some berths, which were built by private individuals and are their property or, in any event, we are not aware of the fact that somebody disputed their right of ownership.

II. For realization of the virtual project it is supposed for these aims to receive a land, adjoining to the territory of the existing port.

Lands relate to the real estate, and relations concerning their use are regulated by the civil legislation, which contains numerous provisions concerning the right of ownership and other property law on the land. At the same time the land relations are also regulated by the special land legislation, consisting of the Land Code of Ukraine and by the legislation accepted in accordance with it [8]. Till recent time academical discussion was conducted about positions of what legislation it is necessary to follow while determining the land relations.

As it seems, it must be settled on behalf of the new civil legislation adoption of which served to become a foundation concordance of it with the land legislation [9].

However all practical questions, connected with land-tenure, are settled on the basis of the land legislation.

By the current land legislation all rights on the land are divided on several types: (a) right of ownership; (b) right of the permanent use; (c) right of lease; (r) right of land servitude and (d) emphyteusis and superficius. From this list only a right of ownership, a right of lease and, possibly, superficius are suitable for the purposes of fulfillment of the virtual project.

For answering a question of a receipt of land it is necessary to take into account, that land is divided on a few categories on the grounds of special purpose. The virtual project is possible to carry out on the area, which is related to the lands for industrial, transport, and other purposes (article 19(1)(g) of the Land Code). If land, on which it is assumed to carry out the virtual project, is related to other category, the change of the special purpose of this land, which is made with observance of all prescribed formalities, can be required.

It is also necessary to take into account that depending on belonging of the land to the definite persons, all land can be divided into (a) being private property, (b) being state property and (c) being municipal property.

Along with that lands that are in the state or in the municipal property, it is possible to divide de bene esse into lands, transferred in the use or burdened with the rights of other persons, and lands in reserve. In case if land on which it is assumed to carry out the virtual project, belongs to the private individuals or was transferred to them in the use, the requisition of land, which should also be made with observance of all formalities, can be required.

In addition, up to the present time activities, which were provided by the law, on dividing lands of state property into lands of territorial communities and lands of the state, and establishment of scopes of lands of state and municipal property in nature (on locality), are not carried out [10].

Before dividing lands on state and municipal property rights of the disposal of lands (except for lands, that are in the private property, and lands, especially indicated in the law) in the borders of the of the settlements are carried out by the proper village, settlements, city councils, and outside settlements – proper bodies of executive authority [state administrations].

The central organ of executive power on questions of the land resources carries out the sale of lands of agricultural destination, except for lands that are in the private property and lands, on which the objects of privatization are located. The public organs of privatization carry out disposing (except for alienation of lands, on which objects that are not a subject of privatization are located) of lands on which the state enterprises are located, in that number are public enterprises, economic associations, in the share

capital of which belong to the state the following: stakes (actions, shares), objects of incompleted construction and preserved objects, and also sale of lands, on which objects, that are a subject of privatization, are located [11].

III. Historically the institute of concession is unusual to the system of the Ukrainian law, and it was used in the days of Russian Empire and in the first years of the Soviet Union, rather as an exception from a general rule. Later concession was considered as a method of colonial exploitation of developing countries by imperialists.

Provided by the special law the institute of concession adds nothing to the system of the current legislation, because, instead of domain/services concession, the contract of tenancy of state property was provided by the legislation long before and was actively used, being a traditional and fully clear method to get state property in usage. Concerning works concession, usage of this institute appears to be unreasonable when simultaneously there are a great number of possibilities to purchase an enterprise or land plot person would like to.

Because of the above-mentioned, and other reasons, the institute of concession practically is not used In any event, nowadays the list of objects for a concession provided by the state, includes four highways (according to a special law), two complexes of road-transport service, two wind-mill electric generating plans, two medieval castles and one palace [12].

IV. In Ukraine there are about twenty sea ports which were designated and built coming from the needs of the former Soviet Union.

Taking into account that all ports are public property and their operating facilities are presently enabled on the average on 30-40 percents, it appears incredible, that the state would like to finance building of a new terminal. In addition, practice shows that the state finances, and mostly due to the external borrowings, only extraordinary projects as, for example, completion of power units on Rivnenskaya and Khmel'nitskaya nuclear power plant in connection with closing of Chernobyl's nuclear power plant. We are not specialists in the sphere of state finances, however, the supposed cost of the project fully confers with the charges of the state budget and makes about 1,5 percents [13], that also shows on improbability of the state financing of building of a new terminal. The system of financing by the state of commercial objects is very attractive at ordinary terms due to the inexpensive external borrowings in Ukraine does not work because of the ineffectiveness of the existing system.

Turning to the answers on the questions, it is necessary to specify that all supposed methods of fulfillment of the virtual project are theoretically conceivable and can fully find determination in positions of the current legislation In particular (a) model of Lease or domain/services concession can be settled by means of law institutes of joint activity, concession and, possibly, lease; (b) for the model of BOT – works concession the legislation straightly foresees the existence of the institute of concession;

(c) models of Partial BOT and Private ownership of terminal, that according to the offered description are identical, can be settled through the institute of joint activity; (d) model of "Private sector owns terminal and finances general infrastructure" can be carried out by means of acquisition in ownership of a land for building a new terminal or receipt of land in the use on the conditions of lease or, perhaps, on conditions of superficius.

However, taking into account the above features of the current legislation, in principle the following models can be used: (i) BOT – works concession and (ii) Private sector owns terminal and finances general infrastructure.

I. BOT – works concession

Implementation of the indicated model is fully stipulated by the Economic Code of Ukraine and Law «On Concessions». The mentioned legislation contains similar positions, determining a concession as granting by an authorized state body or a local government of the right to create (construct) and/or manage (exploit) the concession object to a domestic or foreign business entity (the concessionaire) according to the concession agreement for a fixed period and for payment, in order to satisfy the social needs on condition that the concessionaire undertakes the relevant obligations, property responsibility and business risks (article 406 the Economic Code of Ukraine, article 1 of The Law Ukraine «On Concessions»).

Questions of granting state and municipal property in concession are within the competence of Cabinet of Ministers of Ukraine and local councils. Decisions are made according to the results of a tender (article 6 of the Law of Ukraine «On Concessions»).

If for realization of concession activity lands are needed, they are given to a concessionaire on the conditions of lease for the term of action of the concession agreement, in accordance with positions of the Land Code (article 3(5) of the Law of Ukraine «On Concessions», the article is 94 of the Land Code).

State guarantees and other questions of protection of foreign investments are stipulated by the Economic Code (articles 390-400) and Law of Ukraine «On the Regime of foreign investing» [14].

II. Private sector owns terminal and finances general infrastructure

The only condition of implementation of the mentioned model is acquisition in ownership of the land on which it is assumed to carry out the virtual project. Certainly, land can be leased and granted on the conditions of superficius. However, in the first case it differs little from concession, with only that difference, that upon termination of a lease agreement, it is possible to count on the receipt of compensation. Although, it is possible to raise a question about privatization of the area, where a new terminal will be built, before termination of a lease agreement.

Building leasehold is a new term, method of getting for usage land, being unknown to the legislation before, and, it can not provide minimum right guarantees, necessary for fulfillment of the virtual project. Although, in the case of building of new terminal on the land of the existing port this method appears to be preferable: an agreement is concluded according which between the port and private individual to which port gives a right to build a new terminal on the free area, and in exchange gets berths, breakwater and dredging.

All questions, related to the receipt of land for building a new terminal, are regulated by the Land Code. However, making a decision about the granting the land, as well as in case of concession, depends on discretion of the appropriate state or local self-government authorities, depending on the issue, in whose ownership the proper land is.

Taking into account that principle of estimation of strong and weak sides of different models was not required; we considered it possible to use the generally accepted principle:

Principle	*BOT – works concession*	*Private sector owns terminal and finances general infrastructure*
Sound legislative foundation	Yes	Yes with restrictions
Clarity of rules	Yes	Yes
Stable and predictable legal framework	Yes with restrictions	Yes
Fairness, transparency and accessibility of rules and procedures	No with restrictions	No with restrictions
Consistent with the country's legal system and particular laws	No with restrictions	Yes
Negotiability of agreements	No with restrictions	Yes
Enforceable court or arbitral determinations	Yes with restrictions	Yes

List of the sources used:

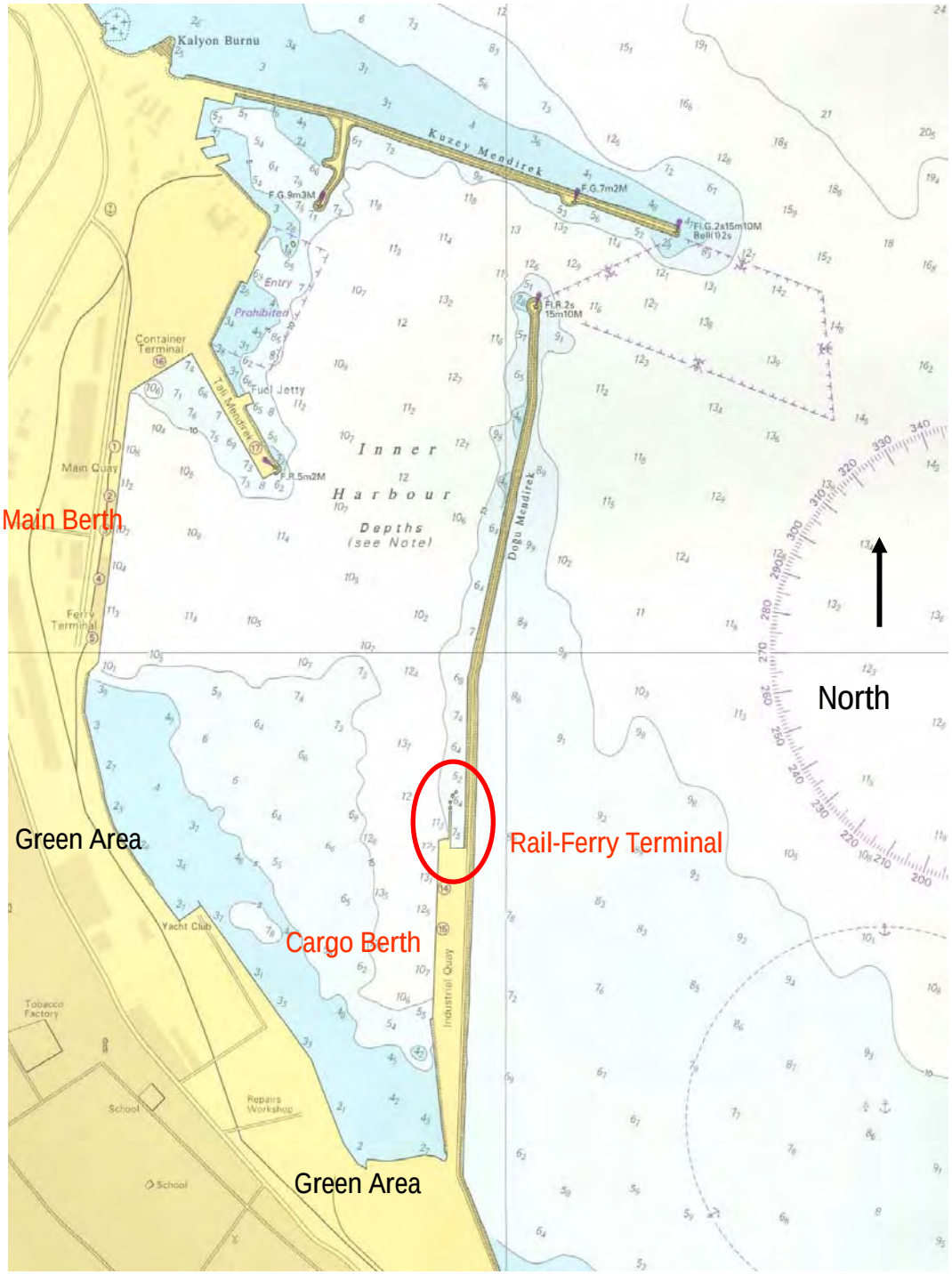
1. Article 178 of the Civil Code of Ukraine // Official Gazette of Ukraine, 2003, №11, s.461
2. Article 43 of the Economic Code of Ukraine // Official Gazette of Ukraine, 2003, №11, s.462
3. Articles 5(1), 6, 67, 86 of the Water Code of Ukraine // Gazette of Supreme Soviet of Ukraine, 1995, №24, s.189
4. Article 12 of the Merchant Shipping Code of Ukraine // Gazette of Supreme Soviet of Ukraine, 1995, №47-52, s.349
5. Article 5(2)(g) of the Law of Ukraine «On privatization of the state property» // Official Gazette of Ukraine, 1997, №33, p.40
6. Article 4(2) of the Law of Ukraine «On lease of state and municipal property» // Official Gazette of Ukraine, 1998, №3, s.72; 2004, №30, s.1990; 2005, №51, s.3171
7. Article 3(2), 20(1) of the Law of Ukraine «On concessions» // Official Gazette of Ukraine, 1999, №33, s.1707
8. Articles 3(1), 4(1) of the Land Code of Ukraine // Official Gazette of Ukraine, 2001, №46, s.2038
9. Law of Ukraine «On alterations and acceptance as expired some legislative acts of Ukraine in connection with the adoption of the Civil Code of Ukraine» // Official Gazette of Ukraine, 2007, №43, s.1703
10. Article 1 of the Law of Ukraine «On delimitation of lands of state and municipal property» // Official Gazette of Ukraine, 2004, №28, s.1849; 2008, №1, s.1
11. Paragraph 12 of the section X «Transitional regulations» of the Land Code of Ukraine // Official Gazette of Ukraine, 2001, №46, s.2038; 2005, №52, s.3251; 2006, №52, s.3477; 2008, №1, s.1
12. Decree of the Cabinet of Ministries of Ukraine dated 11 of December, 1999 № 2293 «On adoption of the List of objects of state property, which can be given in concession» // Official Gazette of Ukraine, 1999, №50, s.2473; 2003, №17, s.765; 2004, №43, s.2838; 2006, №11, s.728; 2007, №89, s.3262
13. In particular, in the budget for the year 2007 development expenses were the following: 23.963.799.400 hryven – general fund и 17.507.003.900 hryven – special fund; in the budget for the year 2008 the following expenses are provided: 30.344.191.400 hryven – general fund и 23.547.760.400 hryven – special fund.
14. Gazette of Supreme Soviet of Ukraine, 1996, №19, s.80; Official Gazette of Ukraine, 1999, №33, s.1707; 2000, №27, s.1113; 2003, №23, s.1021

PORT OF SAMSUN, TURKEY

RoRo Terminal Feasibility Study

TERMINAL PLANNING

Ankara, 26 February 2009



Samsun

Inner Harbour

Table of Contents

- Planning Criteria
- Terminal Requirements
- Project Alternatives

- Tides, winds and waves:
  - Very limited tide range (no movable ramp needed, just strong quay apron)
  - Prevailing wind directions from SSW to NNW (protection from land, thus easier berthing and departing manoeuvers)
  - Excellent breakwater protection (no wave disturbance felt inside the port – just a few problematic days each year)

    (outer piers also operate round the year)

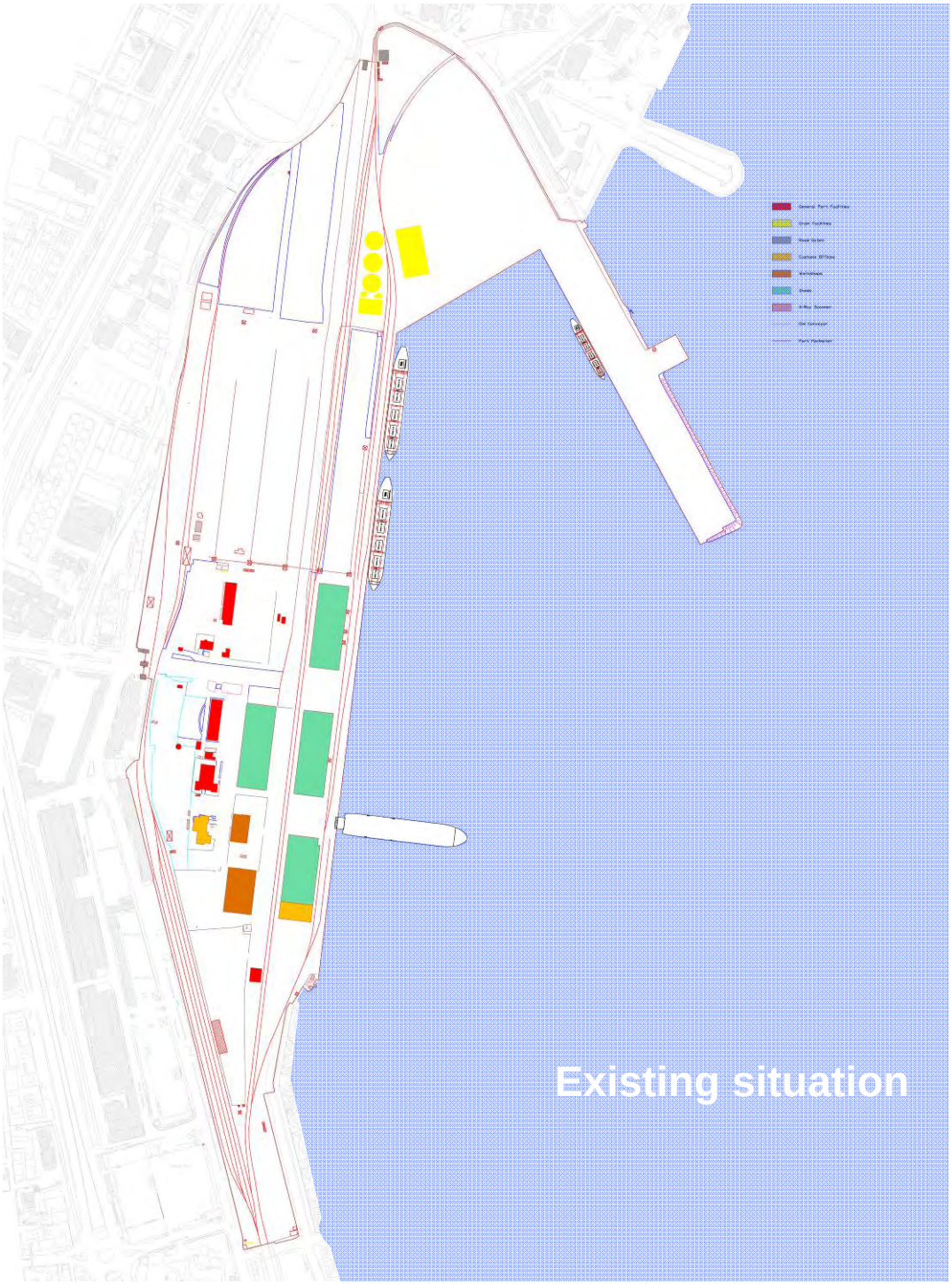
- Location constraints:
  - Green areas should not be spoiled
  - Eastern pier dedicated to rail-ferry activities and possible container traffic (and far from highway connections)
  - Main berth obstructed by quayside sheds
  - Some free space East of Ceynak silos
  - Free Trade Zone in the North

- Design vehicle and vessel:
  - 38 ton semi-trailer, 18 m long, 2.5 m wide
  - Ulusoy-1 ro-ro vessel
    - LOA: 146 m
    - Breadth: 22 m
    - Loaded draught: 5.5 m (requires 6.5 to 7 m water depth)
    - Capacity: 95 semi-trailers and 120 passengers
    - Stern quarter ramp

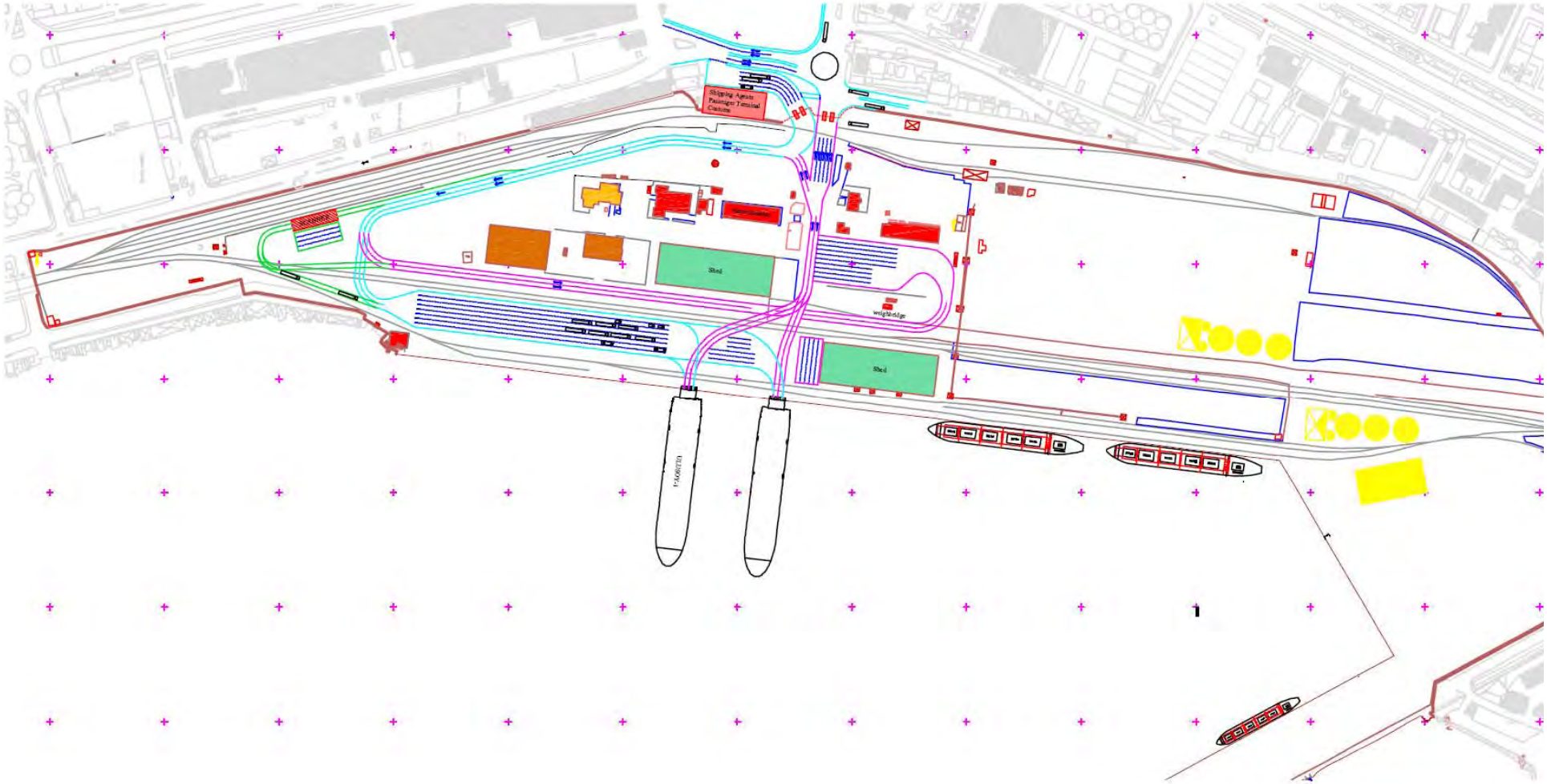
- Berthing requirements:
  - Assuming 50 semi-trailers per trip and annual traffic of 20,000 semi-trailers (meaning 200 calls/year) leads to 1 to 2 berths (with average call duration of a few days)
  - To achieve 50,000 semi-trailers 2 berths are sufficient if average call duration is very limited (e.g. 1 day for loading operations, less for unloading)

- Yard requirements:
  - –Assuming annual traffic of 20,000 semi-trailers per year, 150 yard slots are sufficient if average dwell time is limited to 2 to 3 days
  - –To achieve 50,000 semi-trailers, dwell time on yard must be 1 day for outbound units, less for inbound

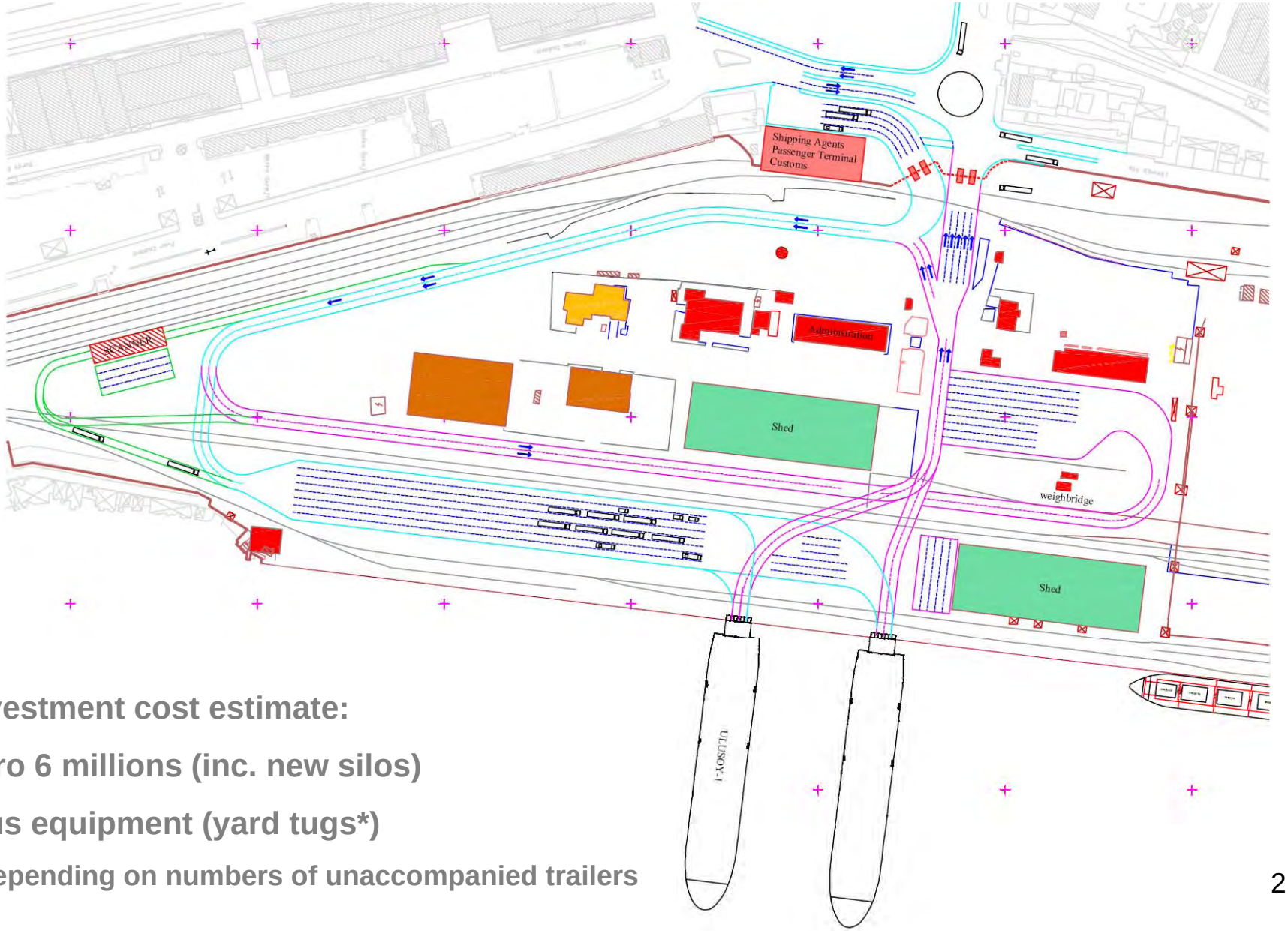
- Berths
  - Two stern berths, without dolphins (bow anchorage)
  - Minimum water depths of 7 m
  - Two locations in the inner harbour
- Yard
  - Parking slots for 150 semi-trailers
- Gate complex
  - Control booths, scanner, weighbridge, security equip.
  - Building with access from outside and outside


Existing situation

Alternative 1 – General View



Alternative 1 – Details



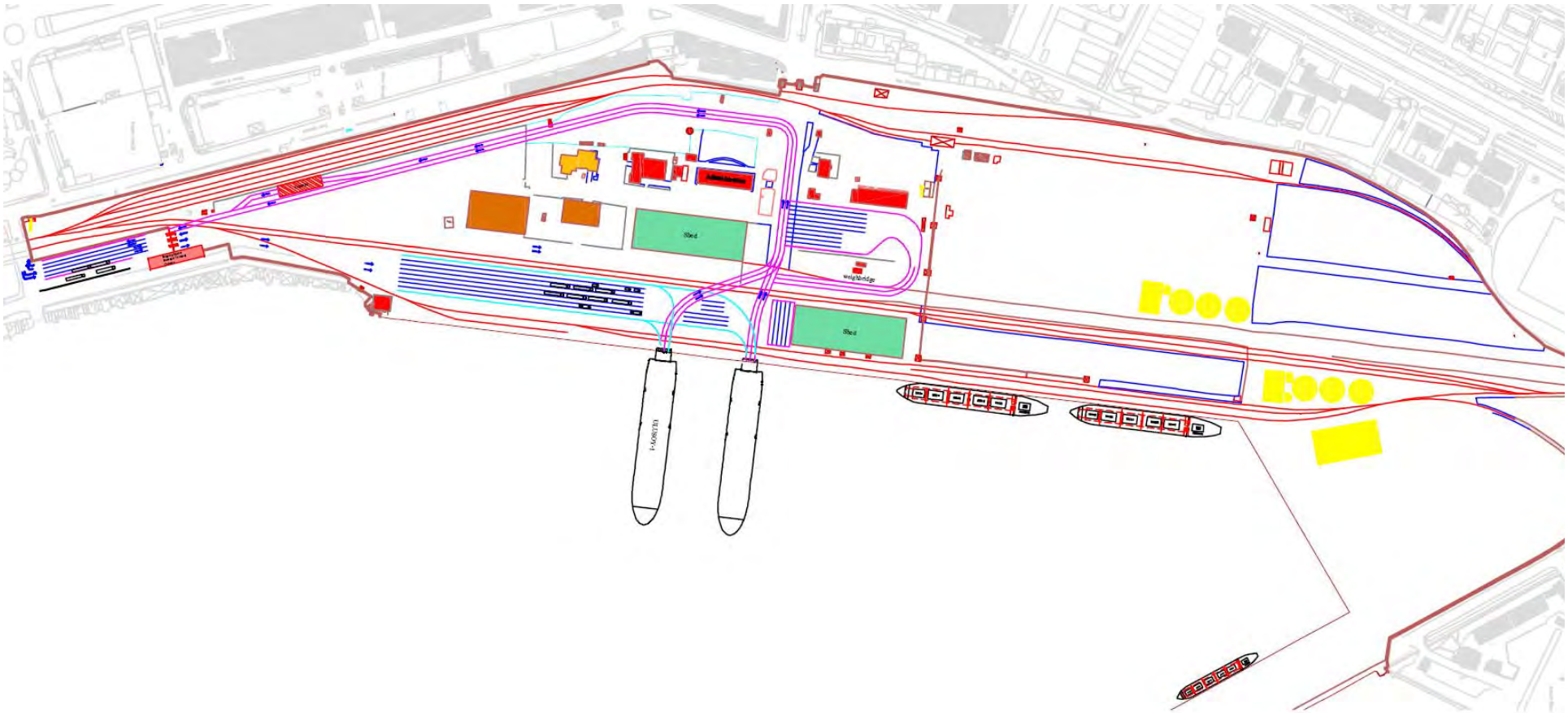
Investment cost estimate:

euro 6 millions (inc. new silos)

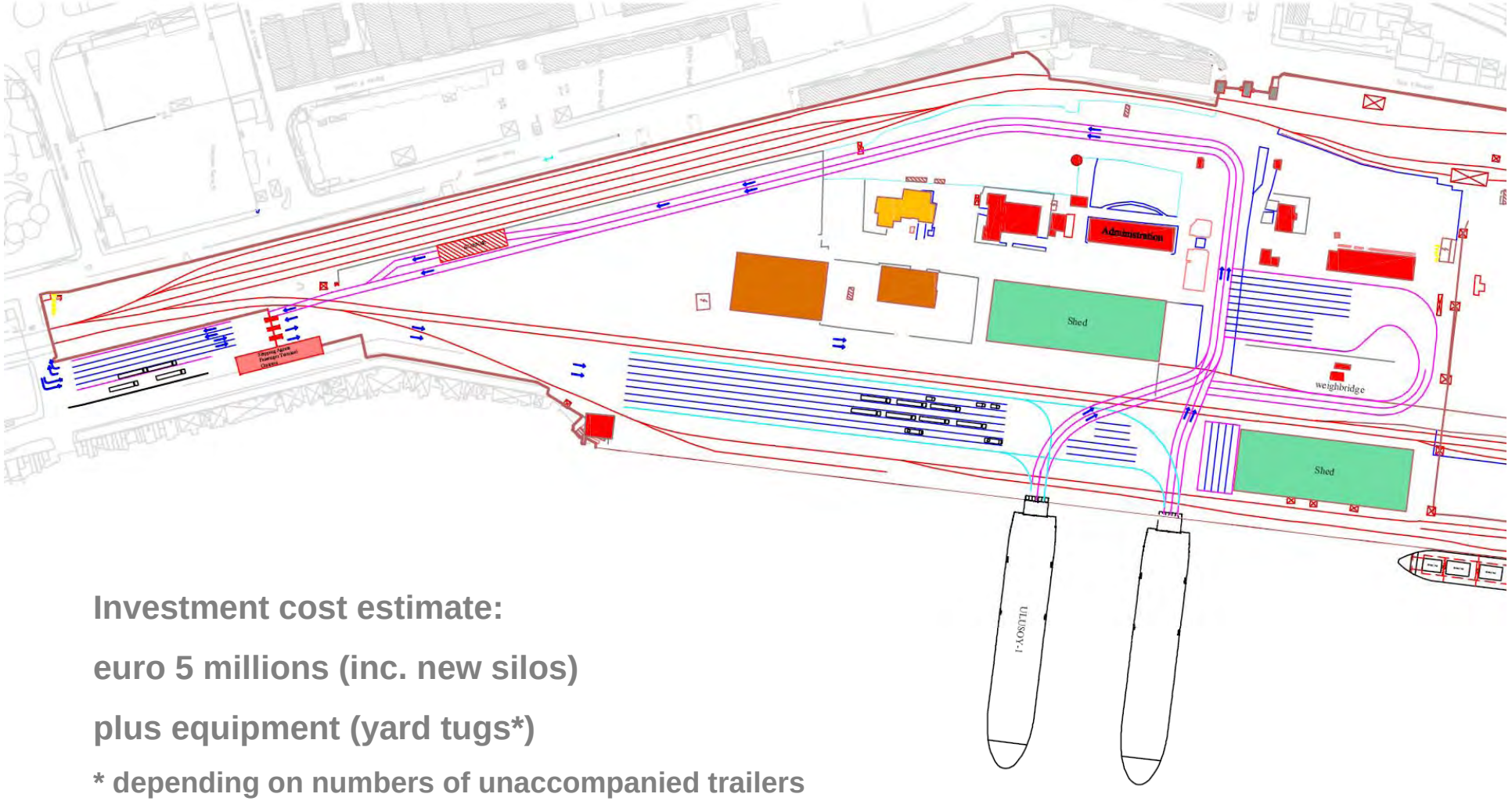
plus equipment (yard tugs*)

*** depending on numbers of unaccompanied trailers**

Alternative 2 – General View



Alternative 2 – Details

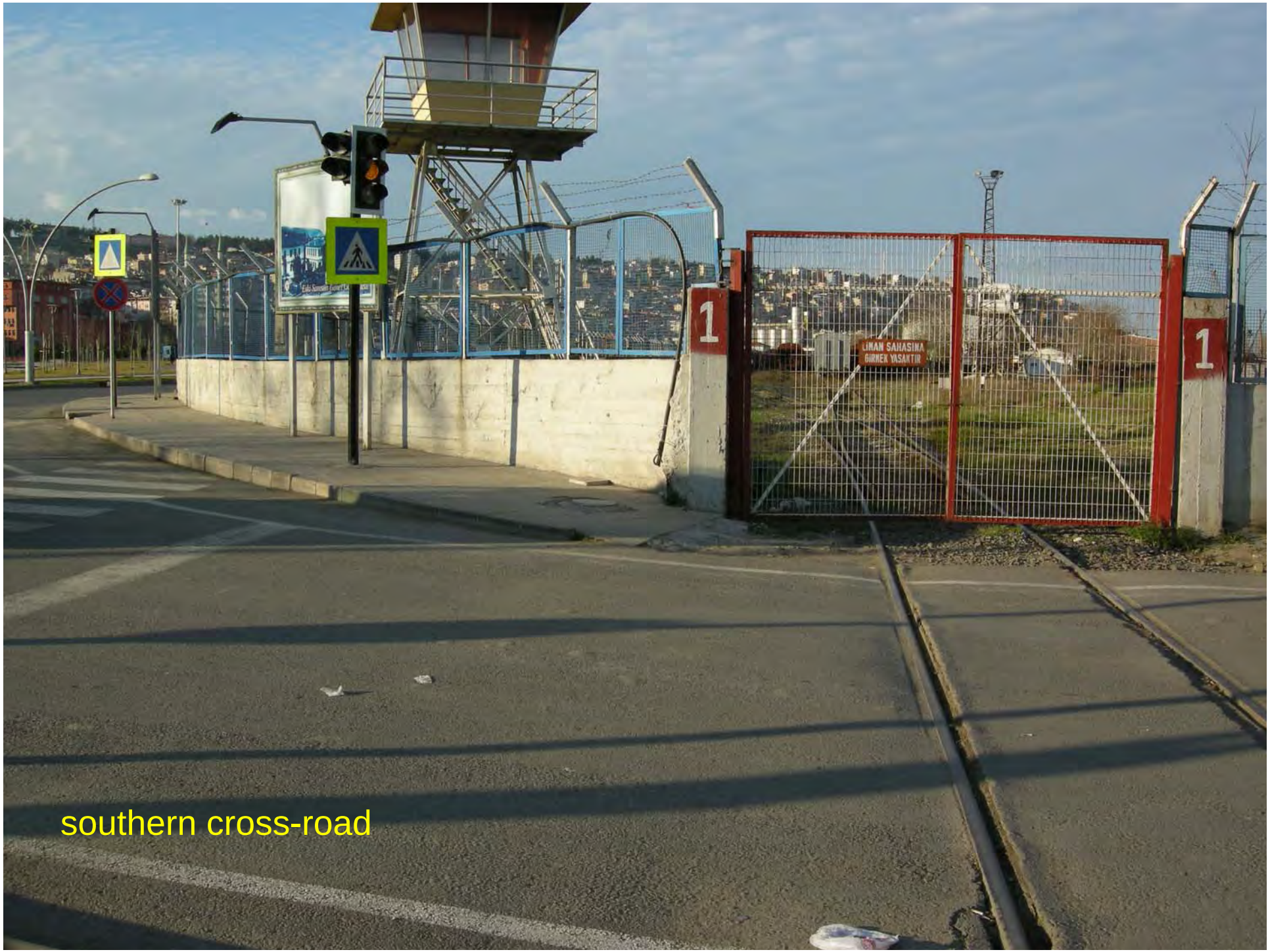


Investment cost estimate:

euro 5 millions (inc. new silos)

plus equipment (yard tugs*)

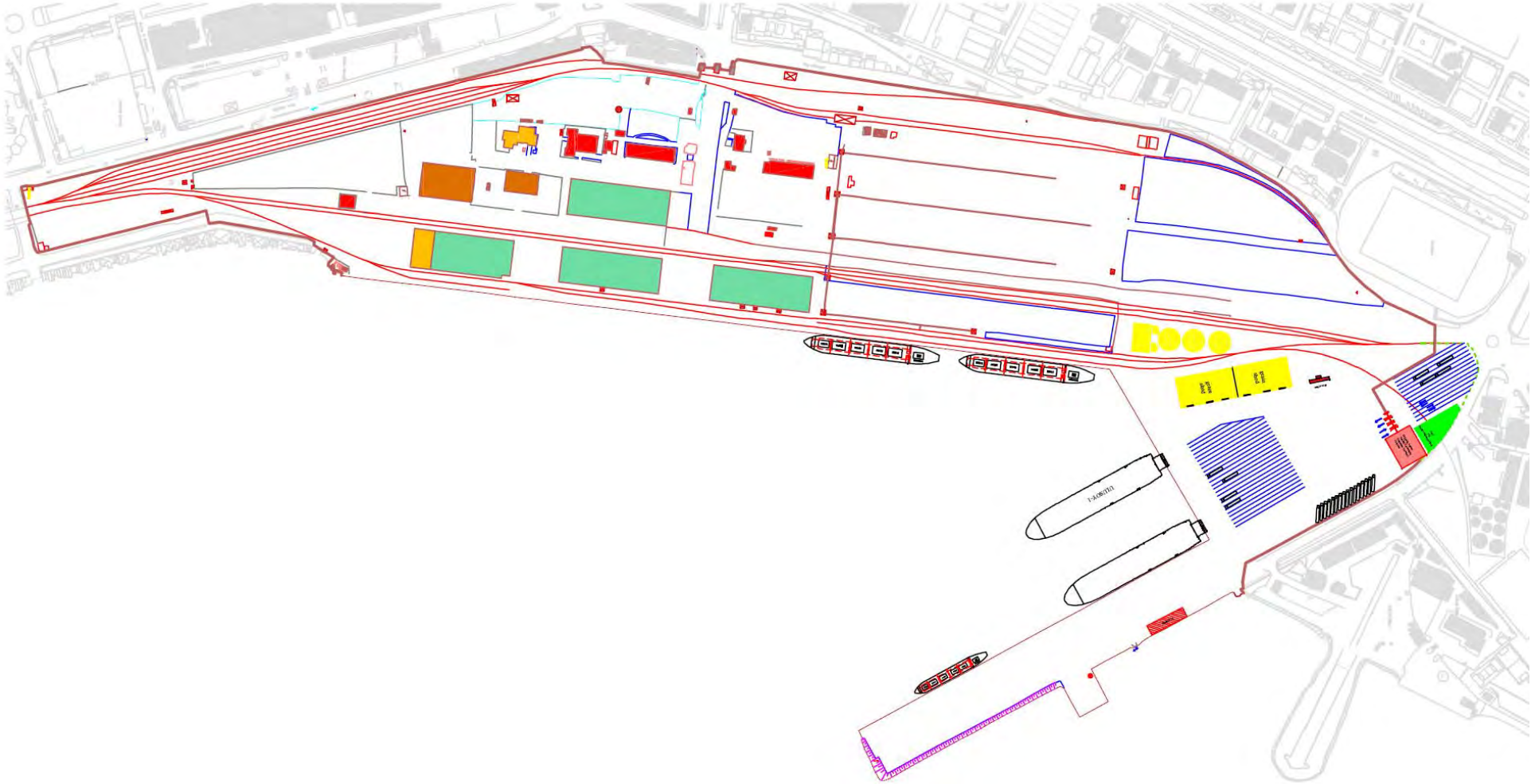
*** depending on numbers of unaccompanied trailers**



southern cross-road

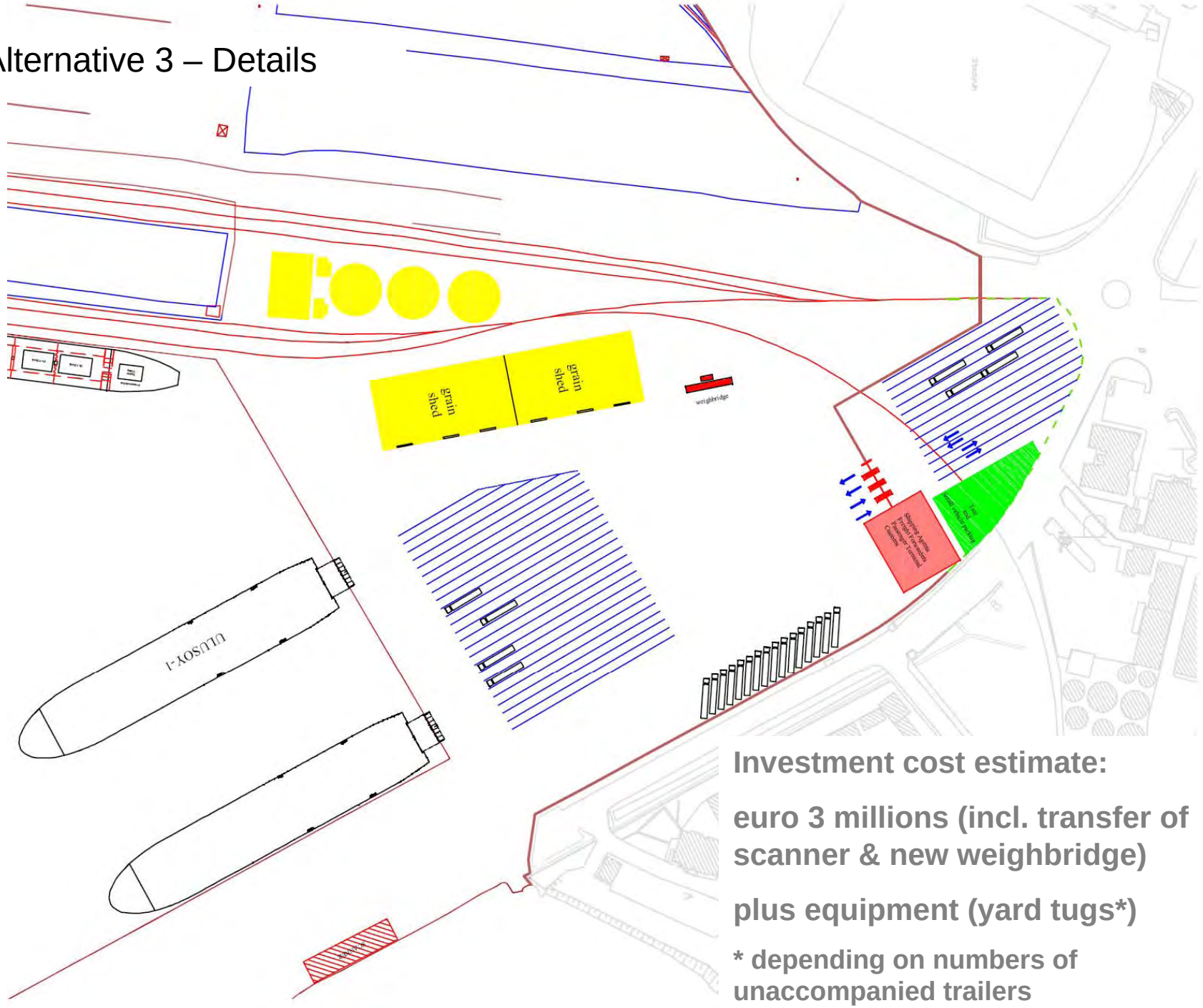
Alternative 2: southern end of proposed gate complex

Alternative 3 – General View



Note: the northern yard must be freed, first

Alternative 3 – Details



Investment cost estimate:

euro 3 millions (incl. transfer of scanner & new weighbridge)

plus equipment (yard tugs*)

*** depending on numbers of unaccompanied trailers**

Improvement of Maritime Links between TRACECA and TENs Corridors

Completion Seminar

Sofia, 26 March 2009

Introduction

- Consortium
- Objectives & project results
- Budget & manpower
- Beneficiaries
- Deliverables
- Programme of the day

Consortium

- Royal Haskoning, the Netherlands
- EgisBCEOM, France
- NEA, the Netherlands

Local partners:

- ITC, Bulgaria
- Iptana, Romania
- Spectrum, Georgia
- Logistic Platform, Ukraine
- NEA-Turkey

Project objectives

- The project's purpose is to create the basis for the improvement of maritime links in the Black Sea region. This relates to reliable, safe, secure, competitive and efficient shipping and port services and to enable viable links with the TENs mainly with regard to rail ferry, ro-ro ferry and container services

Project results

- Result 1: Market Research and Action Plan Maritime Transport Black Sea region
- Result 2: Feasibility Study Ro-ro Terminal Samsun and Pre-Feasibility Study Port of Filyos
- Result 3: Safety and Security Management Systems
- Result 4: Port Community Systems
- Result 5: Port Public Private Partnership and Bankable Projects

Budget & manpower

- Timeframe: 16 April 2007 – 15 April 2009
- Budget: € 2.2 m.
- Manpower:
  - 5 key experts
  - 10 international non-key experts
  - 9 local non-key experts
- Total person-days: 1,933

Beneficiaries

- TRACECA National Secretaries: Bulgaria, Georgia, Romania, Turkey Ukraine
- IGC TRACECA
- TRACECA Black Sea ports

Other institutions involved:

- EU, TACIS Monitoring, EU delegations
- Tuning with other EU projects (Motorways of the Sea, Traffic flows TRACECA)

Deliverables (1)

- Phase 1: Market research & Action Plan
- Phase 2:
  - Feasibility studies Filyos & Samsun
  - Training workshops Safety & Security
  - Country workshops PCS-PPP
  - Reporting (progress reports, working papers, fesibility study reports,final report)

Deliverables (2)

2008		
Filyos stakeholders meeting	Ankara	4 Nov.
S&S Training workshop Bulgaria	Burgas	4-6 Nov.
PCS-PPP Workshop Turkey	Ankara	11-12 Nov.
PCS-PPP Workshop Ukraine	Odessa	25-26 Nov.
S&S Training workshop Turkey	Istanbul	25-27 Nov.
S&S Training workshop Ukraine	Odessa	16-18 Dec.
2009		
PCS-PPP Workshop Bulgaria	Varna	13-14 Jan.
PCS-PPP Workshop Romania	Constantza	20-21 Jan.
S&S Training workshop Georgia	Batumi	3-5 Feb.
PCS-PPP Workshop Georgia	Batumi	10-11 Feb.
S&S Training workshop Romania	Constantza	17-19 Feb.
Samsun stakeholders workshop	Ankara	26 Feb.
Study tour PSC - General Western Europe	NL/BE	9-13 March
Completion Seminar	Sofia	26 March

Programme of the day

- Morning: overall project
- Afternoon: safety & security
- Evening: seminar diner
- Financials: reimbursement travel costs
- Project speakers: Klaas Westerkamp, Johan Gauderis, André Merrien, Ewout van der Reijden, Peter Verwaerde and Bertrand Apperry

Improvement of maritime links between TRACECA and TENs Corridors

Results of the market analysis

Klaas Westerkamp – NEA Transport research and training

TRACECA Map

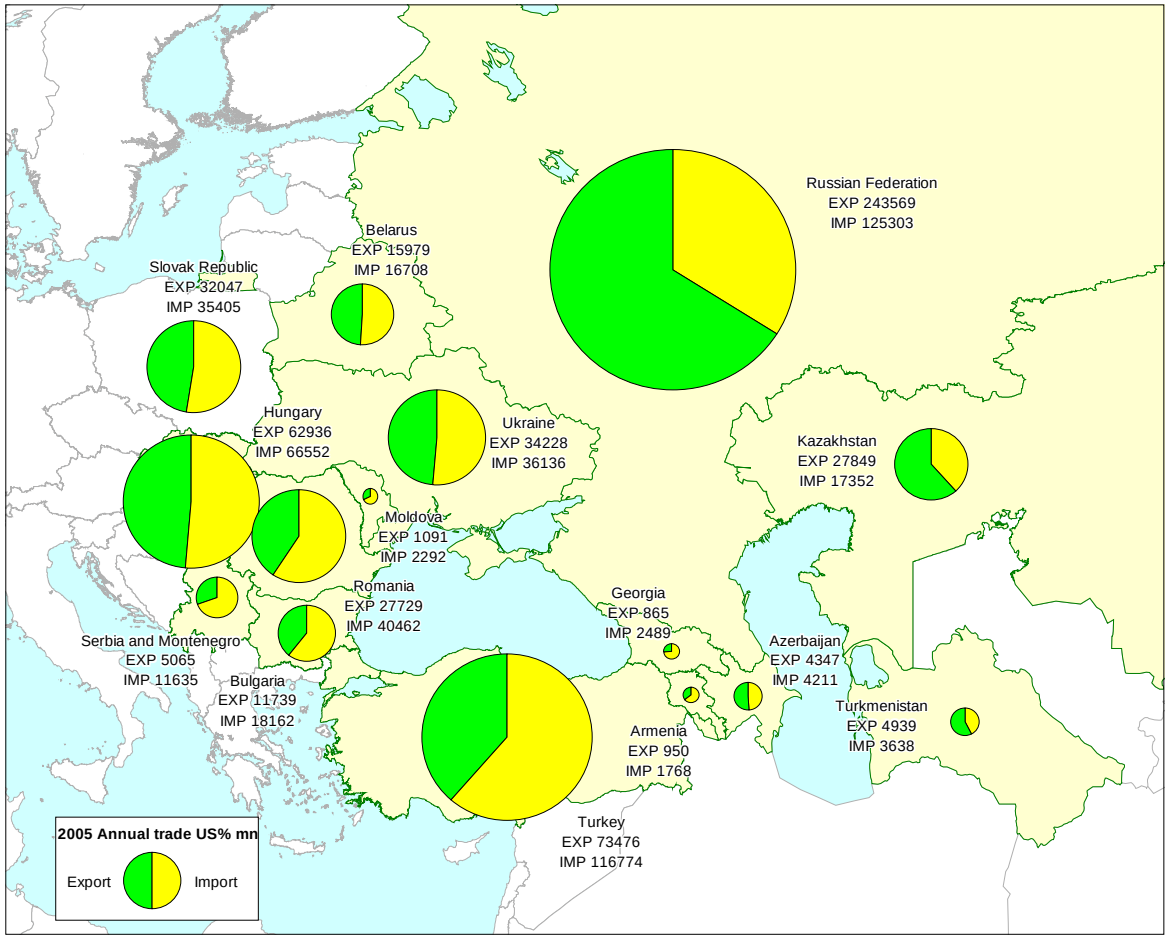

TRACECA
KAZAKHSTAN
UKRAINE
ROMANIA
BULGARIA
TURKEY
ANKARA
UZBEKISTAN
TURKMENISTAN

Objective

Support development of ports in the Black Sea area by:

- Forecasting transport volumes 2020
- SWOT analysis of existing facilities including:
  - Technical assessment, efficiency
  - Hinterland connections
  - Port dues

Recent Trends



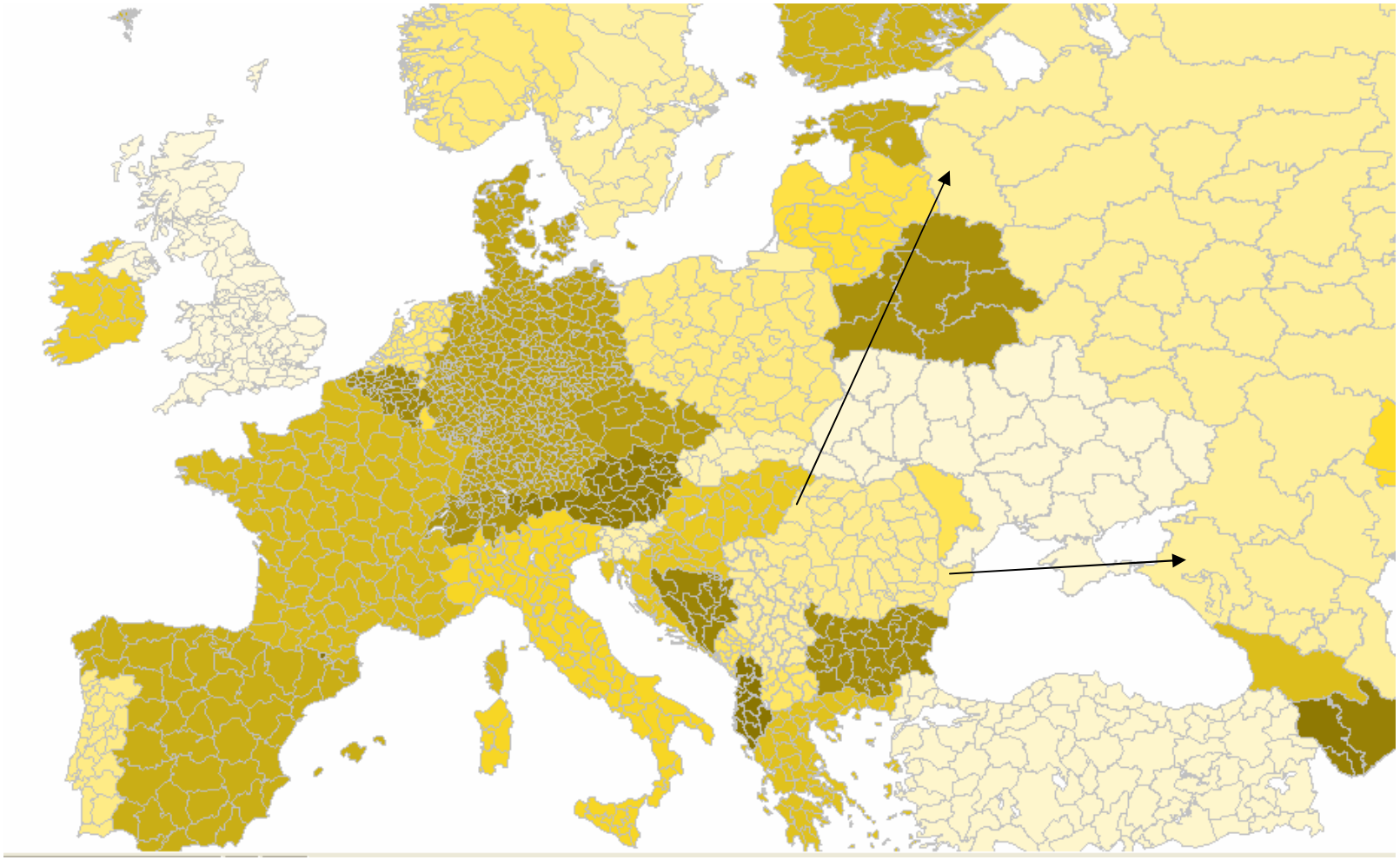
- Trade by Value (US$)
- Selected 15 core countries
- All flows
- Growth of 320-340% over last 10 years.

Recent Trends

High growth:

- 7-11% per annum by weight (tonnage)
- 14-15% per annum by dollar value.

Detailed database available



Forecast results

– Low scenario: 7% compound annual growth, (2.8x growth factor to 2020)

– Central scenario: 11% compound annual growth, (4.8x growth factor to 2020)

Port Scenarios

Forecast does not produce a single figure by port but a bandwidth, depending on:

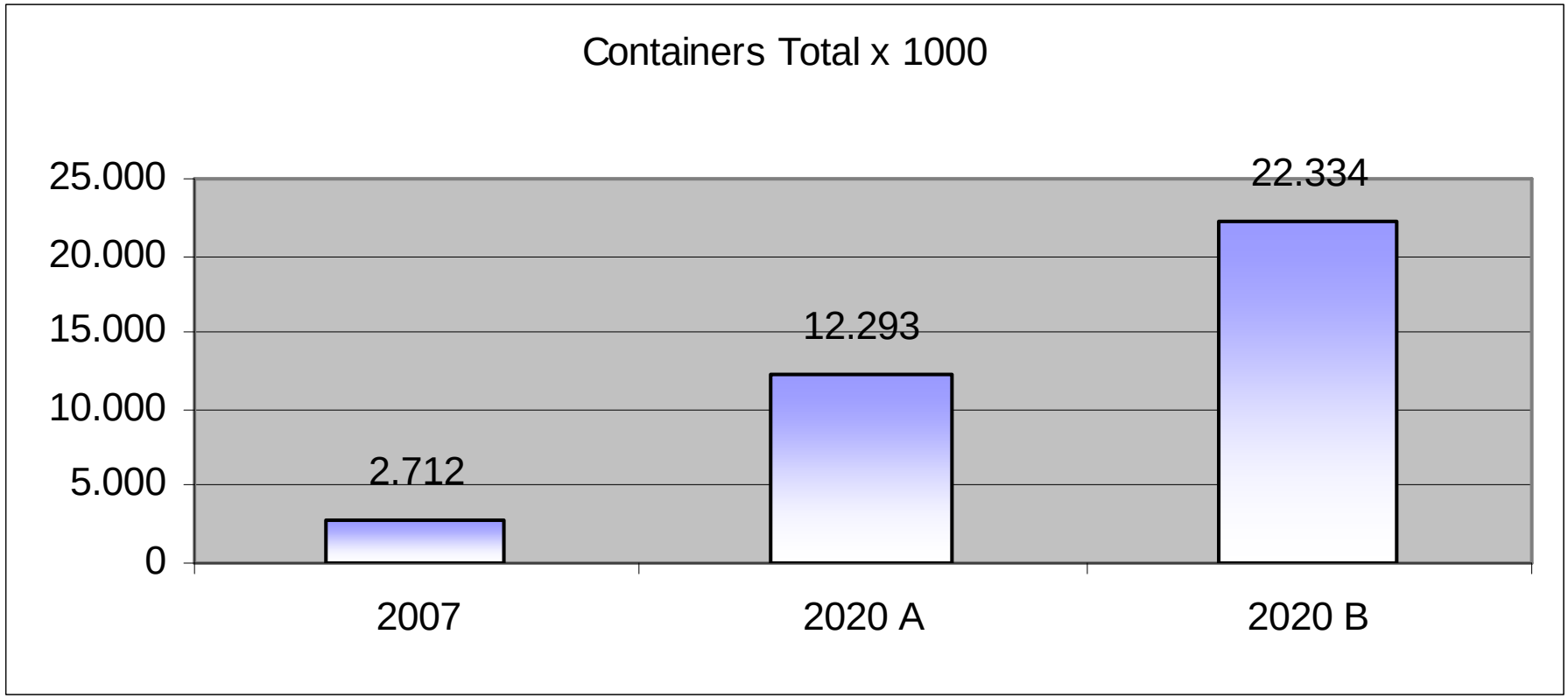
- Economic/trade developments in the Black sea region
- Developments in transport sector – level of containerisation
- Hinterland scenarios

Containerisation

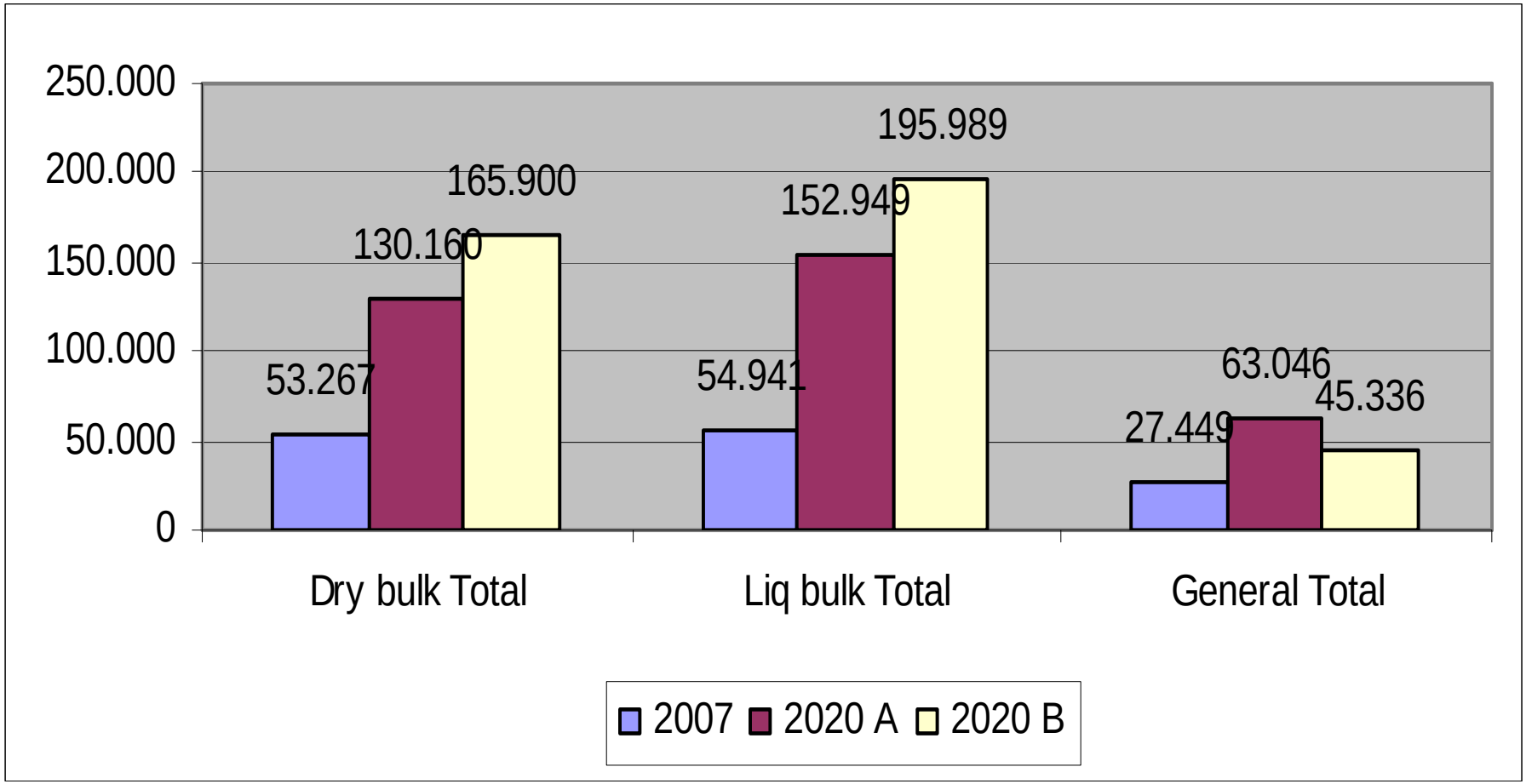
Port specific scenarios for level of containerization in 2020

- depending on type of goods (data base at NST/R chapter 3 digit level)
- what can be containerized (East Asia, US levels)
- current level of containerized goods in the ports

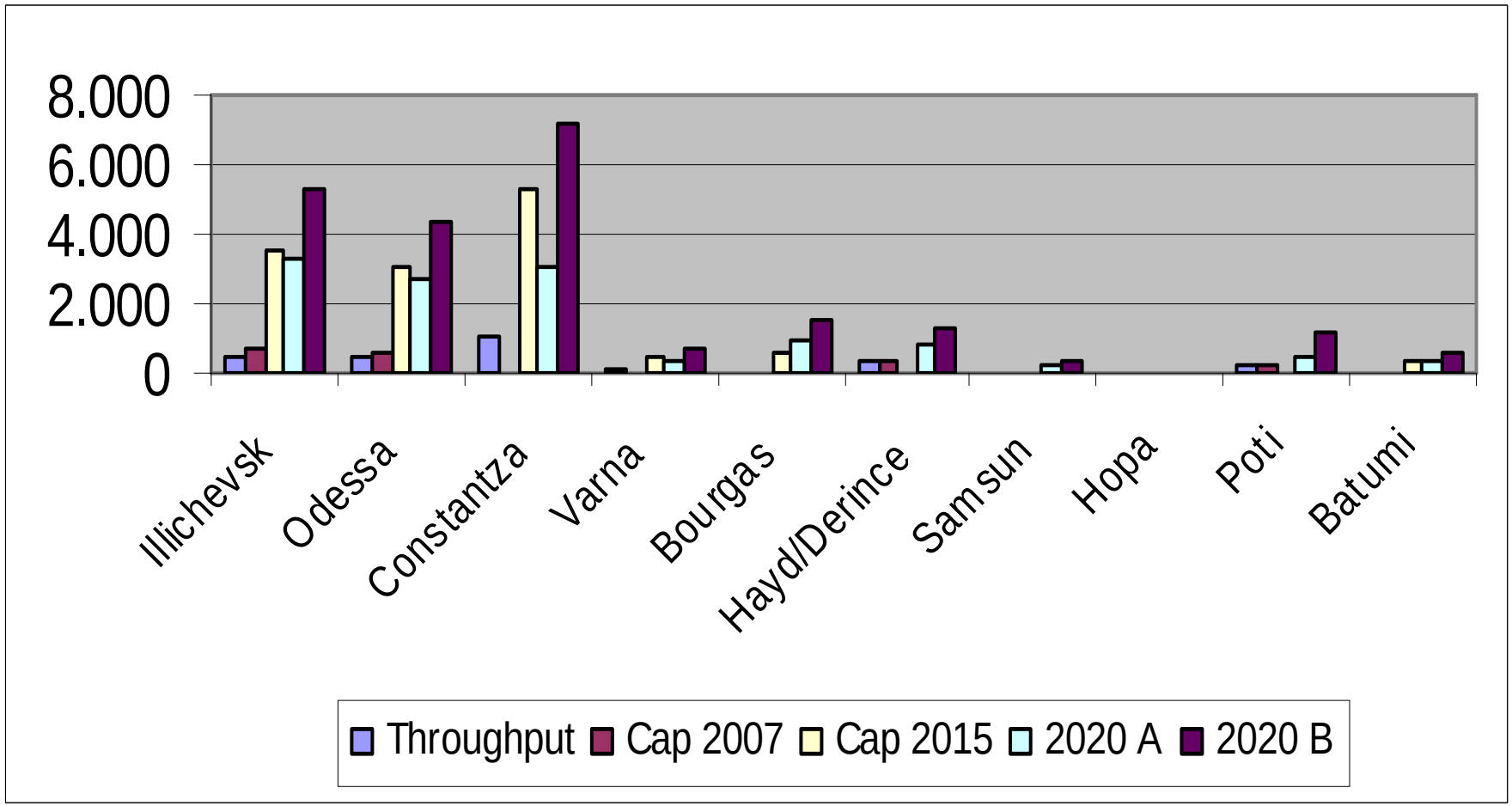
Total – Containers



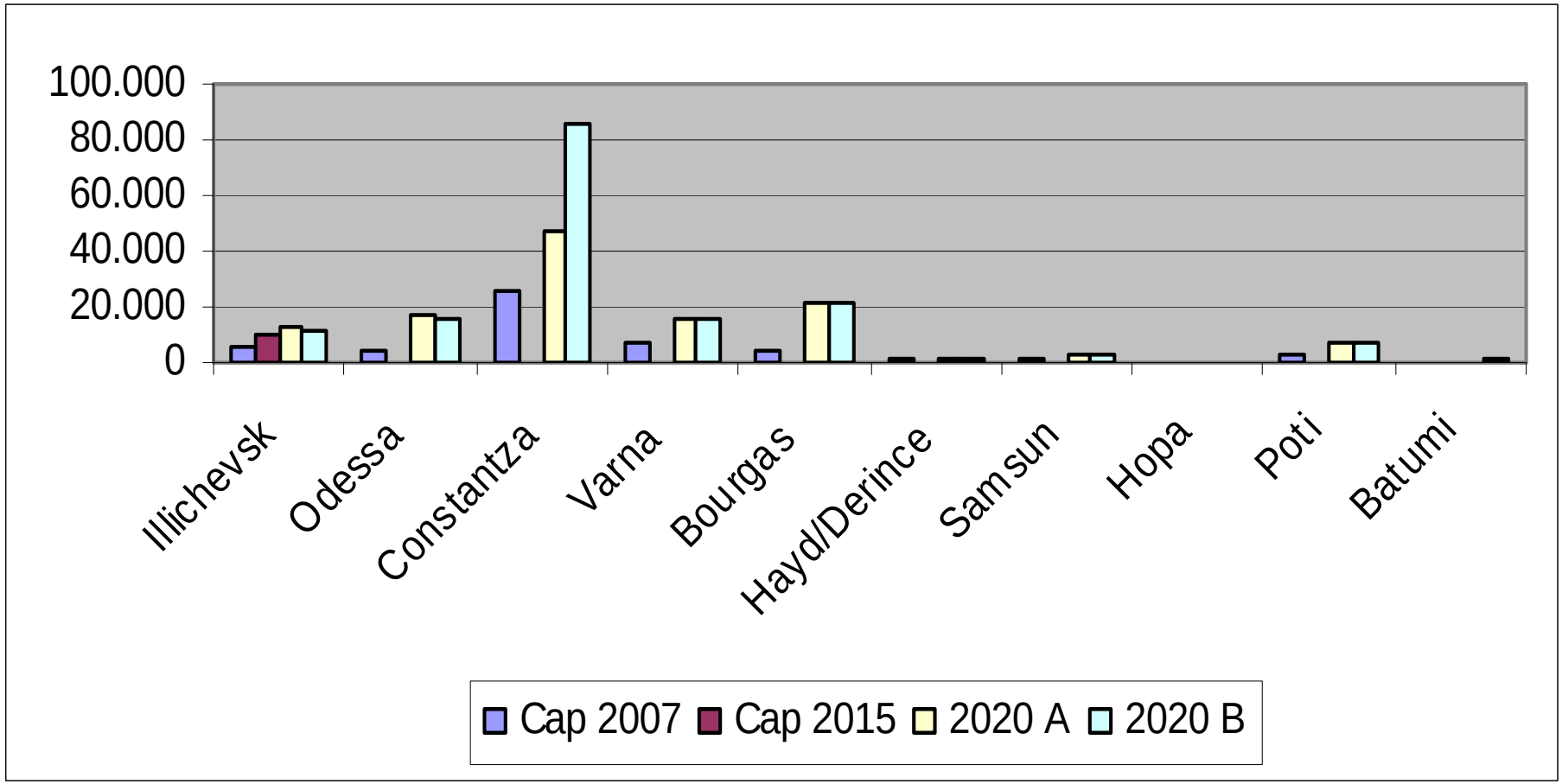
Total – Bulk/General



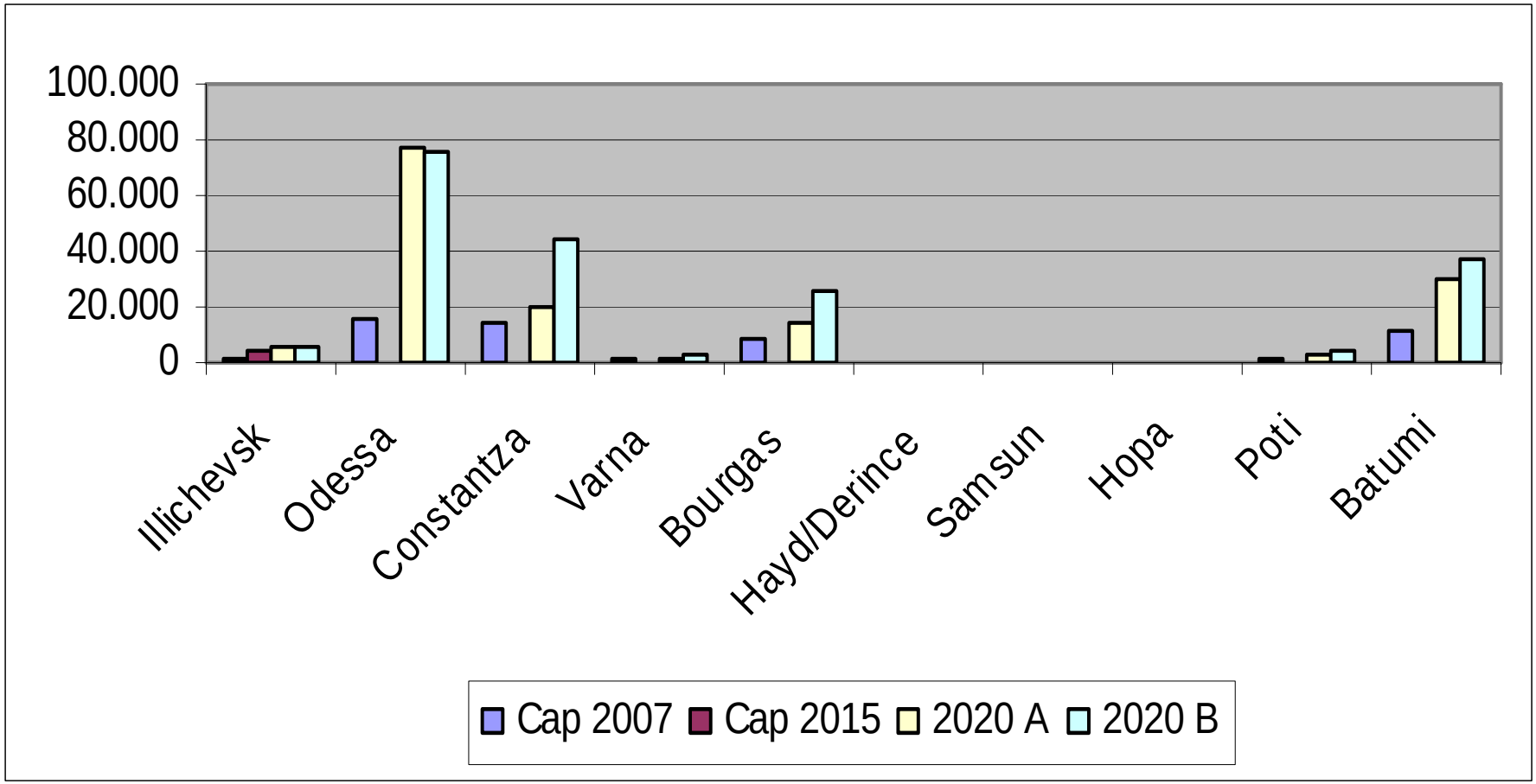
Containers x 1000 TEU



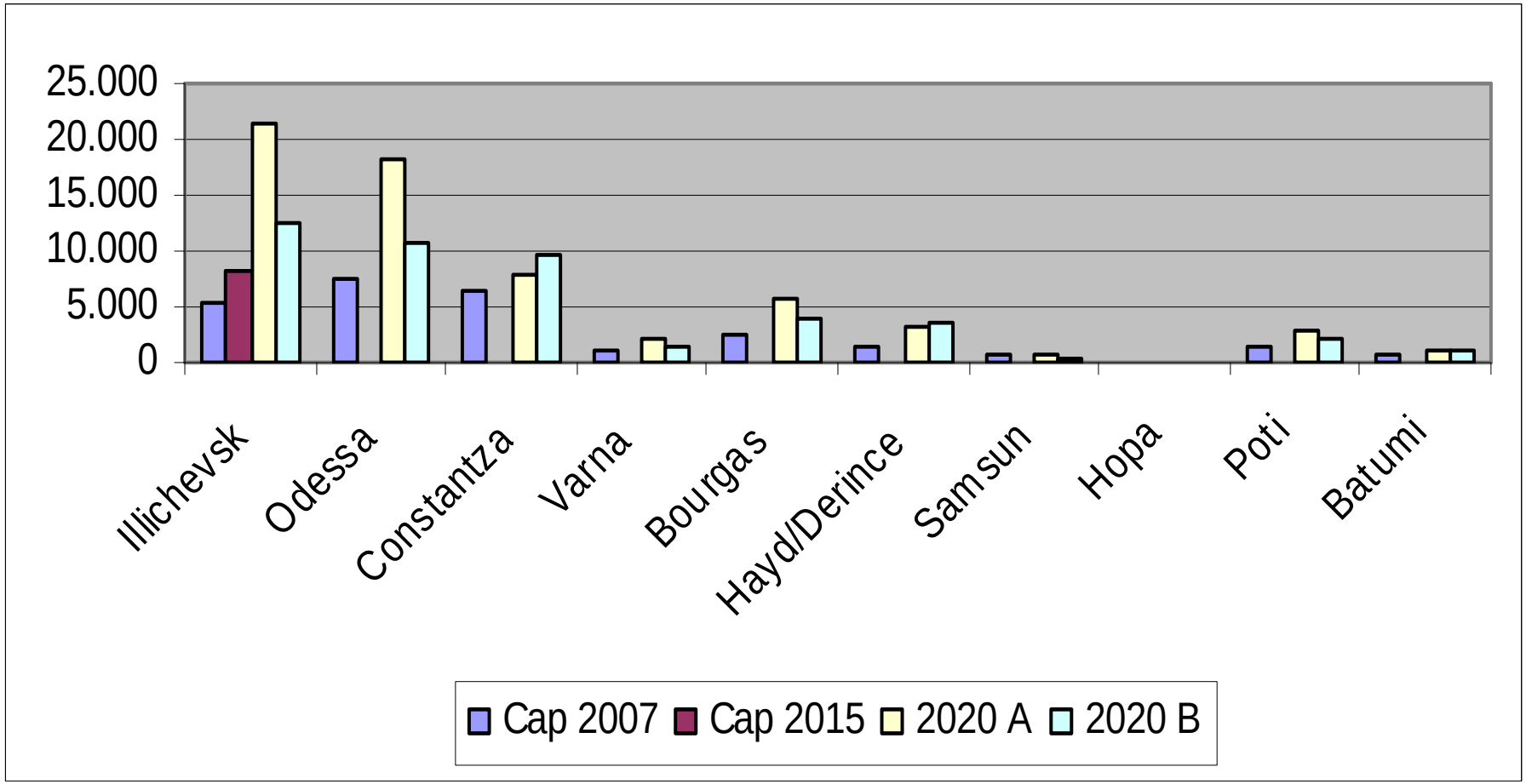
Dry bulk x 1000 tonnes



Liquid bulk x 1000 tonnes



General cargo x 1000 tonnes



General observations (1)

The Black Sea region has a high growth potential for sea transport due to:

- Substantial economic and trade growth in the black sea countries;
- Ongoing integration of this region in world economy and its trade routes (e.g. shipping services)
- Currently relatively low trade volumes and underinvestment in port infrastructure
- Potentially large hinterland for Black sea ports (Kazakhstan, Russia, Danube countries)

General observations (2)

Very high growth rates for containerised transport due to:

- High overall trade growth;
- Even higher growth in commodity types than can be containerized;
- Low current levels of containerisation – strong catching up effects

Influence economic crisis

- 12/02/2009: East Mediterranean Black Sea Express (EBX) cancelled (8 vessels 3800- 6040 TEU)
- Black Sea trade good geographical balance
- Recovery expected 2011 / 2012
- Forecast uses two scenarios (low / central)
- Realisation 2022 / 2023

Positive

- Production moves from Asia to CEE/TR
- Possible boost inter Black Sea container traffic

Priority investment areas (1)

Private capital investments last 2 years:

- Batumi, KZ national oil company
- Batumi, container terminal to ICTSI
- Poti, Middle East Investment fund
- Samsun, Turkish Ceynak Group
- Derince, Turkish Turkler Group
- Illichevsk, APM invests in container terminal

➢ ***Private capital knows how to find the Black Sea***

Priority investment areas (2)

- Hinterland Connections
- ICT
- Customs

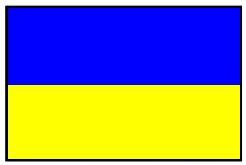
TACIS 117107

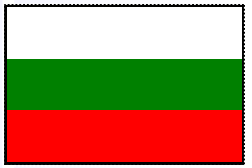
Enlargement

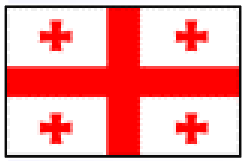
TRACECA

Improvement of Maritime Links between TRACECA and TENs Corridors

(Ukraine, Romania, Bulgaria, Turkey, Georgia)







FINAL SEMINAR

'Transfer of Expertise'

BULGARIA - SOFIA

'Grand Hotel Sofia'

Result Nr.4: ICT/EDI

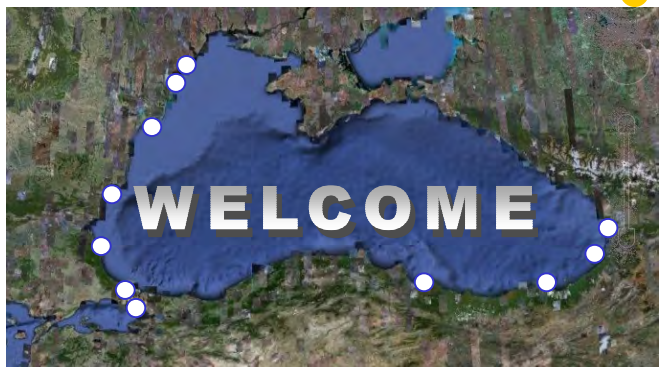
"Port Community Systems/Services"

March, 26th 2009

"Scientia potentia est"

ICT in PORT COMMUNITIES: PORT COMMUNITY SYSTEMS

1. ACTIVITIES & FINDINGS:
   1. Y1:
      1. Visits (incl. inception phase) to NS, Relevant Administrations, Ports (& communities)
      2. Findings & Bottlenecks
         - Ports & Port Community
         - Ambiguity
         - ICT
   2. Y2:
      1. Workshops
      2. Study tour
      3. Closure seminar
2. AND….WHAT NOW? or HOW FURTHER?



1.1. Year 1:

1. **Visits to NS, Relevant Administrations, Ports (& communities)**
   - Experienced: too much 'ship-oriented' (MA and/or waterway manager)
   - Main objective should (must) be 'facilitating the document/information exchange for/between all port community actors'
2. **Findings & Bottlenecks**
   - **Ports (& Port Community):**
     - **role (within the supply chain): not autonomous**
       . hierarchically too low (mostly depending from MoTC)
       . full integration necessary:
       -> the successful functioning of ports is **indistinguishable** from the successful functioning of the **entire** supply chain (incl. the services provided)
     - **port management models**
       . landlord-, service-, tool ports
       . degree of (private/public) integration
       . organisation: centralised vs. decentralised




1.1.2. Findings & bottlenecks (2)

- **Ambiguity:**
  - definitions, procedures, responsibilities
    - (Port, Competent) authority, Maritime/Naval administration, (Inland) Waterways mgmt., Harbour Masters, VT(IM)S,
    - E.g. Announcing ship's arrival/shift/departure & transit (Turkish Straits)
  - Electronic data interchange

. Structured EDI vs. unstructured (e-mail, fax, tlx,…)

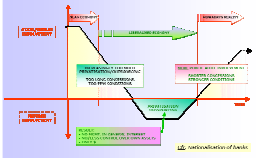
. Automatic vs. Re-entering/Re-keying information

. protocol vs. system/service

- **ICT**
  - Awareness
  - Competitiveness-tool
  - Pro-contra (private vs. public interests?)
  - Cost saving (?)








1.2. Year 2: PREPARATIVE MEETINGS & WORKSHOPS

1. Odessa, Constantza (2), Varna; Ankara, Batumi

2. **Transfer of expertise** through open workshops/presentations of available models, organisations (PPP-joint: same bottlenecks)

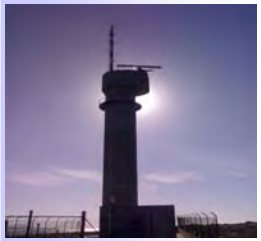
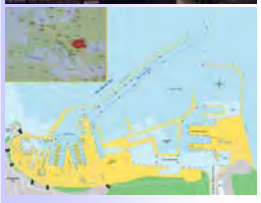
   - Role & importance of
     - port community & leading partner
     - Information needs of public & private organisations

   - ICT/PCS:
     - Principles of structured EDI
       . as electronic communication tool vs. physical documents
       . EDIFACT, ANSI-X12, XML,...messages
     - Central DB, Mailbox switching, Integrators
     - off-the-shelf tools

3. Not intended to describe (to go deeper) into 1 model

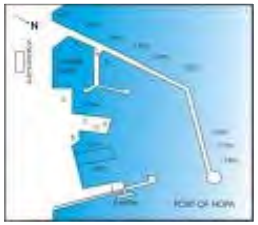
4. W-European **study tour** to Amsterdam, Antwerp & Rotterdam
   - State-of-the-art systems/applications/tools

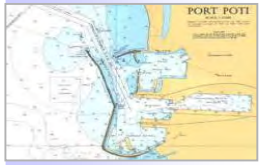



2. AND….WHAT NOW? or HOW FURTHER (1)?

- As 'legal issues' (laws, directives,….) should **not** be an **obstacle**
- **Start**
  - Defining user's representatives & workgroups
    - Bottom-up approach
  - Talking, studying & describing/listing
    - the existing cases (information flow) &
    - procedures (business)
    - propose re-engineered solutions/procedures
      - where appropriate
  - Investigating best PCS-model (or mix, or off-the-shelf, or…)
  - Automate
- **Meanwhile**

2. AND….WHAT NOW? or HOW FURTHER (2)?

- **Meanwhile:**
  - **Define and/or decide on**
    - a viable port community
      . the PCS-leading partner role,
      . responsibilities of all parties involved,
      . budgetary periphery of the intended PCS-model,…
    - on the basic-principles:

      . landlord-, service-, tool port?

      - keep the consequences in mind
      - adapt port mgmt. structures/models and
      - re-align / re-define procedures

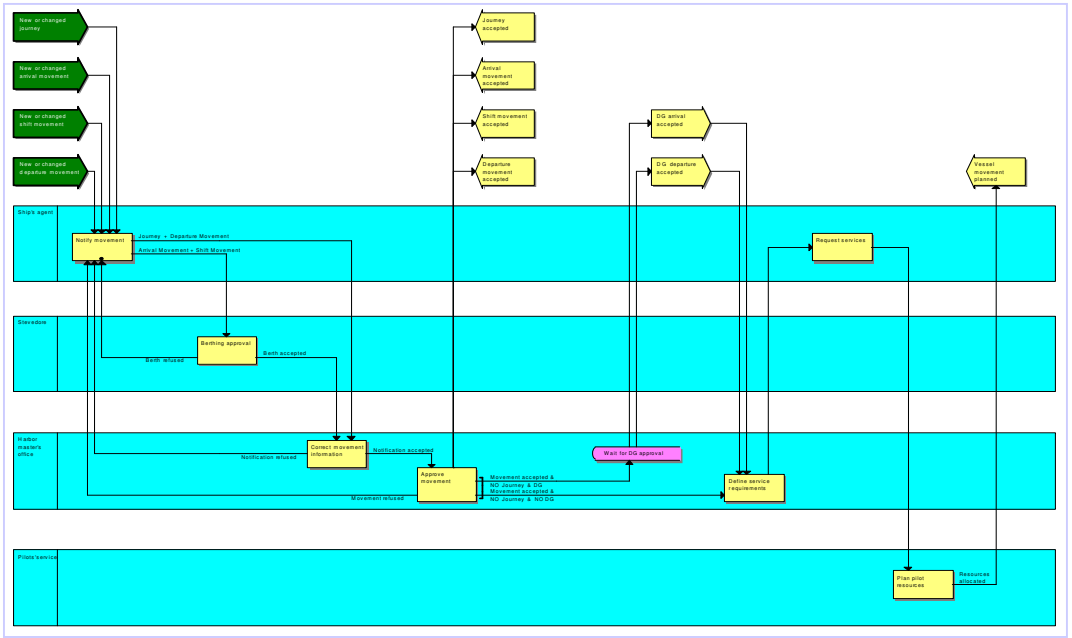
      . the ports' structures
      . place/role of the port within supply chain

2. AND….WHAT NOW? or HOW FURTHER (2)?

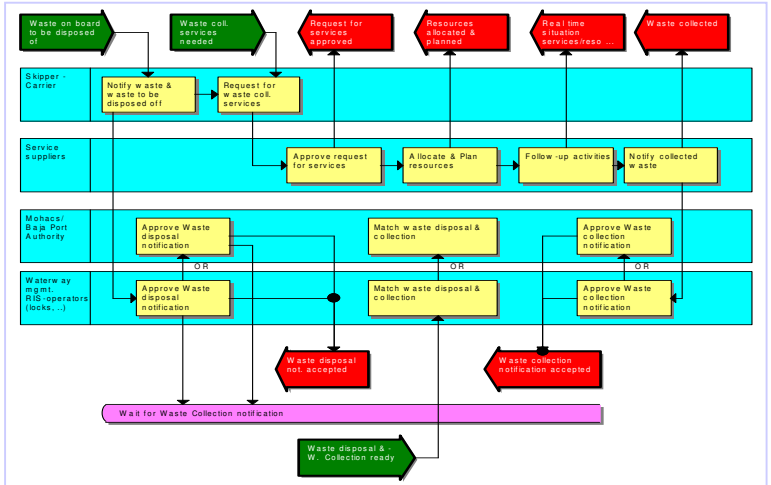
- **Meanwhile:**
  - **Business plan**
    - Try to show (prove?) benefits of PCS
      - Who benefits the most?
    - What/who will do/what/when?
    - Who will pay? What(for)?
    - Look for investments (if needed)
  - Work accordingly:
    - size of port &
    - degree of existing automation
      . remember: (terminal) operators are (mostly) automated
      . off-the-shelf solutions?
      . more expensive total-solutions?
      . cfr. Costs/year






New or changed journey
New or changed arrival movement
New or changed shift movement
New or changed departure movement
Journey accepted
Arrival movement accepted
Shift movement accepted
Departure movement accepted
DG arrival accepted
DG departure accepted
Vessel movement planned
Ship's agent
Notify movement
Journey + Departure Movement
Arrival Movement + Shift Movement
Request services
Stevedore
Berthing approval
Berth refused
Berth accepted
Harbor master's office
Correct movement information
Notification refused
Notification accepted
Approve movement
Movement refused
Movement accepted & NO Journey & DG
Movement accepted & NO Journey & NO DG
Wait for DG approval
Define service requirements
Pilots service
Plan pilot resources
Resources allocated

EXAMPLES


Waste on board to be disposed of
Waste coll. services needed
Request for services approved
Resources allocated & planned
Real time situation services/reso ...
Waste collected
Skipper - Carrier
Notify waste & waste to be disposed off
Request for waste coll. services
Service suppliers
Approve request for services
Allocate & Plan resources
Follow -up activities
Notify collected waste
Mohacs/ Baja Port Authority
Approve Waste disposal notification
Match waste disposal & collection
Approve Waste collection notification
OR
Waterway mgmt. RIS operators (locks, ..)
Waste disposal not accepted
Waste collection notification accepted
Wait for Waste Collection notification
Waste disposal & - W. Collection ready


!!
START DOING 'SOMETHING'


THANK YOU
&
SUCCESS
Be aware of the time it takes!
Black Sea
Aegean Sea
UKRAINE
ROMANIA
BULGARIA
GEORGIA
RUSSIA
SERBIA
GREECE


&
DON'T KEEP HIDING BEHIND 'SOMETHING'

TACIS 117107

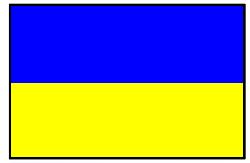
Enlargement

TRACECA

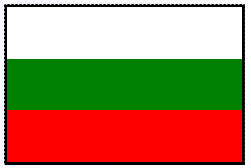
Improvement of Maritime Links between TRACECA and TENs Corridors

(Ukraine, Romania, Bulgaria, Turkey, Georgia)

FINAL SEMINAR

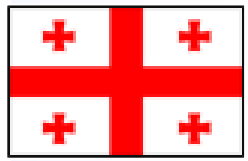


BULGARIA - SOFIA



'Grand Hotel Sofia'

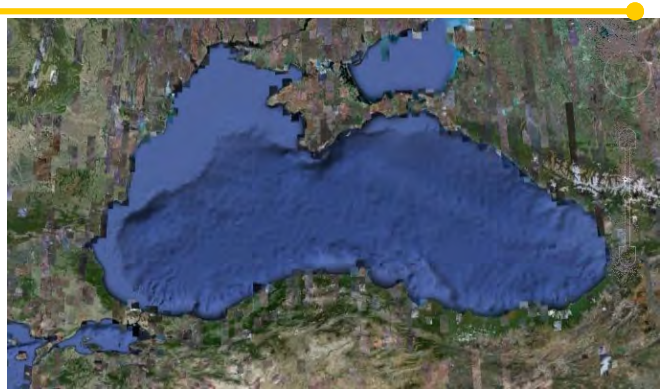
Result Nr.5:



"PPP and bankable projects"

March, 26th 2009

1. Activities
2. Main issues and findings
3. Next steps



Activities

- 1st phase (2007-2008)
  - ✓ Desk research
  - ✓ Fact-finding visits to relevant central authorities
- 2nd phase (2008-2009)
  - ✓ Joint PSC-PPP workshops
    - — Ankara
    - — Odessa
    - — Constanta
    - — Varna
    - — Batumi
  - ✓ Objective of workshops:
    - — to inform participants about available options/models and how to choose the best option/model in function of own needs and wants
    - — NOT to impose a uniform model that fits all

Main issues and findings

- PPP in ports can do two things:
  - ✓ direct private funds to investments in port infrastructure
  - ✓ increase the role of the private sector in the management of port infrastructure and services

- What are the main issues?
  - ✓ What is the right public/private mix in the provision of port infrastructure and services?
  - ✓ Are enough funds available for the required investments in the rehabilitation and expansion of port infrastructure, and how can private finance be attracted to bridge the gap?

What is right public/private mix in ports?

General port infrastructure *(maritime access, breakwaters,...)*

Commercial port infrastructure *(quay walls, jetties ,...)*

What is right public/private mix in ports?

Financing + operation of commercial port infrastructure

	Operating concession/ land lease	BOT
Financing	Public	Private
Operation	Private	Private

Operation* → always private

Private companies are most capable and motivated to carry out commercial activities

Fincancing →
Choice depending on:

- ✓ Availability of public funds (or access to loans)
- ✓ Traffic risk
- ✓ Desired level of control by port authority

** I.e. cargo handling. Includes investment in superstructure and equipment)*

What is right public/private mix in ports?

Financing + operation of general port infrastructure

	Public delivery	Management/ service contract	DBFMO	Transfer of management rights
Control	Public	Public	Public	Largely Private
Financing	Public	Public	Private	Private
Operation	Public	Private	Private	Private

Choice depends on:

- ✓ Availability of public funds (or access to loans)
- ✓ Desired level of control by port authority
- ✓ Efficiency of public sector labour
- ✓ Degree of port competition in region

Are enough funds available?

- The market analysis has shown tremendous growth potential of maritime traffic in the Black Sea and its ports
  → need for investments to upgrade and expand port capacity
- In the recent past the region has proven its ability to attract both public and private capital for investments in port infrastructure
- There are nevertheless areas of improvement. Addressing those will allow
  - ✓ to meet future capital needs more easily and at more favourable conditions
  - ✓ to manage ports investments more efficiently
- Next steps
  - ✓ project level
  - ✓ framework conditions

Next steps: Project level

- Essential basis to set up a PPP: **a well-defined and profitable project**
- Demonstrated by a comprehensive feasibility study
  - ✓ Technical feasibility – estimate of capital expenditures
  - ✓ Environmental impact
  - ✓ Traffic study
  - ✓ Financial analysis – business case
    - — showing an adequate return on investment
    - — convincing (i.e. based on sound analysis and realistic assumptions)
  - ✓ Social cost-benefit analysis (can be required as condition to obtain grants or loans from multilateral institutions)
- The feasibility analysis can not be left to the private partner in a PPP contract. The public sector must do its homework first.
  - ✓ Market analysis forecasts need to be translated into concrete investment projects at port level, sufficiently detailed and convincing to form the basis of a sound business case

Next steps: Get framework conditions right

- Improve the skills and incentives of the public counterparty: authority, financial responsibility and skills must be matched.
  - ✓ Example: the public agency that manages the tender process for port infrastructure projects and concessions must have adequate technical, financial and legal skills. In particular it must know the port business.
- Legal framework for public procurement and concessions
  - ✓ The principles of good tender procedures and PPP model agreements are well known.
  - ✓ A legal framework is not absolutely necessary
    - — What is not specified in the legal framework, can be arranged in the PPP contract
    - — The reliability and competence of the public counterparty is in the end more important than the legal framework
  - ✓ A legal framework is nevertheless desirable
    - — Offers investors more certainty than merely a contractual agreement
    - — Permits shorter contracts and therefore lower transaction costs

INTRODUCTION of BS SASEMAS

Black Sea Safety and Security Management System

Justification of our proposition

In one word:

philosophy of the BS SASEMAS

Reminder of the ToR of Project Result 3

- "Existing **safety** management systems are improved in the respective countries and adjusted in order to achieve proper inter-operation and to comply with IMOs (International Maritime Organisation) International Ships and Port Facility Security Code (ISPS Code).
- Favourable conditions are laid down for the creation of a common **security** management system applicable for the maritime transport and operation in the Black Sea area in order to **reduce risk levels** and to **protect port facilities, ships, environment and people".**

Interpretation

- As you can see, at the beginning they talk about SAFETY management systems and later they talk about SECURITY management system.

What are the definitions?

- **MARITIME SAFETY** concerns **prevention and management** of accidents relating to ships, persons on board (crew and passengers), facilities and ports or marine environment. Accidents are in an unvoluntary matters
- **MARITIME SECURITY** concerns **prevention and management** of illegal acts against persons and assets on board ships or in ports. Incidents are of a voluntary matters
- Different origin but … same objectives!

Other clarifications

« **Reduce risk** levels and **protect** port facilities, ships, environment and people »:

- Risks are coming from safety and security aspects of this industry
- Safety and security risks are in ships and ports operations; Protection means **risk reduction**
- Protection of port facilities, ships, environment and people must be **managed.**
- Management of protection can be done in an ***Integrated Safety and Security Management System***
- Safety and security have international regulations and/or guidelines
- The mandatory ISPS code is devoted to SECURITY of ships and ports facilities
- SAFETY of companies and their ships is also regulated by the mandatory ISM code from IMO

Other clarifications (Cont'd)

« **Reduce risk** levels and **protect** port facilities, ships, environment and people »:

- SAFETY of Port operations are following mandatory national or regional rules, (European for example) but only international guidelines exist.
- The industry is really waiting for an international mandatory tool to manage safety of port operations.
- International guidelines prepared both by IMO and ILO are of a very good level.
- For the time being, we will take into account these guidelines: they will be, for sure, the basic of a future international mandatory tool on safety of port operations.
- … which will include the existing industry guidelines coming from famous organizations as OCIMF or others.

How to improve Safety and Security in the region ?

- Having defined the best tools, we propose to harmonize the conditions of our industry in the 5 participating countries, i.e. Bulgaria, Georgia, Turkey, Romania and the Ukraine.
- Shipping is an international industry, it must be managed in an international way, meaning…following the international requirements or guidelines
- The Black Sea is a common shipping trade area for the coastal states and one of the best manner to facilitate the operations is to ***harmonize the safety and security aspects of all operations***
- Harmonization goes through a common management system which will ***ensure a common safety and security culture*** in the area

Situation today

- Each Flag State and Port State involved, already has to follow the international convention rules: This is theoretically done and prooved by certificates or statement of conformity!
- Certificates and statements of conformity are typically internal matters with their advantages and .. disavantages!
- Advantages are, we have to say that, …sometimes we internally « accomodate » the implementation of international requirements to the level of our safey and security culture.
- Disadvantages are … we do not take the advantage of benchmarking! We don't know really how they proceed in other countries!

Situation (Cont'd)

- But… Some regional organizations have edited rules applicable to participating countries (as EU with European regulations and directives) … and we expect to see all members following the common rules… and, in theory, we don't need any additional control system!
- In reality we need to install a verification body, this is the human nature!
- Today, in 2009, we are « adults » in maritime safety and security matters so … yes for an internal verification body but also a helpful body!
- After a blame culture ,the tendency today is to build a no-blame and mutual helpful culture
- … if we solve our problems internally …we will not be afraid by any external verification system!

Are we able to create a common management system?

What is its philosophy and is it really feasable ?

BS SASEMAS PHILOSOPHY

The philosophy of our common management system is:

- Ensure the best possible conformity with the applicable rules and regulations taking into account all recommendations or guidelines of this industry
- Provide an assistance to Administrations, companies, port facilities or ports, to reach the required level and…
- …Continuously improve this level.

Is the BS SASEMAS doubling the actual verification systems?

- Yes and no!
- Unfortunately, the actual verification bodies (voluntary or unvoluntary) do not cover the entire shipping and port industry!
- Actual verifications are conducted as ***external audits*** aiming at verifying conformity with existing rules…only!
- BS SASEMAS verification system will be managed as an **internal tool** aiming at detecting gaps and proposing our own solutions to reach and overlap the conformity
- The solutions will come from our common intelligence, means and, in one word, from our common safety and security culture!

BS SASEMAS structure

- In order to ensure that our system will work , the BS SASEMAS will have to be structured.

The structure is the normal structure of a management system:

- On the one hand, a steering body and on the other hand a working body.
- The steering body (BS SASEMAS STEERING COMMITTEE) will decide and review periodically the work to be done
- The work will be done by designated persons (DPs) ensuring verifications of conformity and advices for improvement including positive feedback gained from accident and internal audits reports

Activities

- The steering committee, made of government representatives, will meet periodically: this is a part time job!
- The representatives should know the system but can be replaced regularly
- The DPs will be permanent persons, this is a fulltime job!
- Their assignments will be:
  - to verify and analyse (audits)
  - to seek the feedback from accidents or near misses and
  - propose solutions for conformity and improvement
- Their areas of verification will be:
  - Conformity with decided references including proficiency of all participants
  - Detection of training needs
  - Search of best training offers
- For ensuring a common safety and security policy, the DPs will ensure a cross verification activity: the national DPs will audit and participate in accident enquiries in the other countries
- The results will be kept confidential among the 5 participating countries.
- …until the steering committee decides to use the good results and/or progress as a marketing tool!

To ensure the « community » of the system

- Same references for safety and security will be properly defined
- Same shape for safety and security management systems will be proposed to companies and port operators (facilities) or Authorities (ports)
- Same models of associated documents will be proposed
- I say: format for safety or security operating documents (Activities logbooks, Check-lists, Reports, Safety plans, Accident enquiries, Security assessments or plans, etc…)

How to prepare this BS SASEMAS

- For implementation we need a will of improvement from the 5 participating countries
- With this will, each country will provide human ressources for the system
- Steering committee members must be trained as Safety and Security decision makers
- National DPs must be carefully choosen for their knowledge, understanding and proficiency of safety/security of shipping and port operations and
- trained thorougly…to be able to:
  - work out the system;
  - verifiy conformity and
  - provide advice to correct or improve

The BS SASEMAS is of voluntary matters

- The system does not need any certification
- Personnel will have to be authorized to « know » and verify safety and security matters
- This will lead to Specific agreement from the 5 participating countries

Expecting results from the BS SASEMAS

- Not another inspecting body!
- Not a blame structure!

But…

- …A helpful internal body aiming at heaving up all parts of our local industry which need …
- to be prepared to ensure the safety and security requirements of the XXIst century
- Finally, the result will be « protection of lives and environment in a people/customer's satisfaction policy ».

We believe our BS SASEMAS is

In conformity with the European policy of improvement and facilitation of shipping and port operations

We believe our system is feasable among the 5 countries

What we require is your will to participate and improve safety and security of this industry

During the workshops aiming at defining the best tool to improve locally our industry

You have said to me:

Yes, it is feasable! But…

Remarks and suggestions

- There is no anteriority for this kind of common system… but it can be implemented everywhere!
- As far as I know, this system is an EC idea, so don't hesitate to ask for help
- Results of the BS SASEMAS will be internally published
- BS SASEMAS will not supersede the other existing management systems… it will ensure only conformity and improvement
- etc… other remarks will appear in the final report!

Unfortunately a country does not participate to this effort

We believe the success of our system which is improvement of shipping will prove its necessity

Thank you for your participation!

Now we need again your advice because the BS SASEMAS will not work without you!

Conclusions

On how to proceed with this BS SASEMAS

As soon as the project is accepted by the countries and …funded,

the schedule could be:

1st step

- **Set up of the system by a consultant:**
- **Creation**
- **Advice for implementation**
- **Link between Flag/port Administrations of the 5 countries**
- **Follow up of implementation**
- **Necessary re motivation**
- **Correction of deviations**
- **Link with other organizations involved: EU, IMO, ILO, BS MOU, etc…**
- **Periodical assessment of progress**

Steering committee

- **Create the steering committee:**
- **The five countries will have to designate the steering committee members from the different Maritime and Port Administrations**
- **Governments representatives and …**
- **…one option is to build a tripartite group and invite representatives of the private sectors (shipping companies, port operators, unions of seafarers and port workers to participate)**

DPs recruitment

- This is also a critical point
- Recruitment of the Designated Persons and substitutes in the participating countries
- Carried out by the steering committee acting as an employer
- The DPs (or substitutes) have strategic role for the success of our system
- The conditions of the recruitment should be carefully defined
- As KUP (Knowledge, Understanding and proficiency) is important
- Motivation in the system will be paramount
- We will work, in mainly the human factor…. Personal motivation of the DP will be paramount
- So we can talk about MOKUP of the DPs!

Training of DPs and their substitutes

- Train the DPs and their substitutes in modern maritime safety
- Train the DPs and their substitutes in modern port safety: movements of ships (VTS), Pilotage and berthing operations
- Train the DPs and their substitutes in safety of port operations: container, general cargo, bulk, oil product handling, roros lorries cars and their passengers
- Train the DPs and their substitutes in security of ships, port facilities and by extension in port security
- They must be trained in management of safety and security: how to build a management system, how to implement it, how to verify the operation by the means of internal audits and give advice to operators
- They must know how to review a system and propose modifications
- Training centers exist but they must be carefully selected in order to ensure the DPs' KUP corresponding to our project

First operations

- Start the first Safety and Security audits (conformity and operation) in companies/ships and facilities/ports
- Performed by a couple of DPs (minimum two DPs from two countries)
- On a basis of one audit/report per week per country

First reviews

- After one year, as a minimum:
- Start the national reviews with the results of the audits and follow up of actions plans
- These reviews will be prepared by the national DPs for his country)
- and
- Presented to the steering committee for analysis

First results

- The steering committee will organize a seminar
- "1st BS SASEMAS review" and
- propose corrective and preventive actions decided by the committee.
- Meaning all actions have already been accepted by the participating authorities

And then..

- Start again the internal audits
- Etc…
- And
- May be
- …propose your consultancy for similar projects all around the world!

PORT OF FILYOS PROJECT, TURKEY
PRE-FEASIBILITY STUDY

Closure seminar

Sofia, 26 March 2009

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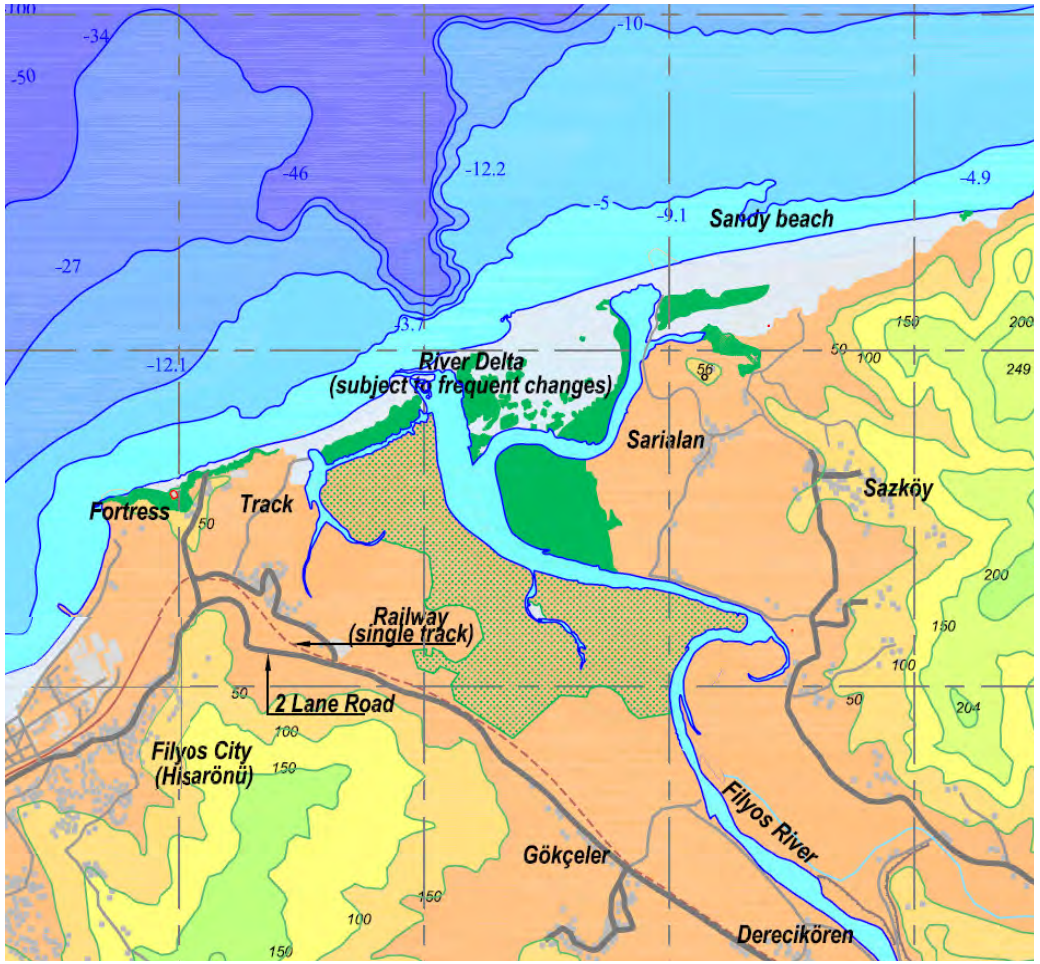
- Introduction
- Planning criteria
- Preliminary market study
- Environmental considerations
- Port Plans
- Evaluation of port plans

Introduction

- Project location

Introduction

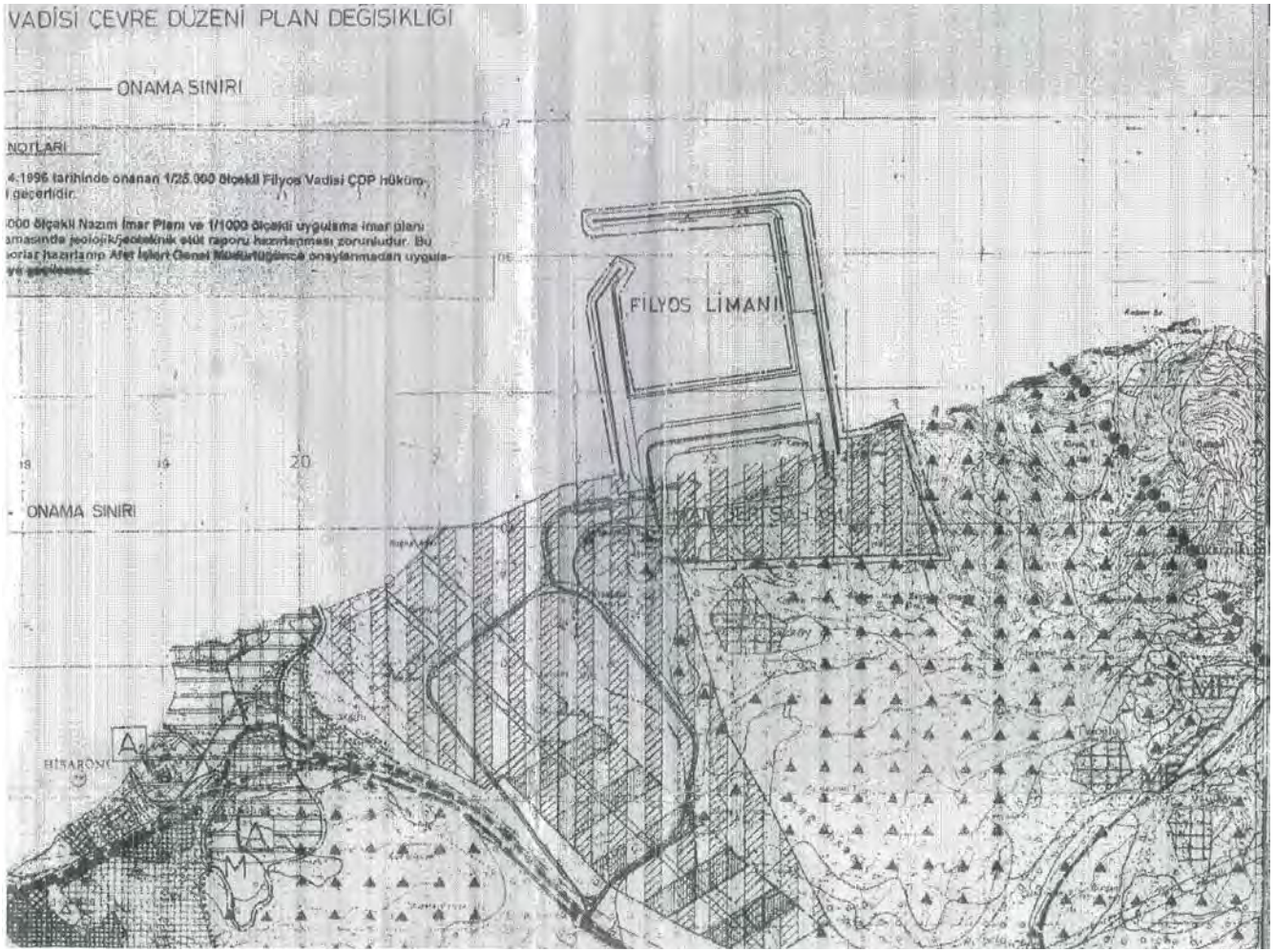
- Project location



Introduction

Introduction

- DLH Masterplan



Introduction

- Study approach
  - Review existing studies;
  - Establishment of planning criteria;
  - Update of the market study, including rough traffic projections;
  - Environmental considerations
  - Development of a set of preliminary port plans;
  - Multi-criteria comparison of the various port plans.

Planning criteria

- Wind => discrepancies between different sources
- Wave => wave information strongly depends on location

Recommended to perform detailed wave studies and wave measurements at the project location

Market study update

Scenarios for the development of the port of Filyos 2020, Zonguldak closed

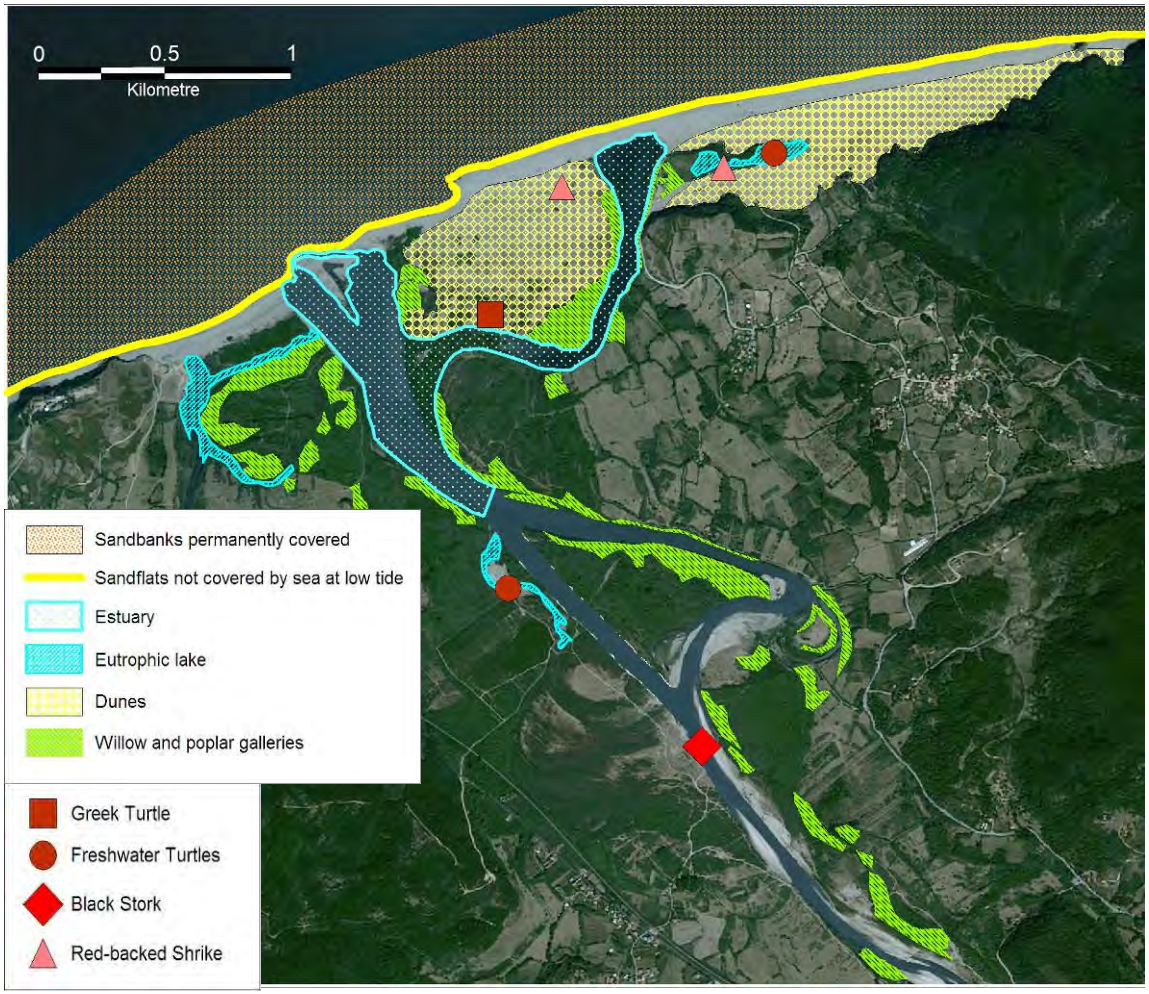
Conservative forecast Filyos 2020				
	General Cargo	Dry Bulk	Containers	Total
Mio tonnes	0.5	8	4	12.5
TEU (*1000)			420	
Higher forecast Filyos 2020				
	General Cargo	Dry Bulk	Containers	Total
Mio tonnes	1	15	6.5	22.5
TEU (*1000)			700	

Scenarios for the development of the port of Filyos 2020, Zonguldak open

Conservative forecast Filyos 2020				
	General Cargo	Dry Bulk	Containers	Total
Mio tonnes	0.5	4.5	4	9
TEU (*1000)			420	
Higher forecast Filyos 2020				
	General Cargo	Dry Bulk	Containers	Total
Mio tonnes	1	11.5	6.5	19
TEU (*1000)			700	

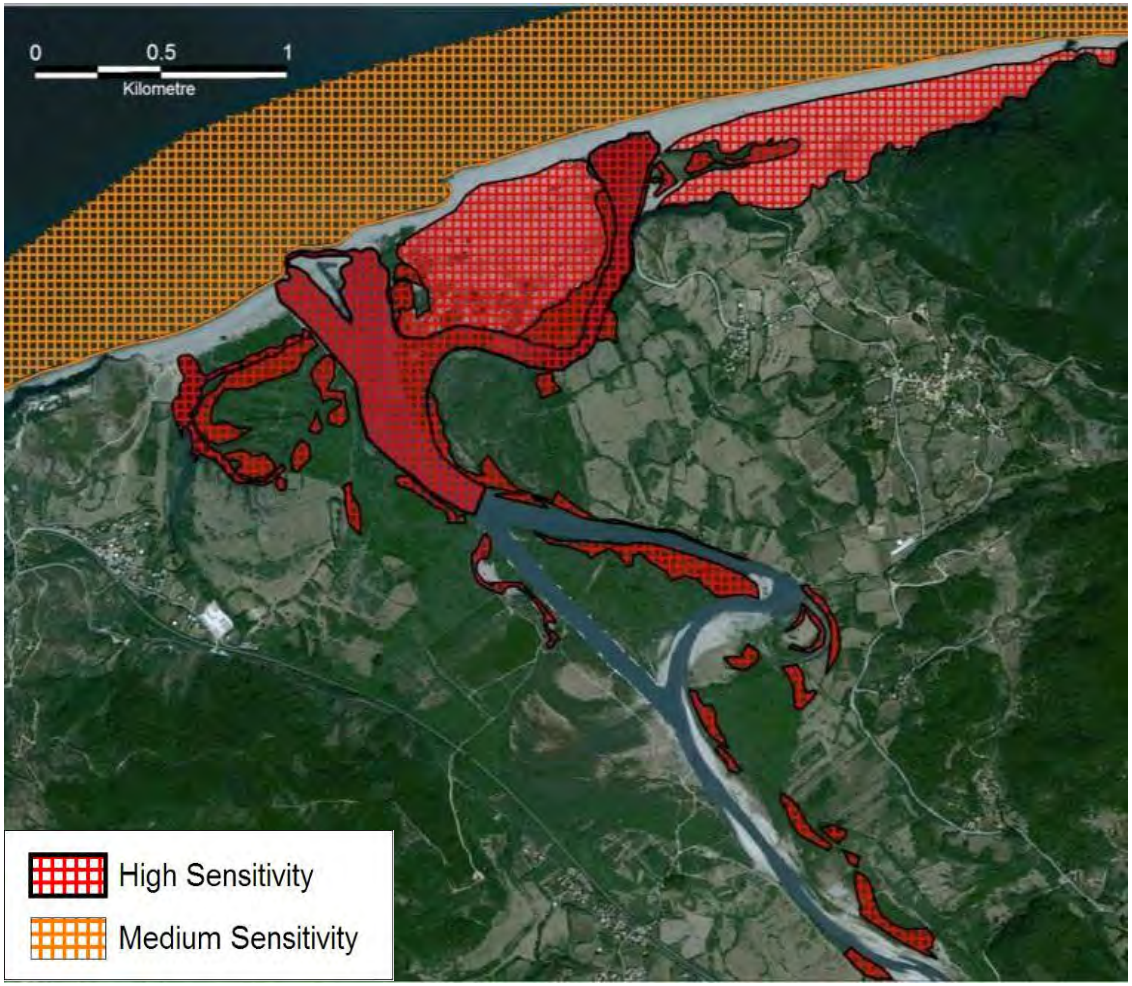
Environmental considerations

- Habitats and observed fauna of interest

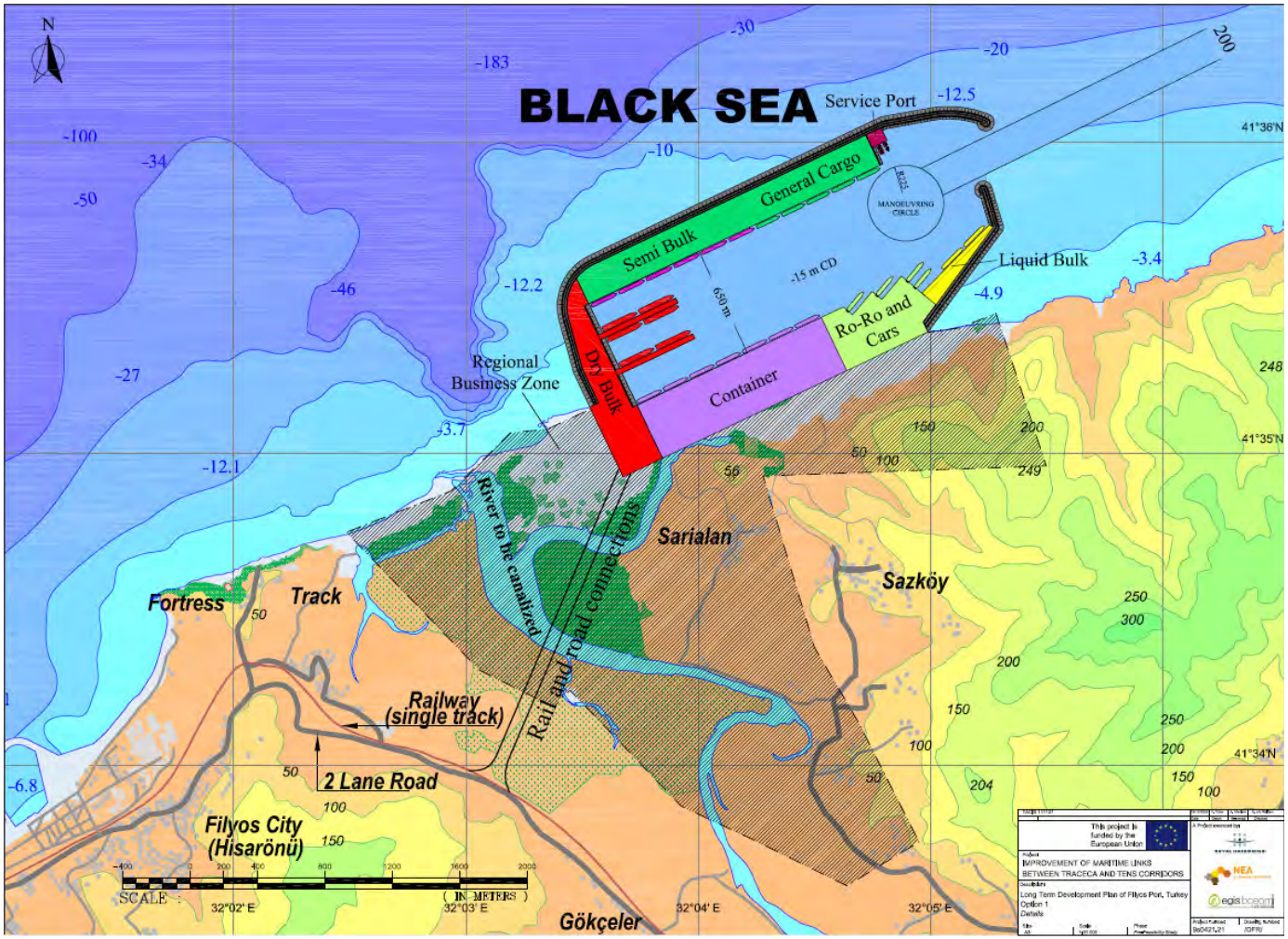


Environmental considerations

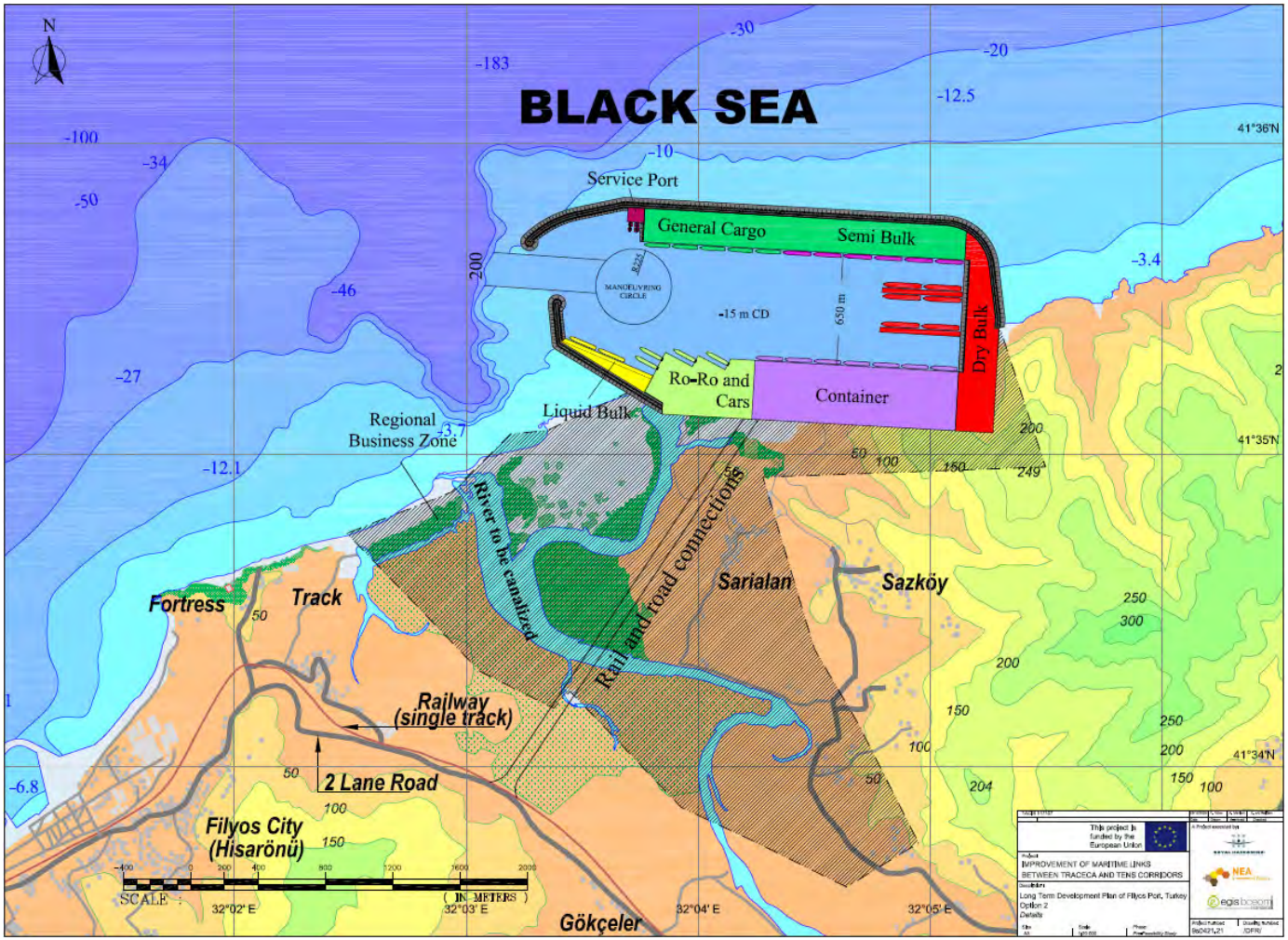
- Preliminary Sensitivity Quotation



Port Plans (1)


BLACK SEA
Service Port
General Cargo
Semi Bulk
Liquid Bulk
Ro-Ro and Cars
Container
Dry Bulk
Regional Business Zone
Sarialan
Sazköy
Fortress
Track
Railway (single track)
2 Lane Road
Filyos City (Hisarönü)
Gökçeler
River to be canalized
Rail and road connections
650 m
-15 m CD
MANOEUVRING CIRCLE
SCALE
IN METERS
32°02' E
32°03' E
32°04' E
32°05' E
41°36'N
41°35'N
41°34'N
IMPROVEMENT OF MARITIME LINKS BETWEEN TRACECA AND TENS CORRIDORS
Long Term Development Plan of Filyos Port, Turkey
Option 1
Details

Port Plans (2)


BLACK SEA
Service Port
General Cargo
Semi Bulk
Dry Bulk
Ro-Ro and Cars
Container
Liquid Bulk
Regional Business Zone
River to be canalized
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Sarialan
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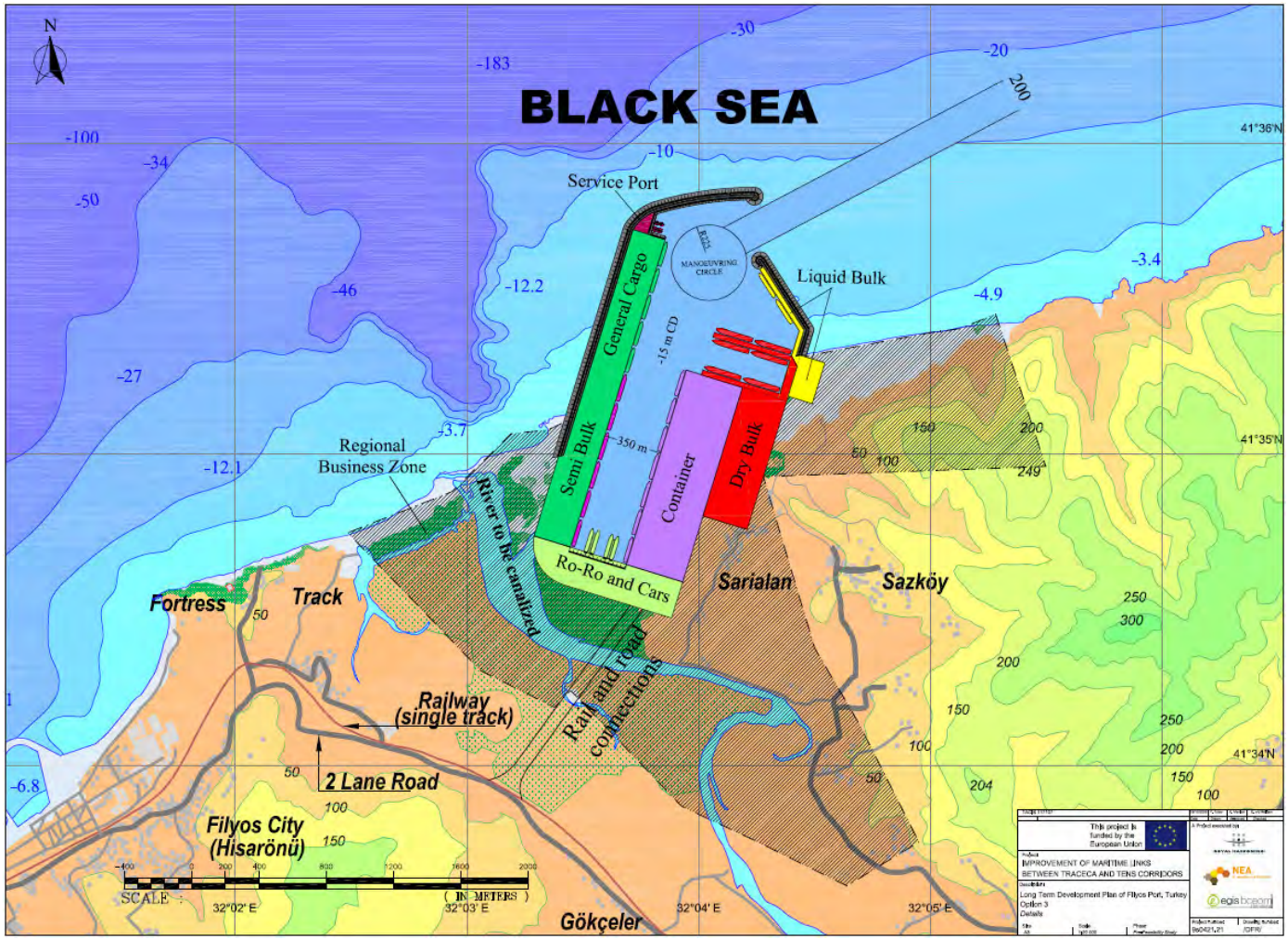
Filyos City (Hisarönü)
Gökçeler
-15 m CD
650 m
41°36'N
41°35'N
41°34'N
32°02' E
32°03' E
32°04' E
32°05' E
SCALE
IN METERS
IMPROVEMENT OF MARITIME LINKS BETWEEN TRACECA AND TENS CORRIDORS

Port Plans (3)


BLACK SEA
Service Port
General Cargo
Liquid Bulk
Semi Bulk
Container
Dry Bulk
Ro-Ro and Cars
Regional
Business Zone
River to be canalized
Rail and road connections
Railway
(single track)
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Filyos City
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Sarialan
Sazköy
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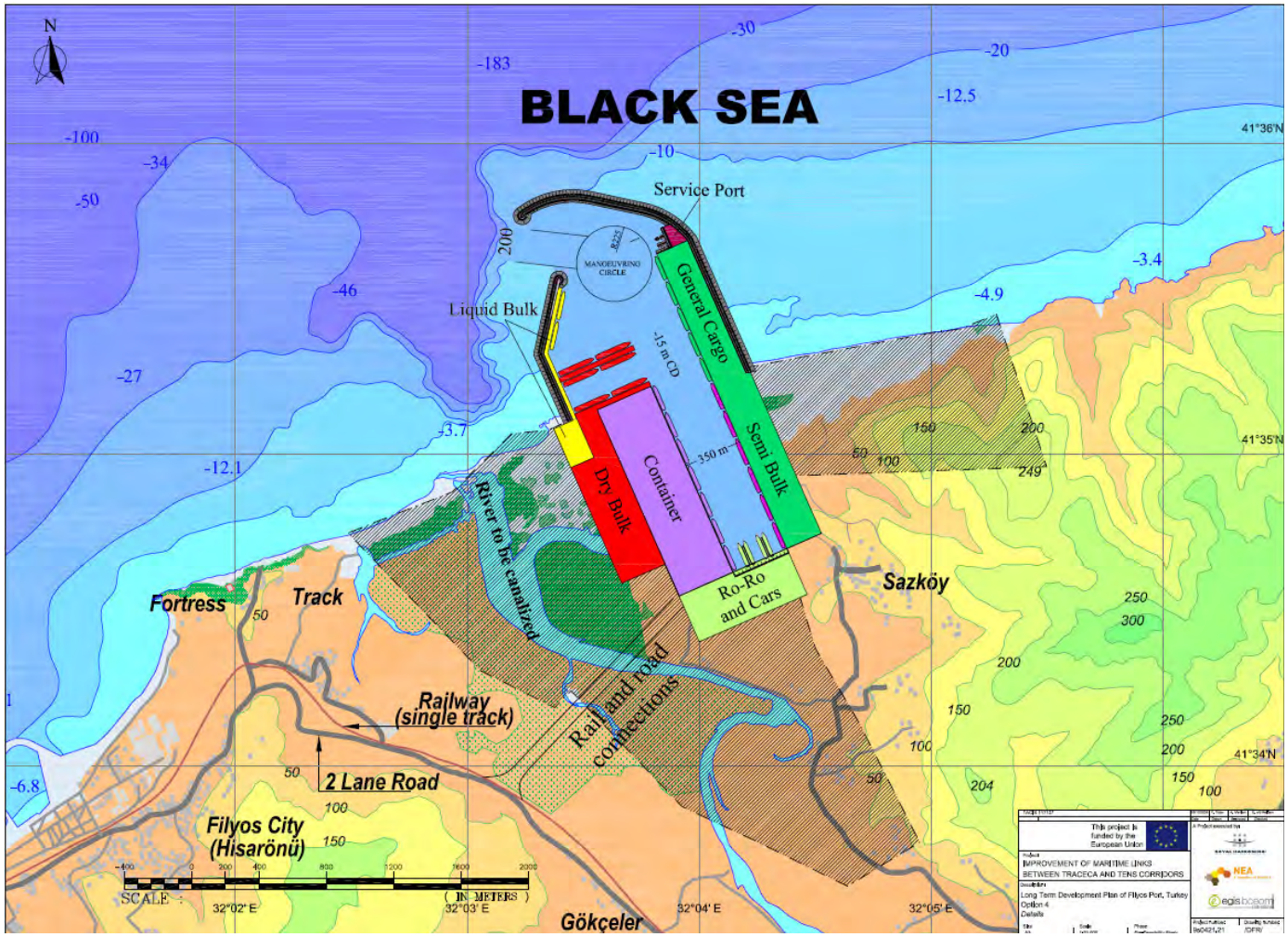
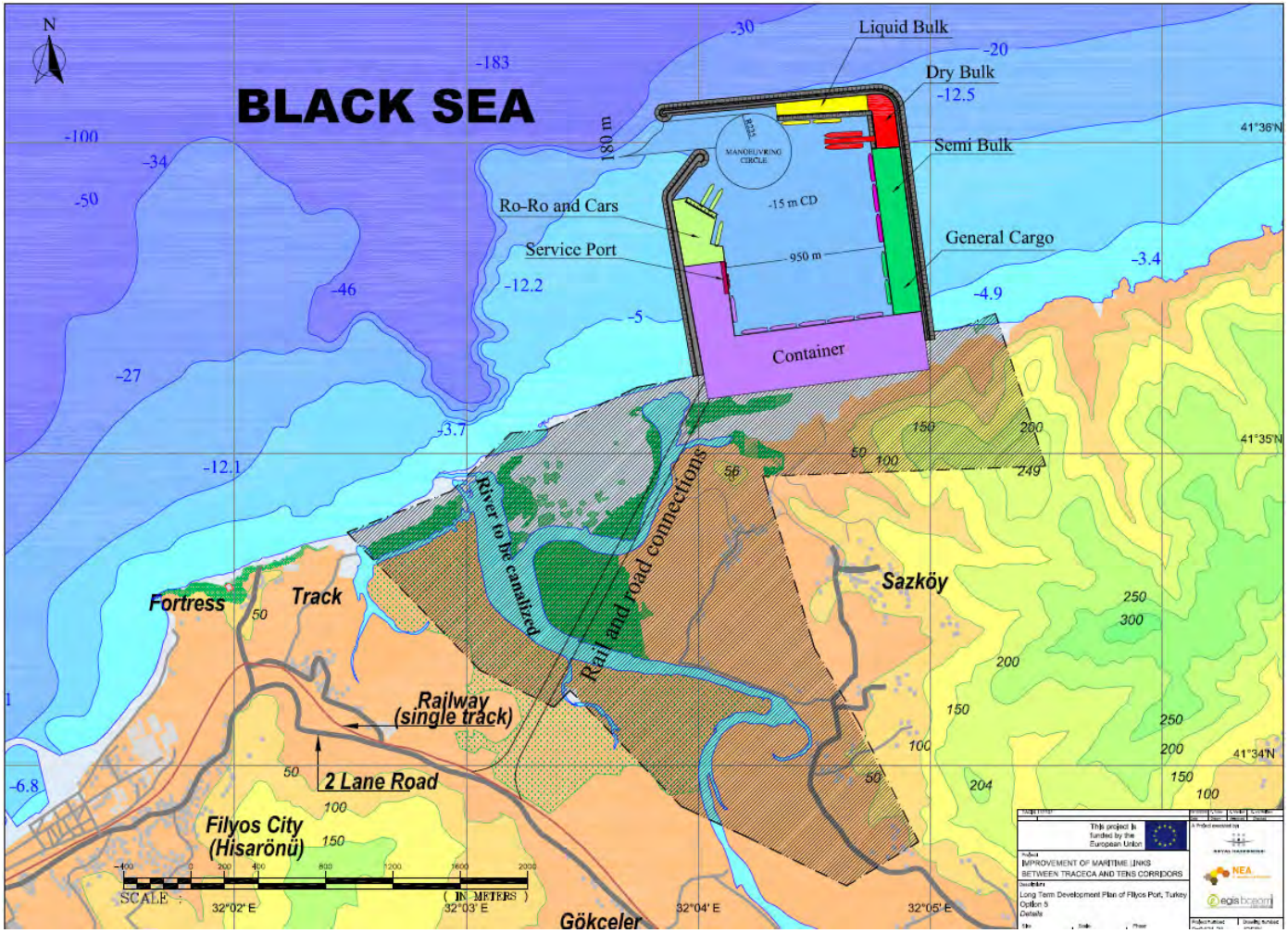
350 m
SCALE
IN METERS
32°02' E
32°03' E
32°04' E
32°05' E
41°36'N
41°35'N
41°34'N
IMPROVEMENT OF MARITIME LINKS
BETWEEN TRACECA AND TENS CORRIDORS

Port Plans (4)


BLACK SEA
Service Port
MANOEUVRING CIRCLE
Liquid Bulk
General Cargo
-15 m CD
Dry Bulk
Container
Semi Bulk
350 m
Ro-Ro and Cars
River to be canalized
Fortress
Track
Railway (single track)
2 Lane Road
Rail and road connections
Filyos City (Hisarönü)
Sazköy
Gökçeler
SCALE
(IN METERS)
32°02' E
32°03' E
32°04' E
32°05' E
41°36'N
41°35'N
41°34'N
-30
-20
-183
-12.5
-100
-34
-10
-50
-46
-4.9
-3.4
-27
-3.7
-12.1
-6.8
200
150
100
50
250
300
204
249
This project is funded by the European Union
IMPROVEMENT OF MARITIME LINKS BETWEEN TRACECA AND TENS CORRIDORS
Long Term Development Plan of Filyos Port, Turkey
Option 4
Details

Port Plans (5)


BLACK SEA
Liquid Bulk
Dry Bulk
Semi Bulk
General Cargo
Container
Ro-Ro and Cars
Service Port
950 m
-15 m CD
180 m
MANOEUVRING CIRCLE
River to be canalized
Rail and road connections
Fortress
Track
Railway (single track)
2 Lane Road
Filyos City (Hisarönü)
Sazköy
Gökceler
SCALE
(IN METERS)
32°02' E
32°03' E
32°04' E
32°05' E
41°36'N
41°35'N
41°34'N
N

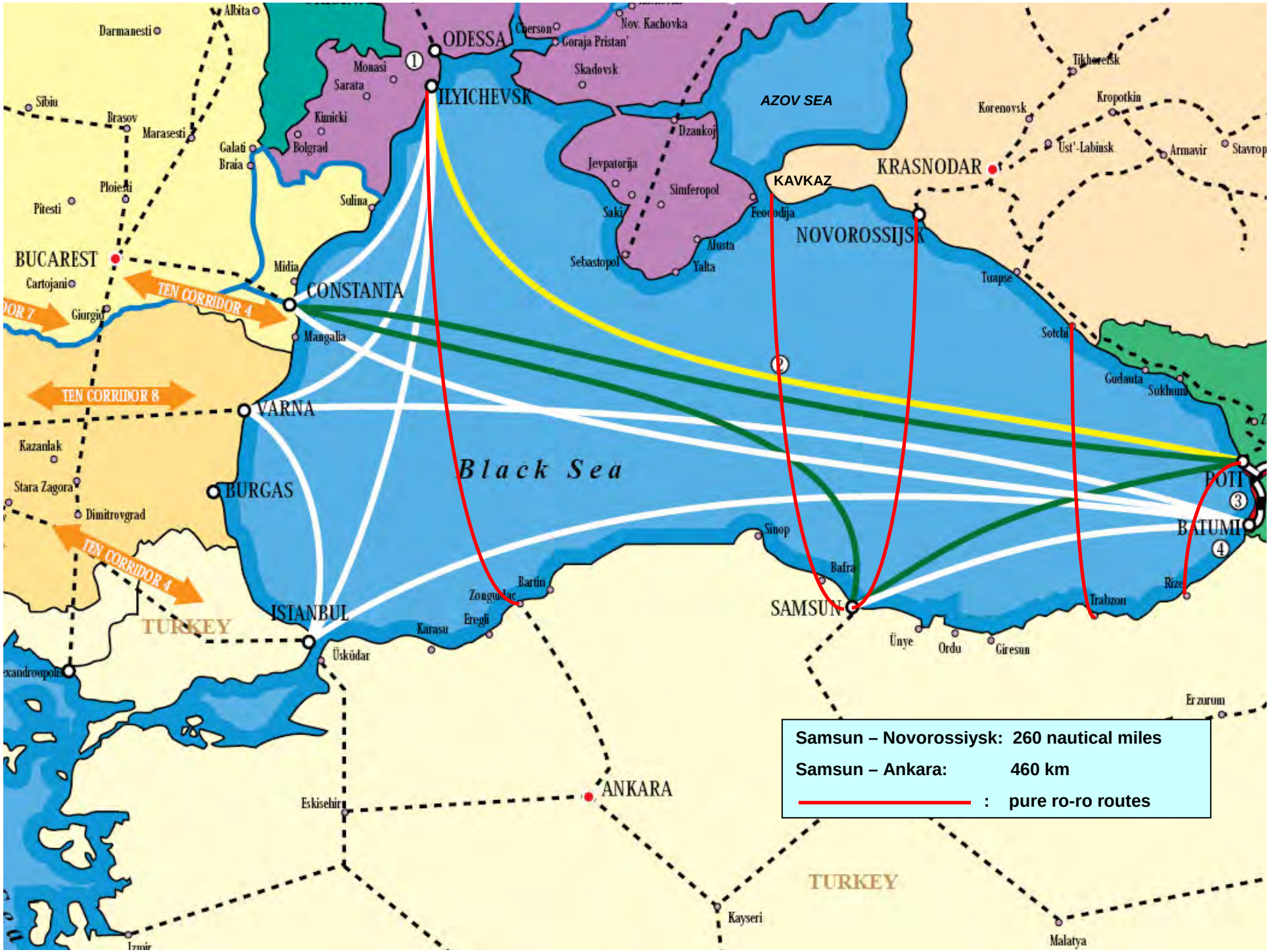
Evaluation of port plans

	Option 1	Option 2	Option 3	Option 4	Option 5	Comments
Fulfilment of requirements	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 high scenario	suitable for 2020 low scenario	Option 5: lower capacity/cost ratio
Construction cost	564 M€	580 M€	498 M€	523 M€	443 M€	
Potential environmental impacts	medium	medium	higher	higher	lower	
Ease of construction into phases	not convenient	not convenient	easier	easier	not convenient	Construction in phases is important for such a large port
Risk of siltation in fairway and basin	very limited	probably significant	very limited	probably significant	probably significant	Siltation may entail high maintenance costs, unless overdredging is anticipated

PORT OF SAMSUN, TURKEY

RoRo Terminal Feasibility Study

Sofia, 26 March 2009


Albita
Darmanesti
ODESSA
Cherson
Nov. Kachovka
Goraja Pristan'
Skadovsk
Monasi
Sarata
Kimicki
Bolgrad
ILYICHEVSK
AZOV SEA
Tikhoretsk
Korenovsk
Kropotkin
Ust'-Labinsk
Armavir
Stavrop
Sibiu
Brasov
Marasesti
Galati
Braia
Ploiesti
Pitesti
Sulina
Dzankoj
Jevpatorija
Simferopol
Saki
Sebastopol
Alusta
Yalta
KAVKAZ
KRASNODAR
NOVOROSSIJSK
Tuapse
Sotchi
Gudauta
Sukhumi
BUCAREST
Cartojani
Giurgiu
Midia
CONSTANTA
Mangalia
TEN CORRIDOR 4
TEN CORRIDOR 7
TEN CORRIDOR 8
VARNA
Kazanlak
Stara Zagora
Dimitrovgrad
BURGAS
Black Sea
POTI
BATUMI
Sinop
Bafra
Bartin
Zonguldac
Eregli
Karasu
ISTANBUL
Üsküdar
SAMSUN
Ünye
Ordu
Giresun
Trabzon
Rize
TURKEY
Erzurum
ANKARA
Eskisehir
Kayseri
Malatya
Izmir
Samsun – Novorossiysk: 260 nautical miles
Samsun – Ankara: 460 km
: pure ro-ro routes

Past ro-ro volumes

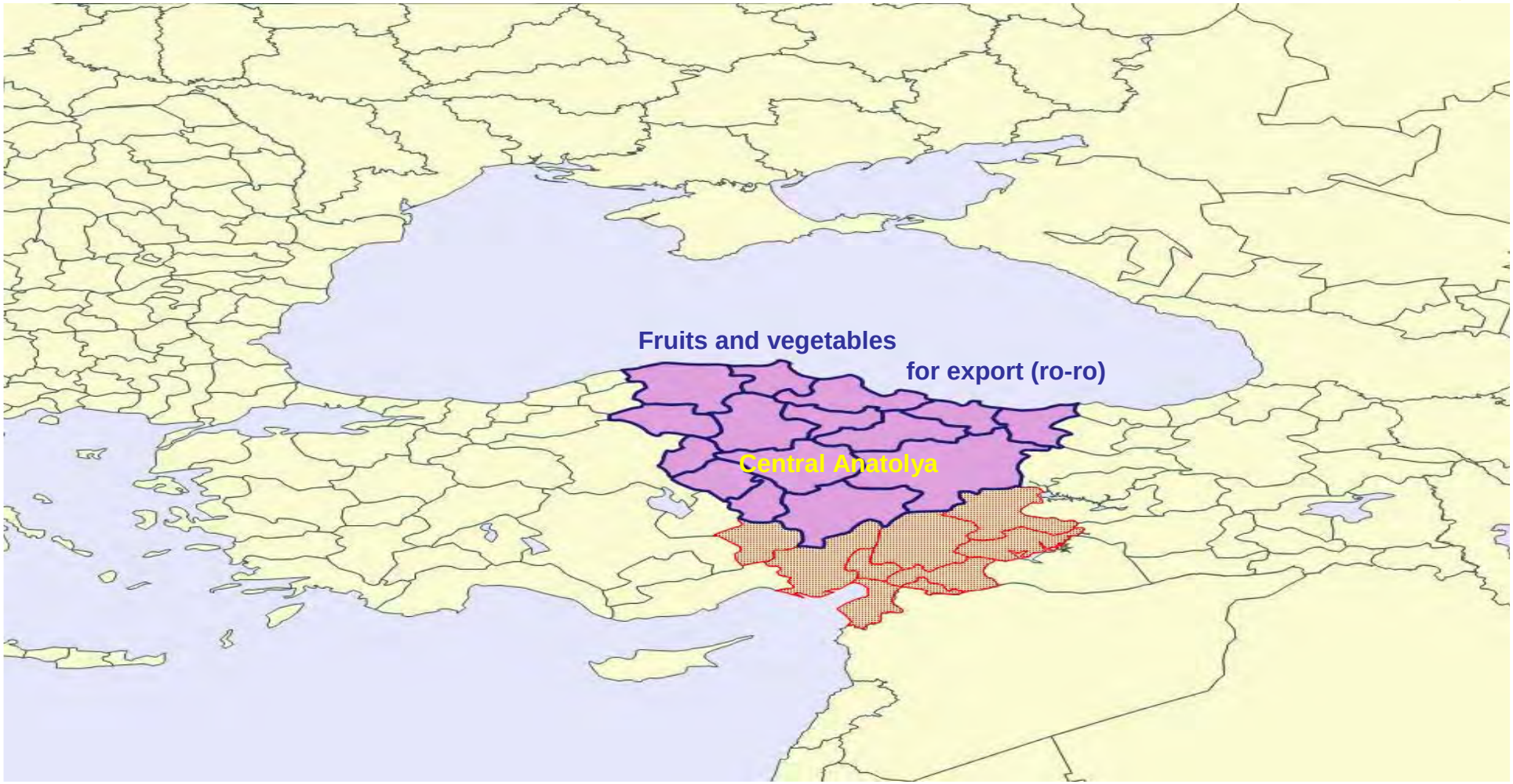
High growth on Samsun – Novorossiysk route

(trailers & semitrailers)

	2002	2004	2006	2008
Samsun-Novorossiysk	18,095	31,201	38,961	23,523 *
Zonguldak-Ukraine	8,977	9,153	19,147	
Rize-Poti	1,800	5,032	742	
Trabzon-Sochi	3,641	3,512	6,574	

*** downfall in 2008 due to Russian policy on road permits, also to world economic crisis**

Potential Hinterland Samsun

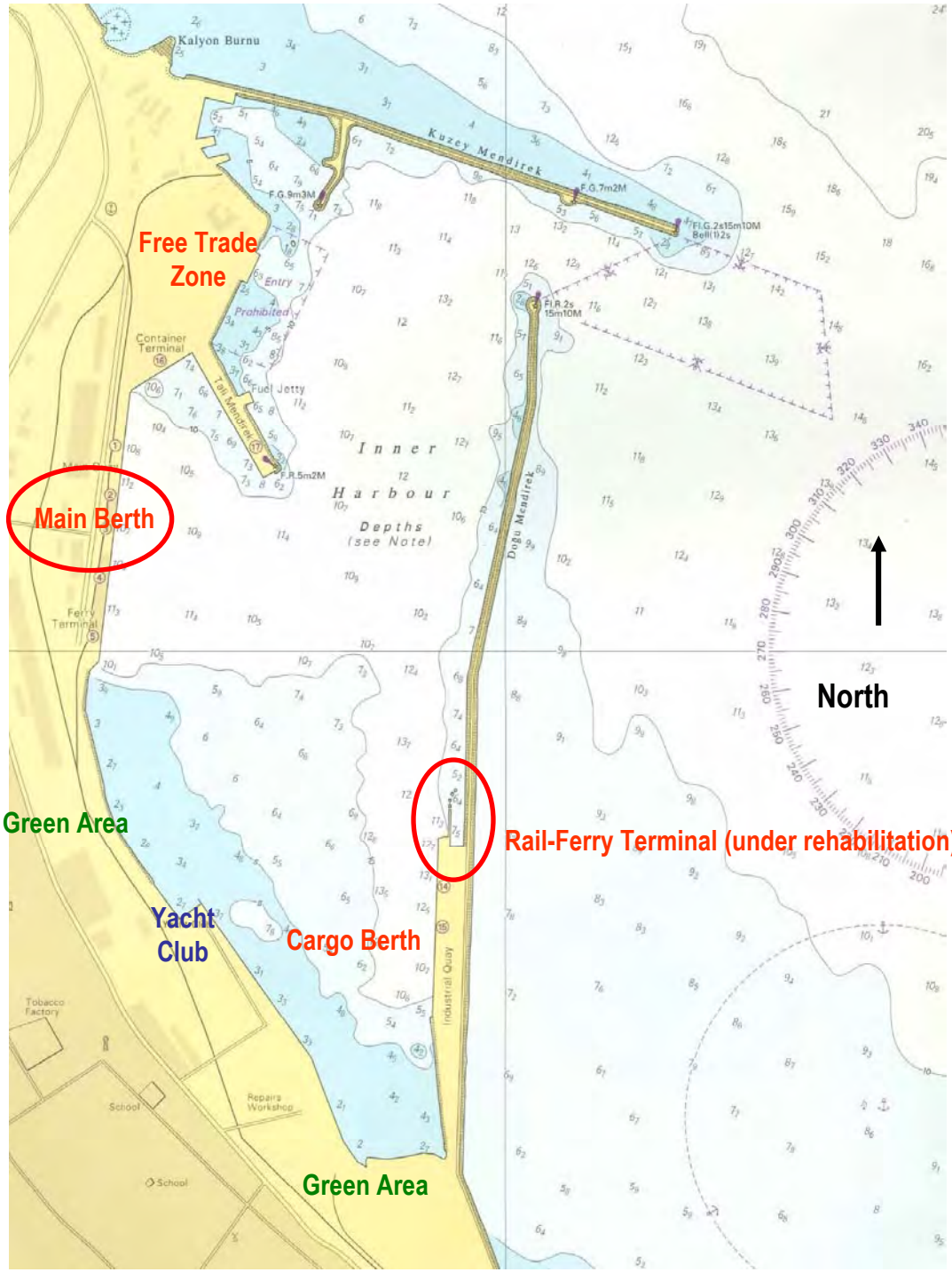


Congestion !

dozens of semitrailers

parked randomly on port yards…

… on poor pavements, next to quay lines and to warehouses, hampering other port operations



Samsun

Inner Harbour

A pretty large protected basin !

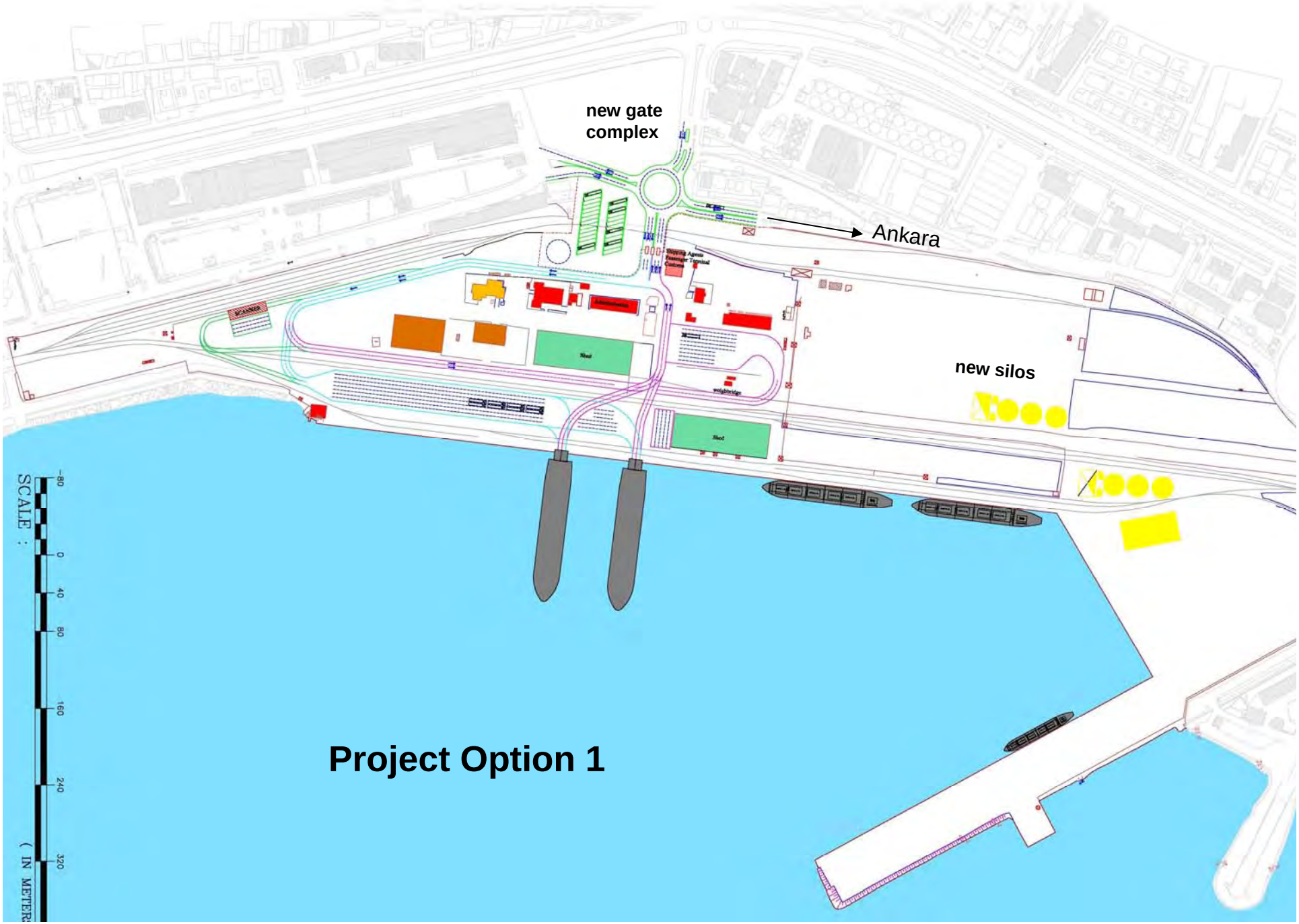
RoRo potential in Samsun

- Unbalanced competition against road transport to Bulgaria and Romania, more favourable with Ukraine and Russia

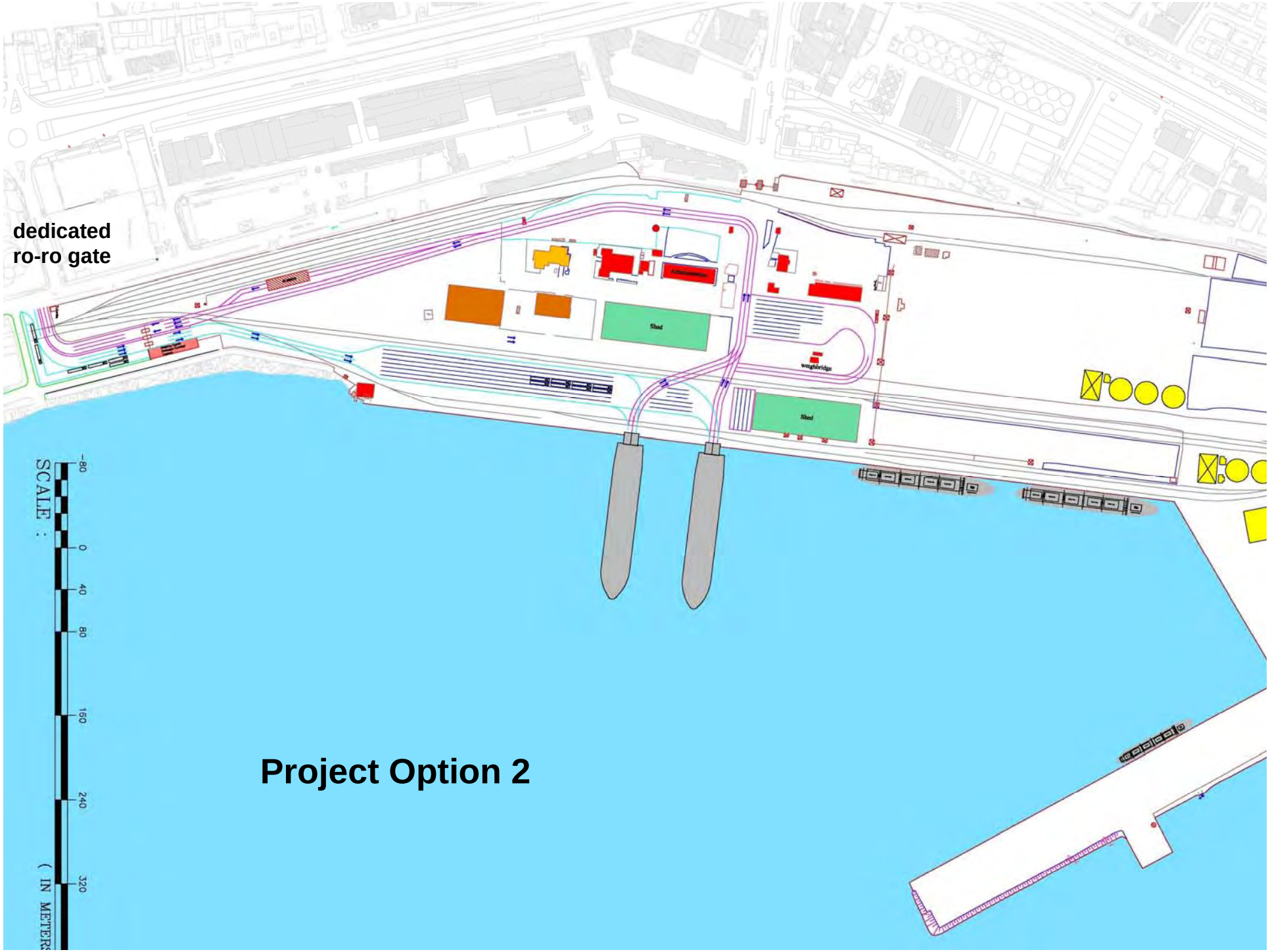
- Estimated potential for year 2020:
  - 120,000 trailers & semitrailers
  - But container should take part of the market

- RoRo traffic should not exceed 20,000 trailers in the coming years

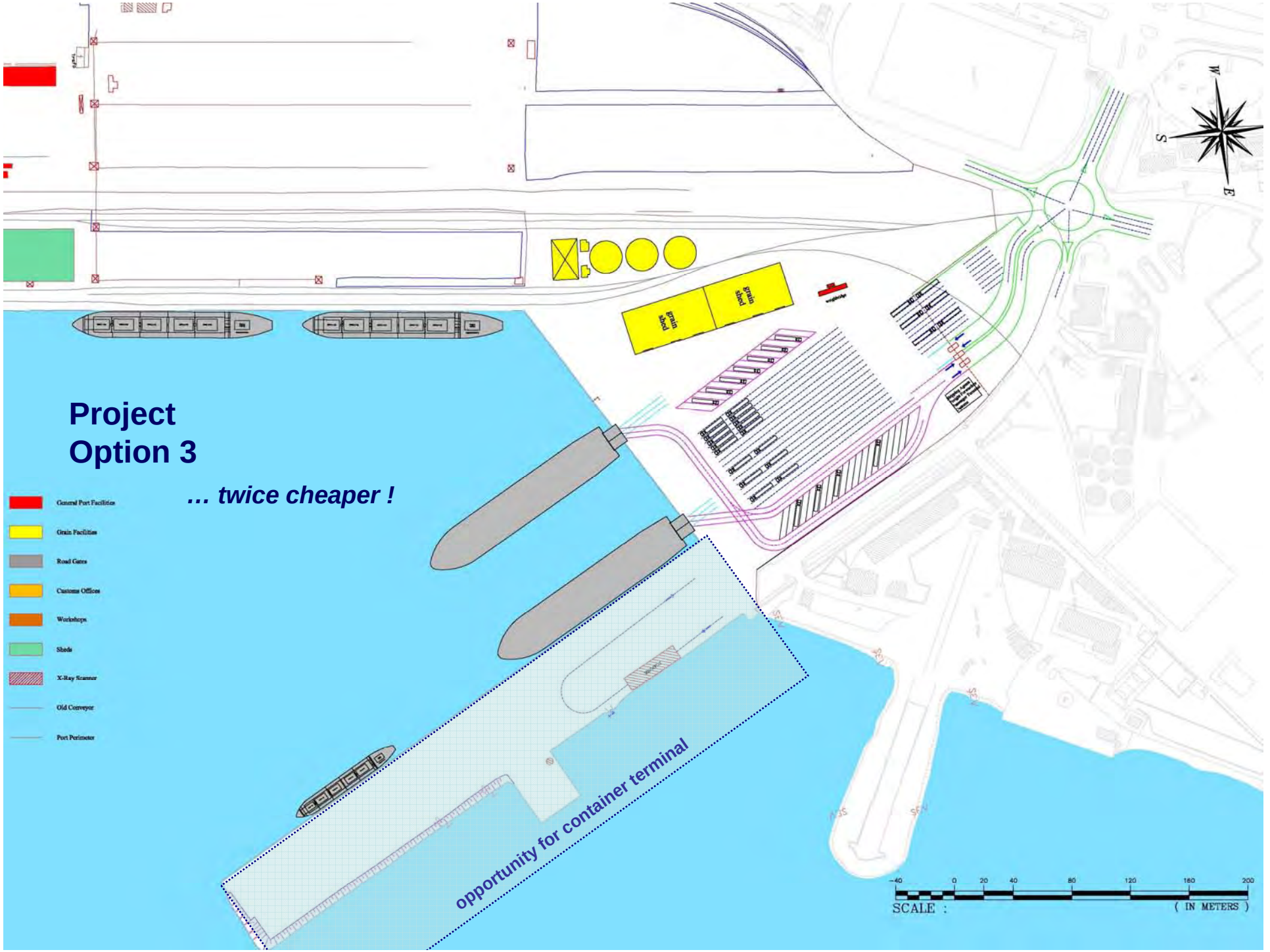
- Later on it will depend on Ceynak and on Russia

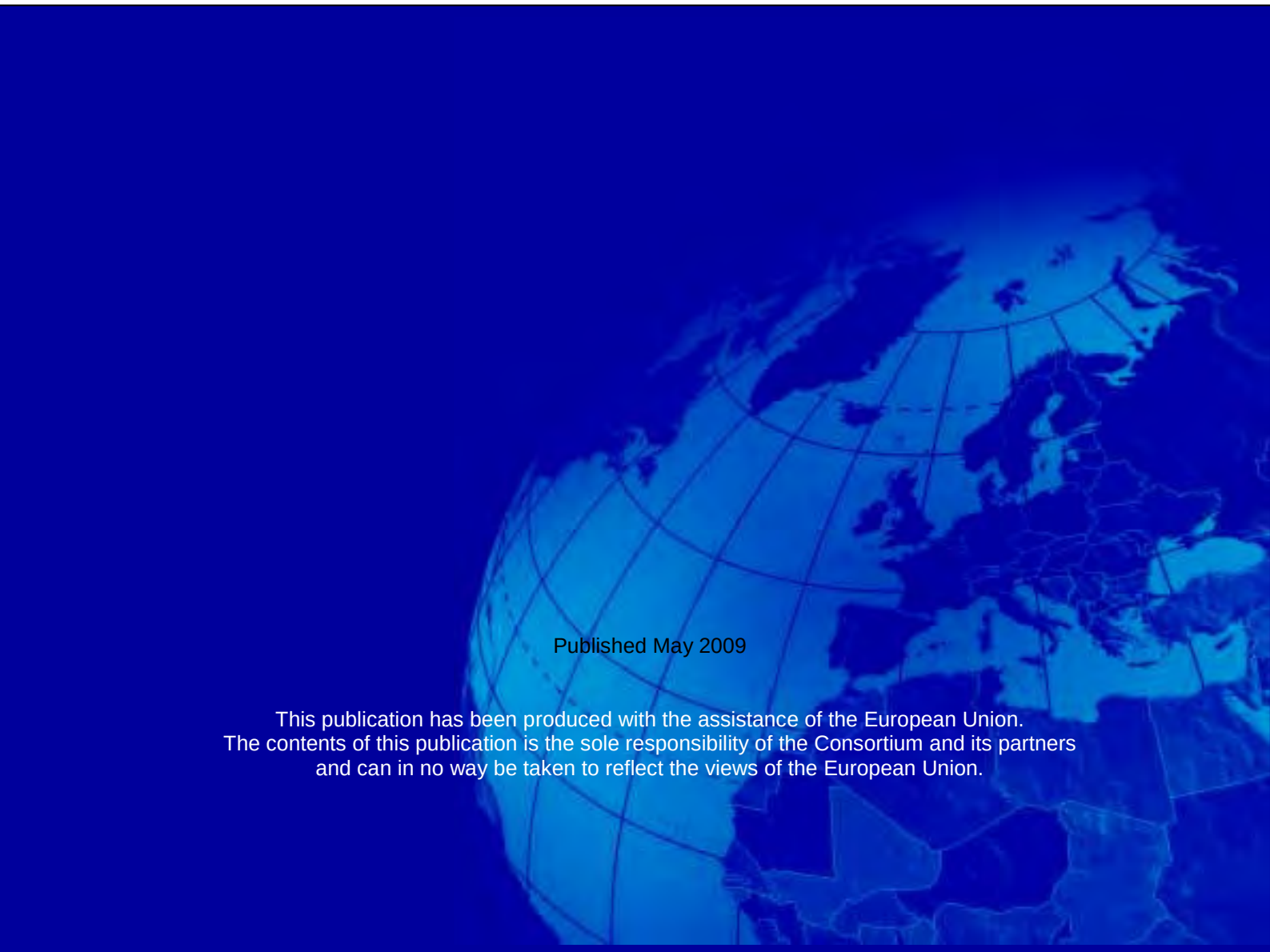


Project Option 1



Project Option 2


Project
Option 3
… twice cheaper !
General Port Facilities
Grain Facilities
Road Gates
Customs Offices
Workshops
Sheds
X-Ray Scanner
Old Conveyor
Port Perimeter
grain shed
grain shed
opportunity for container terminal
W
S
E
-40
0
20
40
80
120
160
200
SCALE :
(IN METERS)



Published May 2009

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