ENPI 2011 / 264 459

Logistics Processes and Motorways of the Sea II

in Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

LOGMOS Master Plan – Annex 3
Part I

Maritime Sector Overview

October 2013

This project is funded by
the European Union

A project implemented by
Egis International / Dornier Consulting

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EXECUTIVE SUMMARY

The main purpose of this report is to provide an up-dated overview of the maritime sector in TRACECA countries in light of the international corridor approach and as part of the LOGMOS Master Plan. This document, therefore, consolidates complements and synthetises the information contained in the Country Profiles of TRACECA's direct beneficiary countries that have a coastal line[1]. It also includes an outline of the port facilities available on the Black Sea shores of Romania, Bulgaria and Turkey and their modus operandi.

Ports, as border-crossing points and as interfaces for intermodal operations, administrative services and trade procedures between hinterland connections and maritime links, are among the most critical points of the transport chain. In the case of TRACECA they take on a particular importance since the Corridor crosses both the Black and the Caspian Sea, its function as an international transport corridor depends to a large extent on the improvement made in the performance of its port and shipping sector[2].

The situation is significantly different in the Black Sea and Caspian Sea regions. While merchants have sailed the Black Sea since classical times, sea-borne trade in the closed Caspian Basin is relatively new. The port of Baku was built in 1902, the first regular shipping service (provided with rail-ferries) to Krasnovodsk (today Turkmenbashi, in Turkmenistan), was only implemented in 1963, the same year that Aktau, Kazakhstan, was built.

Accordingly, people and countries around the Black Sea have a long-established maritime tradition and substantial experience that includes international shipping relations. In contrast, the young states of Central Asia bordering a closed sea have a much shorter maritime history that is mostly shaped by the ways of thinking and rules of Soviet times. These historical features are still very much alive today and need to be considered when broaching situations and challenges today.

In spite of considerable amount invested the operation of the ports and fleets, progress generally remains sub-standard and hampers the development of sea-borne transport.

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[1] The economy of landlocked Armenia is highly dependant on sea-borne trade carried via the Georgian ports of Poti and Batumi and therefore represents a non-negligible part of the tonnage they handle (see Appendix I). The Moldovan river port Giurgulesti handles sea trade proceeding to and from Istanbul and Constanza via the Danube. There are about 400 vessels registered under the Moldovan flag which, so far, holds the reputation of a “flag of convenience”. The Moldovan Government decided in November 2012, to proclaim a new law and conduct an audit to deprive sub-standard vessels of its flag.

[2] LOGMOS Project (as per ToRs) focuses on the Motorways of the Sea Concept, as defined by the EC, transferred and applied to the TRACECA Region. As such it contemplates, first and foremost, goods stuffed and moving in rail wagons, trucks and containers, as well as goods affine for load in standard transport units.

This shipping report also includes breakbulk cargoes stuffed on mafi-trailers and unpacked rolling cargo and equipment of all types on wheels or chains including new and second-hand cars and trucks. Such types of goods are, in the TRACECA Region as anywhere else worldwide,shipped exclusively on specialised vessels (Ro-Ros, Rail-ferries, container vessels) plying regular liner services between dedicated sea ports according to fixed schedules.

Oil and gas products, as well as other solid or liquid bulk commodities (such as grain) and raw or semi-finished materials (wood and pig iron, for example) are, therefore, taken into account here only if and inasmuch as they are packed and shipped by sea in one of the above listed means of transport on a regular liner service.

Goods carried in large or very large volumes on a tramp/spot basis by ships that do not follow a fixed schedule and frequently change ports of call depending upon a much variable market demand,which is usually the case with project cargo, oil and gas as well as raw materials and thus with tankers, bulk vessels and dry-cargo/non-specialised freighters, therefore fall out of the Motorways of the Sea perspective and remain out of the scope of this study. By the same token, dedicated oil and gas and bulk ports and facilities meant to handle tankers and bulkers only do not come under review.

Infrastructure, however, does not represent the main obstacle. National regulatory policies need be reconsidered in view of economic globalisation and the spreading of the supply-chain concept. The respective roles of the State (acting through public companies and public monopolies) and of the private sector have to be redefined.

To overcome the numerous non-physical barriers hindering the sustainable development of the sector, TRACECA countries have the primary duty to foster dialogue at national and regional levels, thus enabling their stakeholders to address and together solve issues of common interest.

1 WORLD SHIPPING TRENDS AND THEIR IMPACT ON TRACECA CORRIDOR

1.1 Containerization and Globalization

The first successful industrial container venture dates back to 1956, when American trucking entrepreneur Malcolm McLean had the idea of using large boxes that never opened in transit and that were transferable on an intermodal basis, between trucks, ships, and railroad wagons.

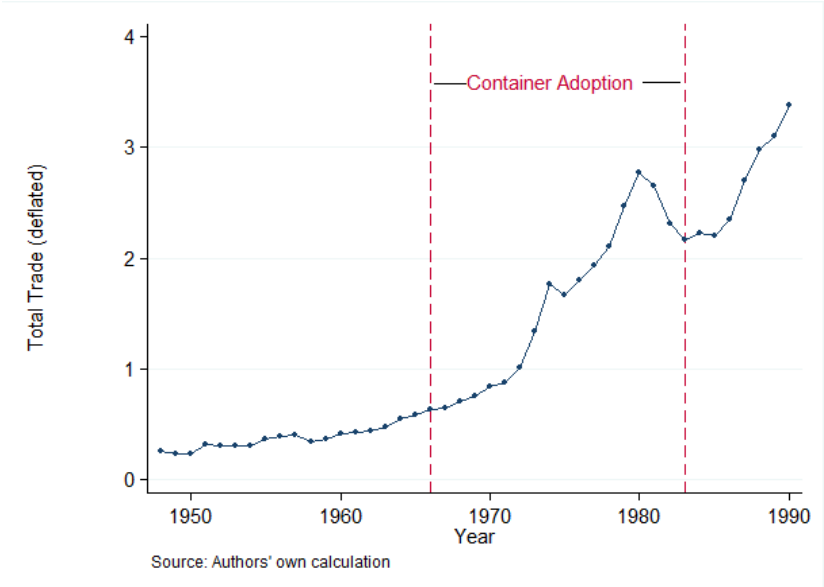
The first effect of containerization was to reduce considerably handling and stevedoring expenses: goods could be sorted out and packed once only outside of ports, handling and transfer operations of containers in ports were increasingly mechanized, and did not require the traditional numerous gangs of longshoremen on pier and inside the vessels' holds.

The standardization of the container characteristics by the ISO at the end of the 60's and the building of bigger, specialized ships which could be handled much quicker than break-bulk conventional vessels increased the efficiency of this safer transport mode even further. Namely, this led to significant decrease in the cost of transport per unit and to reduction of delivery time from the shipper's to the consignees' premises[3].

Containerization spread around the globe triggering changes in other transport modes (rail, road and inland waterways) which strengthened the intermodal dimension of this new freight transport technology.

International trade benefited from much lower transport expenses and speedier deliveries and started growing at a pace never registered before. Thanks to containerization the technical conditions for the globalization of the world economy were met.

Figure 1: Development of the Global Trade



Source: Estimating the Effects of the Container Revolution on World Trade
Lund University, February 2013

[3] The door-to-door transit-time from UK to Australia was cut from 70 to 34 days, which entailed a 50% reduction in the capital cost of the inventory.

Table 1: Development in International Seaborne Trade in Million Tonnes Loaded

Year	Oil	Main	Other dry cargo		Total	%
	and gas	bulks		**Out of which container**	(all cargoes)	**of container in total**
1970	1,44	448	717		2,605	**-**
1980	1,871	608	1,225	**102**	3,704	**2,75%**
1990	1,755	988	1,265	**234**	4,008	**5,84%**
2000	2,163	1,295	2,526	**598**	5,984	**9,99%**
2010	2,772	2,335	3,302	**1 275**	8,409	**15,16%**

Source: UNCTAD

As a multimodal corridor running across the Eurasian landmass, TRACECA competes with other all-land rail and road routes via Russia, and, to a lesser extent, via Iran[4] and Turkey.

However, the flow of cargo which all these corridors are trying to attract is moving overwhelmingly by sea and in containers between Asian and European ports, including those in the Mediterranean and Black Sea. This trend will keep in a long-term perspective, and it is therefore important to understand what are the present strengths and weaknesses of containerized maritime transport and how it may evolve in the near future to identify where and how land corridors can find their place in the overall inter-continental transport network, increase their market share and, eventually, become the indispensable complement to sea-borne traffic.

1.1.1 Factor 1: Overcapacity

Demand and supply are very rarely balanced in shipping.

Although still the subject of many academic debates and controversies, there is a tendency to consider that GDP fluctuations and trade clearly have a causal reciprocal relationship. This correlation broadens and gets stronger with the implementation of measures aiming at liberalizing foreign trade. It reflects in turn on transport volumes: for example the commonly-accepted rule-of-the-thumb is that demand for container traffic grows at twice the rate of GDP growth[5].

The adaptation of shipping industry to these changes is slower whereby there is nearly always a few-year time-lag between the moment the world economy on one hand and the merchant fleet on the other hand start either growing or turning down.

During the pre-crisis years the maritime transport demand soared to totally unheard-of heights and all records of the shipping industry were shattered: at the end of 2007 the world shipyard orderbook rose to 526 M DWT[6] close to 50% of the existing world merchant fleet at the time (1,042,328 thousand DWT). All segments benefited from this situation: driven by the huge increase in raw material trade, the dry-bulk carriers represented half of the orderbook with the tonnage on order in certain size categories exceeding the fleet in service.

[4] Under different political circumstances a much greater deal of goods should logically be reaching Caucasian and Central Asian Republics via the Iranian ports of the Persian Gulf.

[5] From 2002 till 2007 worldwide container volumes grew at an average annual rate of 12.6% while world GDP yearly growth rate averaged 4.4%.

[6] At the end of 2012 this figure fell to 245 M DWT representing 17% of an estimated ,1530,000 thousand DWT.

The fall of the Dollar (to 1.45 per Euro at the end of 2007) which boosted the Asia-Europe trade and kept container vessels full in this direction plus cheap credit lured container lines in a vessel-buying spree: no less than 606 cellular vessel orders totaling 3,638,000 TEU for a value of USD 53.2 bn were placed in 2007 bringing the order book to 1,462 ships for 6.96 M TEU representing 63.7% of the existing fleet. Half of the capacity on order concerned 328 vessels of more than 8,000 TEU capacity[7] with deliveries spreading up to 2012.

To better understand why this happened, it is necessary to highlight two distinctive features of container shipping:

- first, the sector, up-to-date, remains a much fragmented one: e.g. AP-Møller-Maersk Group, parent of world number one container line Maersk, ranks only 154th in the 2012 Fortune Global 500 list of the world's largest corporations while the next and only other container carrier in the list, partly State-owned COSCO, is 384th;
- secondly, there is no significant difference between the policies followed by the 20 main players (representing over 80% of the world containership capacity) and between the type of product/service they offer.

Leaving aside commercial pre-requisites such as weekly frequency (at least) and fixed departure days, the guiding principles are:

- to be 'global' (meaning to ensure a full market coverage servicing East-West trades between the USA, Europe and the Far-East as well as the North-South routes to Africa, South America and Australia),
- depending on the respective market sizes to have the biggest possible vessels on each trade lane to:
  - achieve the highest possible economies of scale,
  - catch the biggest market share.

Consequently, as soon as the world economy showed signs of sustainable growth container operators and financiers (such as the German KGs) raced to order new buildings:

- first to fix slots at the best shipyards (containership construction is dominated by South Korea, China and Japan[8][9]) which might also be engaged in building easier/cheaper/quicker-to-build and more profitable type of vessels such as dry-bulkers;
- then to negotiate the lowest possible building prices (they were multiplied by 2 – 2.25 between 2003 and 2007);
- and last and not least to have the vessels delivered and put quickest into service in order to benefit from the situation and keep a competitive advantage as soon and as long as possible.

Then came the subprime mortgage crisis in the US which ignited the ongoing GFC.

[7] The increase in the size of the containerships ordered in 2007 also resulted partly from the announcement of its new lock project and improved waterway dimensions by the Panama Canal Authority.

[8] With respective market shares of 56%, 33% and 2% at the end of 2012. Taking all categories of ships together China is the world leading shipbuilder with a share of about 45% of the world orderbook at the end of 2012 (versus 1% for European shipyards).

[9] Since many years Japanese yards are penalized by the appreciation of the Yen against the Dollar. More recently they also suffered from the bankruptcy of several big domestic shipping companies.

In spite of some 130 M DWT newbuilding contract cancellations since 2008 and numerous delivery deferrals the world fleet stood in July 2012 at 1,534,019 thousand DWT[10] i.e. 47% more than in 2007.

As of October 2013 there are 5,970 container ships active on liner trades, for 17,657,670 TEU and 225,264,261 DWT capacity including 4,988 (2007: 3,904) fully cellular ships for 17,187,352 TEU (2007: 9,436,377). In other words the world container vessel fleet capacity has increased by 82% since the crisis broke out. Without cancellations and taking into account a moderate rate of scrapping the fleet would have stood already at 17.9 M TEU at the end of 2011.

The overcapacity problem was compounded by a new order wave in 2010-2011: several carriers that did not order 10,000+ TEU ships during the pre-crisis peak took advantage of lower newbuilding prices to place new orders in order to maintain their competitive presence on the Far East-Europe route.

In 2007, for the first time, the Asia to Europe trade took the lead over the Trans-Pacific Asia to USWC traffic. All 10,000+ TEU vessels delivered since 2007 entered this trade[11] boosting the carrying capacity to new heights, setting off a domino effect pushing 'smaller' and surplus 6-10,000 TEU tonnage into other existing (mostly North-South) services and leading as well to the opening of new liner services (Asia to Africa, Africa to ECSA, Asia to WCSA and ECSA, etc.) to deploy (at least part of) their excess tonnage[12].

Container volumes evolved as shown in Table 2.

Table 2: World Container Trade

Container volumes (M TEU)				
	World	Asia-Europe	Europe-Asia	Total Asia-Europe-Asia
2008	137	13.5	5.2	18.7
2009	124[13]	11.5	5.5	17.0
2010	140	13.5	5.6	19.1
2011	151	14.1	6.2	20.3
2012	159	13.3	6.2	19.5

Source: Clarkson Research Services Limited

This resulted in many a casualty among medium and small-size container lines of regional importance (one example in the TRACECA zone being Bulcon, the liner/container arm of NaviBulgar which closed its services in 2009).

In 2012, excluding intra-Asia shipments, global exports from Asia fell 0.86 percent to 44.7 M TEU while imports dropped 3.35 per cent to 21.6 M TEU. Analysts estimate to-date that volumes between Asia and Europe may increase by 4% in 2013.

[10] UNCTAD, op.cit.

[11] The average vessel size on this route rose from 6,390 TEU in August 2008 to 9,350 TEU in October 2012 and exceeded 10,000 TEU by the middle of 2013.

[12] Further down the road it is forecasted that the former Asia-Europe 9,000-10,000 TEU workhorses will be cascaded down to key Panama Canal routes such as the Asia-USEC. The Canal Authorities expect up to nine transits by vessels of this size a day when the new waterway opens in 2015.

[13] In 2009 the crash in bulk carrier charter rates drove many boxed cargoes back onto bulkers.

The 2009 sharp drop which, in 3 years, has led to a 10% increase only in the world containerized traffic was obviously no match for the world containership fleet surge.

Container lines, which, in their vast majority, had been continuously profitable well over the past 10 years, paid a heavy toll for their overcapacity binge recording first a collective USD 20 bn USD loss in 2009[14]. While 2010 was better news, 2011 was another annus horribilis. Many lines endured in a devastating rate war.

They could hardly have chosen a worst time: while freight rates plunged, bunker prices which had already been on the rise during the previous year, increased by over 30% in 2011. Further negative effects added: as, in the wake of the economic crisis, before-holiday peak season effects on Asia-Europe and Asia-US trades tended to be moderate and vessels were not full, carriers were left with no serious arguments to implement their traditional 'Peak Season' surcharges. Maersk Line published figures speak for themselves.

Table 3: Maersk Line Results 2007-2012 (FFE= 40' Equivalent Unit)

	2012	2011	2010	2009	2008	2007
Transported volumes (FFE in M)	8.5	8,1	7.3	7.9	7	6.8
Average rate (USD per FFE)	2,881	2,828	3,064	2,370	3,284	3,034
Average fuel price (USD per t)	661	620	458	342	520	344

Source: AP Møller Maersk A/S Group annual reports 2011 & 2012

The move proved suicidal for some like Chilean CSAV-Norasia which had to withdraw from the Far-East-Europe trade after losing USD 1 bn. Other renowned Ocean Carriers found themselves in dire financial straits and had to bring in new investors and/or sell container terminals to stay afloat. The lines as a whole lost another USD 6 bn in 2011 erasing almost completely the profits they raked in during the previous year. Still there was neither any major failure nor any consolidation in the sector.

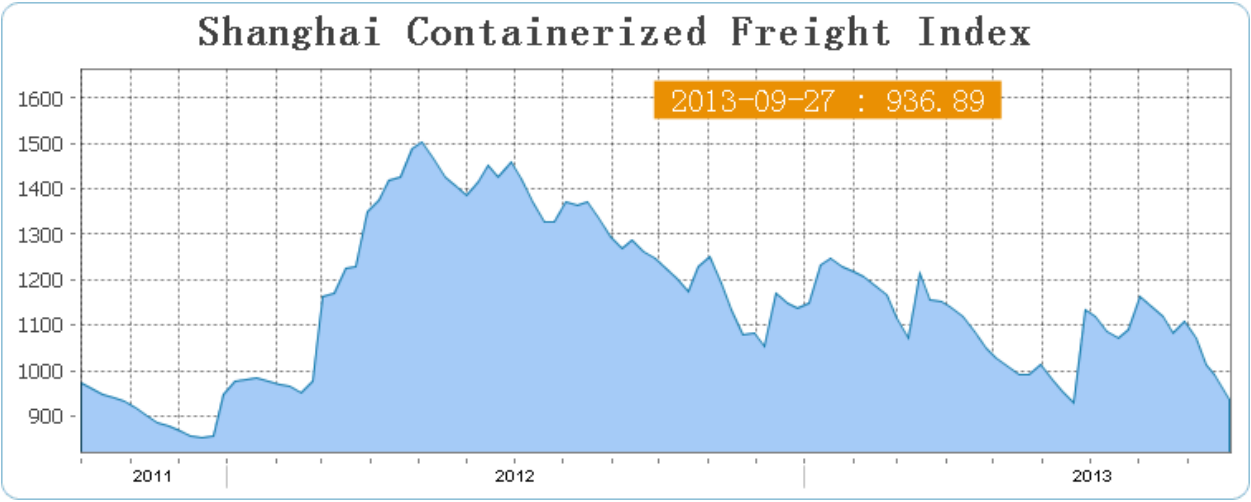
Maersk called for radical changes and implemented the Daily Maersk concept in 2011[15], introducing 'absolute reliability', which compelled the container shipping world to evolve. Step by step companies reorganized in alliances and agreements which did not focus any longer on market shares but rather looked to become sustainably profitable.

Given however the sluggishness of world trade, container vessels' utilization fell below 80% at of the end of September 2012 and the rate restoration achieved in the first months of 2012 fizzled. Figures for 2013 showed so far no improvement.

[14] Maersk alone lost USD 2.1 bn in 2009, (versus USD 583 M profit in 2008). This loss was incurred even after USD 1.6 bn savings had been achieved through restructuring, renegotiating supplier contracts, optimizing networks and reducing fuel consumption.

[15] Maersk has a 14.9% global share of the world container shipping market (down from a peak at 18.2% in 2006). Its share on the Asia-Europe trade is almost double (29%) and accounted in 2012 for 37% of its total volumes, meaning its financial performance is more closely linked to the performance of the most volatile trade in liner shipping.

Figure 2: Evolution of the SCFI 2012-2013[16] in USD/TEU



The efforts displayed by Ocean Carriers to implement rate increases during the coming months and years despite the inconsistency between supply and demand may however be thwarted for other reasons.

Since most of them stopped placing orders shipbuilders have been left desperate for new business and consequently newbuilding prices have declined dramatically (by an average 22% in 2012 after a drop of 35-40% between a peak in 2008 and the end of 2011).

A different breed of shipowners, eager to snap up bargains, have become attracted to the container sector as evidenced by the wealth of orders placed by cash-rich Greek non-operating shipping companies.

The cycle could thus well enter a new phase over the next few years, with a new set of owners acquiring vessels at slashed prices, chartering them out at discounted rates and making a further mockery of attempts to adjust ballooning capacity in line with willowing demand.

Whichever way, overcapacity is here to stay for few years, all the more as the latest generation of Leviathans start being delivered: the 16,020 TEU 'CMA-CGM Marco Polo' in November 2012 (followed by two sister-ships in 2013), the series of 20 Maersk 18,000 TEU 'Triple-E' Class as from June 2013, 5 x 18,400 TEU for CSCL as from the second half of 2014, 5 x 18000 TEU (with an option for 1 more) for UASC in the first half of 2015, 3 x 16000 TEU to be built by Jiangnan Changxing Heavy Industry (Shangai) with deliveries starting in September 2015 for charter to COSCO or CSCL.

Altogether there is / will be one more 10,000+ TEU vessel entering the Asia-Europe trade each week in 2013 (i.e. a 17% yearly growth in capacity versus an anticipated 4 to 5% increase in demand).

This will keep on putting pressure on freight rates which is obviously not good news for the Eurasian land corridors including TRACECA.

On another hand container lines have come to the point where going lower or even staying at the present freight levels will force many of them into bankruptcy.

A key factor is the bunker cost which remains highly volatile and therefore unpredictable.

[16] The SCFI reflects the spot rates of Shanghai export container transport market, which includes both freight rates (indices) of 15 individual shipping routes and the comprehensive index (1,000 points on 2009-10-16).

Figure 3: The 396 m LOA / 54 m Width M/S 'CMA-CGM Marco Polo' During Trials at Sea

Source: CMA-CGM

1.1.2 Factor 2: Slow (SS), Extra Slow (ESS) and Super Slow Steaming (SSS)

Back in 2008, when the market was still booming, shipowners got concerned with the bunker consumption of their vessels because of the cost involved (fuel oil hovered around 500 USD/t) and of increased environmental pressure to first contain then reduce emissions of CO_2, SO_2 and NOx. As a result several East-West carriers started to reduce the speed of their ships[17] which lengthened the duration of the roundtrips between Asia and Europe from 8 to 9 weeks and compelled them to deploy one additional ship in the (weekly) service.

Calculations however showed that steaming at an average 20/21 kn instead of the standard 24 kn for a laden 8,500 TEU vessel allowed to decrease the daily fuel consumption from 230 t to 150 t and to save up to USD 50 M per year on the bunker bill (taking into account the consumption of the ninth vessel). This more than compensated the USD 12 - 16 M capital and running costs of the supplementary ship[18]. Additionally decreasing speed cuts emissions of CO_2 as well as of sulphur and nitric oxydes which are by-products of the fuel combustion.

At the beginning of 2011 nearly all services between Asia and Europe and Asia and the Med had adopted ESS. By the end of 2012 this had enabled to absorb 1,060,000 TEU capacity

[17] This was the third time such a decision was made in container shipping history. It previously occurred when oil crises broke out in 1973 and 1979.

[18] Which, by comparison, burnt USD 20 M bunker p.a.

representing 6.5% of the world cellular while keeping the idle fleet capacity at 'only' 810,000 TEU.

The roundtrip duration was meantime (down) graded to 77 days whereby 11 vessels (instead of 8, 3-4 years ago) are now deployed on each Asia-Europe service.

Always harder times in 2011-2012 induced some shipping lines to introduce SSS which consists of reducing the speed of very and ultra-large large container vessels to 15 kn or even less. Apart from the fact that the fuel consumption curve being exponential the fuel savings from 18 down to 15 kn are much less than from 21 to 18 kn, technical problems appeared with the giant engines designed to be operated at high regimes which at slow speeds need more lubrication reducing thereby the initial fuel savings. Some shipowners have opted for transitory technical solution such as engine retrofit or de-rating and propeller upgrade measures which, at a cost, enable to achieve fuel savings.

New standards are meantime being developed for container ship hull design as well as engines and propelling systems which facilitate very low fuel consumption in the operational speed range, but at the same time allow maintaining an acceptable top speed.

Slow steaming has now become a deep-rooted practice of most container lines around the world. This is all very well for them and represents a potentially favorable development for TRACECA.

Shippers and traders around the world indeed voicing growing concerns about what they label a quick temporary fix of shipping lines today's problems with a lot more to come for them.

They first underline that the cost of transport is not an issue (which is understandable in a depressed but still highly competitive market). The cost-saving arguments used to support orders of super post-Panamax boxships do therefore not convince them of the benefits of mammoth container vessels.

They fear it will even work in reverse: handling (and therefore transit-) times will be longer as these mega-carriers will clog up port infrastructure and hinterland connections unable to keep pace with these giant leaps in scale on key trade gateways. It is also pointed out that larger ships entail fewer direct ports of calls (because the number of ports able to handle the vessels is smaller as well[19]) and thus require a hub and spoke transshipment system, which offers little flexibility and means deteriorated frequencies.

Shippers claim all this will result in loosened supply chains, delays, bigger inventories and therefore higher cash-flow needs which, given the lesser availability of capital, has become their key issue since the GFC is in full swing.

Slow steaming – regarded as carriers' principal response to their capacity hangover and rising fuel costs – comes on top of it all and requires shippers to tie up even more working capital in inventory.

Besides, the situation worsened during the last decade with piracy developing along main world trade routes compelling vessels to follow different / not-straight itineraries: for instance a vessel sailing from Hamburg to Shanghai sailing the shortest passage will cover 10,734 nm, while avoiding the Somali pirates will need her to run a further 457' northwards along the Yemeni coast after exiting the Strait of Aden to reach and follow the Indian west coast (11,191 nm in

[19] The "Triple-Es" for instance can so far be handled only at Shanghai, Ningbo, Xiamen, Yantian, Hong-Kong (all in mainland China) and Singapore in Asia and Rotterdam, Felixstowe (the biggest container port in UK) and Bremerhaven in Europe. They are too big for the Panama Canal locks while their limited draft (14.5 m) allows them to cross the Suez Canal (where draft limitation is 16.0 m).

total) and spend (at ESS) a bit more than an extra day at sea (25h 20'). This altogether adds another two days to the – already longer – full roundtrip between Asia and Europe.

Summing up:

- Shippers remain doubtful about the savings the lines could achieve by employing larger vessels and/or steaming slow and, reasonably, do not believe they will receive any benefit from either since, even running full vessels, Ocean Carriers would hardly cover their costs at present freight levels;
- They are also legitimately convinced of the congenital incapacity of fiercely-competing shipping lines and logistics providers to come to terms for building, for instance, greater flexibility into the system with more regular direct sailing options for the overall benefit of their customers.

Shipping companies underline that the reliability of their liner container services has been improving drastically (partly maybe because slow steaming is giving some greater flexibility). Indeed, according to Drewry Shipping Consultants during 9 months up to July 2013 on-time ship arrivals across all trades were above 80%. On the other hand, only 66.1% of containers were globally delivered in time as a result of lines cancelling sailings and thus curtailing space to hold up freight rates and run fully loaded vessels[20].

Those shippers, freight forwarders and logistics providers actively involved in the trade of high-value / non-disposable consumer goods (high-tech, auto components and the like) can therefore not satisfy themselves with lengthened and less secure supply chains. Just-on-time, seamless delivery is now a basic prerequisite for these and many other products.

Consumers' behavior also changed making trade faster and enlarging its scope to an unprecedented extent: it has been calculated that by the end of 2012 there were 15 bn web-enabled devices… more than people on Earth. In the internet era, browsing the market, selecting practically any type of goods, ordering and receiving them from wherever they are available in the world is only a matter of a few clicks and physically occurs within a matter of few days or even hours. In the case of services it even happens instantly.

This socio-economic revolution is unleashing as huge opportunities as challenges for logistics providers. More than ever time is money.

Plans of economic development in certain parts of the world contribute to changing traditional ways of thinking and reshaping the transport industry landscape as well.

Since the central government launched its plan to revitalize the west of in China in 2000 with the 'Go West' campaign, the region has seen an annual average economic growth of over 10%. Between 2007 and 2012 this rate has soared to 13.6%. No less than 365,000 km of highways (nearly as much as the whole UK road network) have been built and 8,000 km of railway tracks (the size of the Hungarian rail network) laid in this 5 year-period. Infrastructure investments contained in the 12th Five-Year Plan for Western Regions approved in February 2012 include an additional 15,000 km of railway lines to be built till 2015.

Among countless examples, Sichuan and Chongqing provinces which have practically become tax-free zones for high-tech industries have attracted the investments of world majors such as Dell, Intel (production units), GE (centre for innovation and design), Siemens (3rd-world largest industrial automation development centre opened in 2011), Ford (car assembly plant opened in

[20] In spite of the inunterrupted deliveries of ultra-large container ships the capacity on the Asia-Europe trade lane had decreased by 2-3% year-on-year as of July 2013.

2012), Hankcook (30,000-tyre a day factory due to open in 2015), BASF (400,000 t p.a. MDI[21] plant which will be operational in 2014), while a 50,000-unit VW car assembly plant will open this year in Xingjiang.

Figure 4: Map of China with Provinces

This has prompted the implementation of dedicated train services between inland industrial locations and ports. The Yantian International Container Terminal (YICT) runs for instance an intermodal train 5 times a week between Chongqing and its Shenzhen facility in the Pearl River Delta, immediately north of Hong-Kong. The 1,300 km distance is covered in 53 hours.

Taking into account:

- An estimated 2-day stay in port at YICT before loading and departure,
- A 30-day transit-time to Rotterdam,
- Another 1,5 day stay for clearance and dispatch at Rotterdam,
- And 3 hours to drive the 183-km highway from Rotterdam to Duisburg,

the total transit-time needed to bring a container from Chongqing to Duisburg by the sea route thus amounts, if no delay occurs, to 36 days.

The container train operated since March 2011 by Trans Eurasia Logistics GmbH (TEL)[22] travels the 10,300 km overland rail route between Chongqing and Duisburg in only 16 days.

[21] Methylene diphenyl diisocyanate – a chemical used in the production of polyurethane. The world production was 5 Mt in 2011.

Obviously, for high-tech goods, such as computer equipment, the difference in transport cost between sea and rail is manyfold compensated by the savings in inventory costs.

This is explaining partly the tremendous growth in the volume of containers transiting via Russia. RZD reported a total volume of 2,970,600 TEU carried on its network in 2012 (+20.6% compared with 2008) with the biggest increase in shipments of containers in transit (167,000 TEU transported i.e. +54.2%). Though, rail transit rates are reportedly not very competitive due to the tariff regulation system in force in Russia. Also, the strategic target of RZD and major Russian rail container operators TransContainer and FESCO is not to attract more transit-flows but to increase the containerization of Russian trade: in 2011 containerized cargo represented only 4.1% of the total volumes carried by rail (versus 18% in the USA or 14% in Europe).

At the moment the main rail corridor between China and Europe crosses Kazakhstan in Dostyk then Russia to Finland, Baltic States and via Belarus into Poland and other EU countries. The opening of a new rail border crossing at Khorgos and ongoing Silk Wind block train project in Kazakhstan will enable to fill in the missing rail link between China, Turkey and, further, Southern Europe along the TRACECA Corridor through the Caspian Sea and the Caucasus. Hopefully it will attract the same customers who today use the northern route.

From the shipping point of view it however involves at least two challenges:

- it calls for the implementation of liner container services with a dedicated fleet in the Caspian Sea. The choice of the type of vessel – rail-ferry or feeder – will, among many other subjects, depend upon the frequency of the train and volumes carried;
- it needs to address the much more tricky problem of the imbalance in the trade which is plaguing the northern rail- as well as the all-sea route.
  - It is estimated that the 30 top container lines spend a combined USD 20 bn in repositioning empty boxes on all trades worldwide in 2012. Maersk alone stands for USD 1 bn for about 4 M empties out of which over 2 M just to Asia. However, since shipping companies use the free space available on board of their own vessels to carry their own boxes they do not compute any freight to cover the sea-leg: the Maersk billion USD quoted above, representing about 250 USD/container, pays in fact only the drayage and handling of the box from the container yard to the vessel's hold at the loading port and, vice-versa, the unloading and transport expenses from the vessel's hold to the container yard at the discharging port.
- Evidently a different model has to be worked out for rail operations. Where ships plough the free high seas, rail wagons empty or carrying empty containers, on their way back to loading places, run the tracks, make use of the infrastructure and consume the energy of many different countries. This has a cost which has to be factored in the freight at a reasonable enough level to ensure cost-recovery for national rail organizations while remaining competitive and thus attractive for customers.

1.1.3 Factor 3: Piracy

Sea-transport had been a comparatively safe mode for moving goods around the globe until 2000.

Lax port security and ineffective coastal surveillance in certain areas, massive growth in commercial maritime traffic, heavy use of narrow and congested chokepoints have been blamed as well as economic crises (as in South-East Asia in 1998) and collapse of the state (as in

[22] A joint-venture established in 2008 by RZD and Deutsche Bahn's subsidiary DB Mobility Logistics AG.

Somalia in 1991) leaving thousands jobless or even without any resource at all, for creating incentives for many to engage into criminal activities and contributing to the revival of piracy.

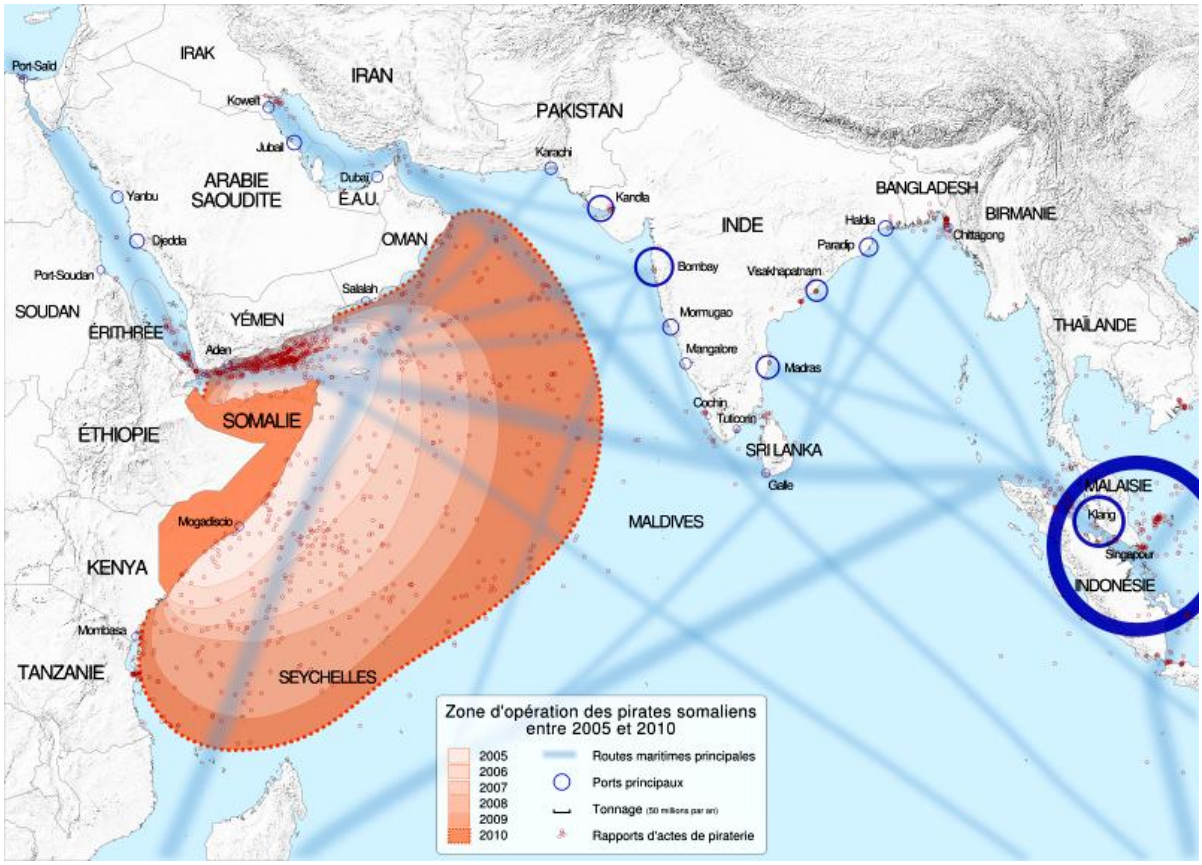
Acts of piracy -- boarding a ship to commit theft or another crime – increased by 68% between 2000 and 2006 totaling 2,463 actual or attempted incidents[23]. Researchers however consider the overall problem was almost certainly even greater than the figures suggested assuming that nearly half of all piracy attacks were not reported, usually because of fears about subsequent investigation costs and increases in insurance premiums.

As from 2005 the Horn of Africa posed the greatest threat and became the number one High Risk Area (HRA): 111 attacks were recorded in 2008, resulting in the hijacking of 42 vessels. 2009 was the worst year with Somali Pirate Attack Groups (PAGs) extending their range of action and the HRA well outside the Gulf of Aden and seizing 117 ships. One of the most dramatic events that year was the capture by the pirates and release by US Navy SEALs of the 1,092 TEU containership 'Maersk Alabama' and her crew.

The joint efforts displayed by the international community started paying off in 2010 when the number of attacks decreased to 127 resulting in 47 successful hijacks. In 2011 237 attacks were reported off the Somali coast and in the Gulf of Aden with 'only' 28 captures.

Piracy reached a 5-year worldwide low in 2012 with 297 assaults (compared with 439 in 2011) out of which 75 around Somalia with 14 vessels seized.

Figure 5: Somalian Piracy Threat Map 2005-2013



Source: Planemad

[23] At the time, these took place mostly in South-East Asia, especially around the Indonesian archipelago.

The International Maritime Bureau, a specialized division of the International Chamber of Commerce fighting all types of maritime crime and malpractice, however notes in its 2012 report that 'the threat and capability of heavily armed Somali pirates remains strong... In Somalia, and elsewhere, vessels most commonly attacked are container ships, bulk carriers and tankers loaded with oil, chemicals and other products'.

Modern piracy in the Indian Ocean raises a number of problems:

- first and foremost a human one: notwithstanding a fortunately low number of casualties, there were still 127 seamen held hostages either ashore or on the 8 vessels still in the hands of Somali pirates as of 31 December 2012;
- secondly PAGs' crews are professional, well-trained fighters running sophisticated operations and using state-of-the art weaponry, means of communication, etc. while piracy has structured itself into an industry with investors, a stock exchange and a business-like organization;
- in the third place piracy has a cost which the World Bank estimated in May 2013 at USD 18 bn a year. Ransoms paid over the 5 last years for releasing crews and vessels represent only a very small part (USD 315-385 M). It has also generated indirect costs (such as the mobilization of international navies, diversion of ships through longer routes around the Cape of Good Hope increasing shipping expenses, costly defence measures undertaken by shipping companies such as embarking armed private security guards, ringing the deck of the ship with barbed wire, etc.) Marine insurance companies have apparently taken unfair advantage of the situation to raise premiums significantly;

Figure 6: Container Ship with Razor Barbed Wire Fence

Source: Sail World

- fourthly, the motivations of Somali pirates, who apparently receive the support of their people, seem to reach farther than simply hijacking merchant vessels for ransom: since Somalia became a lawless land in the early 90's, European and Asian fishing fleets have been illegally fishing[24] in the country's exclusive economic zone quickly depleting stocks previously available to local fishermen. NGOs have repeatedly stressed that overfishing carried out with prohibited equipment seriously affects the livelihood of Somali populations and must be stopped;
- last, several official reports also shed light on the fact that Somalia and its unprotected territorial waters became before and even more during the civil war a cheap dumping ground for large quantities of toxic and hazardous waste (including radioactive one) for a number of European companies. The 2004 Indian Ocean tsunami washed ashore and broke open part of the tanks, barrels and containers and scattered their dangerous contents. A United Nations Environment Program mission which visited the country some time later found out that several Somalis in the northeast regions were ill with diseases consistent with radiation sickness.

Pirates have often claimed that their action aims at bringing an end to both these malpractices.

It is therefore clear that fighting piracy and restoring safe conditions of navigation in the region can't result from military action only. Failing to assess properly a situation which international media generally hushed up and implement adequate aid measures, piracy will be temporarily subdued but not eradicated and will remain a threat for the main Asia-Europe shipping route.

This, conversely, constitutes another serious and lasting reason for shipping cargoes - particularly high-value ones - via other routes such as TRACECA.

1.1.4 Factor 4: Environmental Concerns and Issues

A - The International Convention for the Control and Management of Ships Ballast Water and Sediments, 2004

Since the hulls of vessels are made of steel water has been used as ballast to stabilize vessels at sea. Ballast water is pumped from the sea into tanks to maintain safe operating conditions throughout a voyage.

Ballast water may however pose serious ecological, economic and health problems due to the multitude of marine species carried in ships' ballast water including bacteria, microbes, small invertebrates, etc. These species may survive, establish a reproductive population and multiply into pest proportions. It has been recognized that the spread of harmful aquatic organisms – amplified by the enormous expansion of sea-borne trade[25] – is causing health effects as well as damages to biodiversity.

After over 14 years of negotiations between Member States the IMO adopted 'The International Convention for the Control and Management of Ships Ballast Water and Sediments, 2004' (Ballast Water Management Convention – hereafter 'the convention').

The convention will come into effect 12 months after 30 countries representing a combined total gross tonnage of more than 35% of the world's merchant fleet have ratified it. As of September

[24] Poached fish catches were reportedly worth USD 300 M in 2008.

[25] The IMO estimates ships carry between 3 and 10 bn t of ballast water globally each year.

2012 36 countries[26] representing a combined tonnage of 29.07% of the world's merchant fleet have ratified the convention.

Right from the beginning the shipping community pointed out the convention contained many discrepancies and set almost unachievable targets. Furthermore, at the time the convention was adopted, suitable technologies allowing the new standards to be met did not exist.

Representatives of the leading worldwide associations of shipbuilders, classification societies and shipowners gathered in December 2012 for their annual tripartite meeting and expressed serious concern with the obstacles they face as the convention moves closer to ratification.

A key technological issue is that the certified performance criteria of the new treatment equipment seem to fall short of testing requirements that may be applied by port state control authorities[27]. As a result a very large number of treatment equipment costing billions of dollars may be required to be installed on tens of thousands of ships with the prior knowledge that these systems may not always work reliably to the demanded biological efficacy[28].

The standards should become mandatory between 2014 and 2016 depending on the year of built and ballast capacity of the vessels. Given the above-mentioned difficulties retrofitting the existing fleet of 40,000 fleets within the remaining time seems clearly impossible.

The shipping industry has therefore requested the IMO to reconsider both the timeline and the approval requirements.

Trying to read between the lines of official statements, it appears shipowners are in fact faced with a dilemma: on average, from 2002 to 2011 a five-year-old vessel was rated at 84 percent of the price of a new construction. Now a five-year-old vessel is priced at 60 percent of a new ship, and a 15-year-old vessel at 25 percent of the cost of a newbuilding. It seems the fleet is, in general, depreciating faster in value than before and the value and life-cycle of non-fuel-efficient vessels even faster. Meanwhile, prices for ballast water treatment systems ranged in 2012 from USD 1 to 4 M depending on the size of the ship. Yards need between 30 and 45 days to fit the system which, for a VLCC, represents about another USD 1 M loss in revenue in today's market. Older ships may therefore get scrapped because upgrading them would prove uneconomical. All the more so as ferrous/steel scrap prices have reached historical heights[29].

In spite of the fact that 22 years after discussions started the convention is still not in force, it must be noted that a lot of new ships coming out of the yards – including all mega container carriers - are now equipped with a ballast-water treatment system. As of 31 January 2013 Iran is the only TRACECA country having ratified the convention. Russia is the only other country having ratified it in the Caspian and Black Sea region[30].

[26] The last one having ratified the convention being Switzerland on the 24/09/2013.

[27] In March 2012 the US Coast Guards have – finally but partially only - allayed fears that they would not impose ballast water treatment standards stricter than the convention.

[28] Leading Finnish marine power-plant manufacturer Wärtsilä is seemingly the first company to have presented a ballast water treatment management system having received (in October 2012) the IMO Marine Environment Protection Committee (MEPC) Basic Approval. All going well the Final Approval should be given at the next MEPC meeting in 2013.

[29] Except for a sharp drop in 2009 steel scrap prices have been rising uninterruptedly since 12 years hovering today around 400 USD/t versus 180 USD/t in 2000.

[30] In the EU some major maritime powers such as Germany, Greece and Italy have not ratified the convention either.

B – The Directive 2012/33/EU of the European Parliament and of the Council of 21 November 2012 amending Council Directive 1999/32/EC as regards the sulphur content of marine fuels and Emission Control Areas (ECA)

According to the EC air pollutants from maritime shipping transported over long distances contribute increasingly to the air quality problems in many European cities and, without any action, sulphur emissions from shipping in EU sea areas would exceed those from all land-based sources by 2020[31].

The revised legislation (based on commitments unanimously taken by the EU Member States in the IMO back in 2008 and aligned with Annex VI of the MARPOL Convention) aims at reducing the maximum sulphur content of marine fuels from the current 3.5% to 0.5% by January 2020. In some fragile ecosystems such as the Baltic Sea and the North Sea including the Channel, the maximum sulphur content will be reduced to 0.1%, already in 2015. As an alternative to low sulphur fuels, shipowners can opt for equivalent compliance methods such as exhaust gas cleaning systems or LNG-powered ships. Allegedly current EU transport funding instruments, such as TEN-T and Marco Polo Programs, as well as the EIB, give financial support to green maritime-based projects.

This '2020 global sulphur limit' is however subject to a review in 2018. Furthermore preparatory studies have been undertaken on the potential for North and Baltic Sea to become NOx ECAs.

Meantime, the USA introduced in August 2012 an Emission Control Area (ECA) within 200 nm. Tokyo Bay, Singapore, Hong Kong, the Mediterranean, and the Caribbean are expected to follow shortly. The challenge for the world fleet is to meet the 2015 limit of 0.1% sulphur content within ECAs. By the year 2020, the limit of sulphur in international waters is to come down to 0.5%.

In practice, the 2015 and 2020 limits mean that ships will have to burn marine diesel oil (MDO) or marine gas oil (GO) instead of heavy fuel oil (HFO). Currently there is however not sufficient refining capacity to take the industry from residual fuel (HFO) to middle distillates (MDO or GO). This implies that shipowners will have to choose either to burn lighter fuels in their vessels' engines (at an extra-cost of about 300 USD/T) or to install scrubbers that can clean the exhaust in order to reduce sulphur content, at a 2012 cost varying from about USD 4 M for a newbuilding to USD 5 M for a retrofit. Apart from the fact that oil prices will keep on rising, HFO prices are expected to surge since it will necessarily have lower sulphur content whereby making a choice between the two solutions may prove difficult.

Compliance with EU environmental requirements will de facto have a profound effect on the composition of the world fleet in the few years to come and, for the reasons already mentioned analysts expect scrapping figures to soar in the very next few years with vessels as young as 15 years sent to the breakers[32].

Retrofitting the remaining fleet will also be time-consuming and reduce temporarily the availability of tonnage. It will also absorb a significant part of the resources of already financially-strained shipping companies. All these elements will contribute to put an upward pressure on sea-transport costs.

C – The Energy Efficient Design Index (EEDI)

[31] Shipping represents today about 3% of global Greenhouse Gas (GHG) emissions. However a 2009 study by the IMO projects emissions from shipping will increase from 150 to 250% by 2050 if no measures are taken.

[32] The average age of scrapped ships in 2012 was 24 years, a historic low, with 37 ships sold as scrap being under 20 years old.

In 2011 the IMO amended the International Convention for the Prevention of Pollution from Ships (MARPOL) to include energy efficiency standards for new ships through the designation of an Energy Efficiency Design Index.

The EEDI standards will come into force between 2013 and 2025. The aim is to gradually reduce the fuel consumption, and hence GHG emissions, from ships to be delivered as from 2015 and reach a level of 30% decrease for vessels delivered after 2024.

The EEDI applies to the most energy-intensive segments of the international shipping fleet, representing more than 70 percent of ship emissions which, among others, include container and general cargo ships.

In actual facts the set up and implementation process of the EEDI has given rise to a politically divisive debate between developed countries led by the EU (including South Korea, one of the world leading ship building country) and emerging and developing countries (China, Brazil and India joined by oil-producing countries such as Saudi Arabia and Kuwait) requesting a commitment to a process of technical assistance and technology transfer as well as a waiver period to enable them to be in a better position to implement the EEDI.

In spite of the loopholes contained in the compromise text finally adopted, developed countries – and the EU in the first place – still have the possibility under international law to develop unilaterally regional policies which will compel vessels visiting EU ports to be EEDI compliant.

From a practical point of view studies carried out for the IMO by classification societies Lloyd's Register and Det Norske Veritas in 2011 have shown that 'the cost of complying to the EEDI requirements in phase 0 and phase 1 (*up to 10% reduction in GHG emissions*) is expected to be low and is more than compensated by the reduced fuel consumption'.

Improving ship hydrodynamic as well as auxiliary and main engine and optimising propeller's efficiency may however result in more significant investments for shipowners to achieve the targets set for later phases.

While emissions will for sure decrease, it remains to be seen if these investments will and can pay off for shipping lines. There is indeed an extremely weak point in all these schemes, i.e. the cost of bunker, which is and, under present circumstances, will remain highly unpredictable: saving as much as 35% in consumption means no saving if the price increases by 35% (as happened between 2010 and 2011).

Until the beginning of the 21st century professionals in the shipping industry used to assume that at breakeven the costs of vessels in operation were on average distributed 70% in capital and operating expenses and 30% in fuel consumption. The assumption today is that fuel represents some 60% of the total and expectations are that this proportion is due to increase.

1.1.5 Factor 5: New Fuels

The shipping industry has long ago recognized that the unforeseeable upward fluctuations of the oil prices represented the biggest threat for its sustainability. Alternative solutions did however not exist and innovations mostly failed until very recently. A concept of hybrid container vessels with both engine and wind sails was developed by Contship Container Lines in the late 80's but proved uneconomical at the time. The same concept is now explored by the Wind Challenger Project led by the University of Tokyo: the idea is to utilize giant aluminium/fibre retractable sails, 20m wide by 50m high, to make maximal use of wind energy. Simulations for shipping routes such as Yokohama-Seattle have shown that such ships could save about 30% in annual fuel consumption on average. Japanese scientists have determined that the cost of the sails and manoeuvring gears (about USD 2.5 M per piece) could be recovered in less than 10 years.

Rapid industrial developments have now made the use of natural gas feasible for ship's propulsion with shale gas a game changer likely to increase gas availability. Being also produced on a large scale in developed countries (first and foremost the USA) natural gas is subject to moderate and altogether predictable changes in price.

This revolution has opened the door wide to many private and governmental initiatives and projects.

A few examples:

- In the EU:
  - The EC has budgeted EUR 1.247 M from the TEN-T Programme for a project which aims at identifying and addressing the potential barriers to the construction and operation of Liquefied Natural Gas (LNG) fuelled vessels. Specific aspects related to the manufacturing, conversion, certification and operation phases of a LNG fuelled vessel will be analysed. The project implemented in June 2012 in Sweden[33] and Finland in partnership with stakeholders consisting of shipowners, cargo owners, LNG suppliers, ports and marine equipment manufacturers is set to be completed by the end of 2014;
  - Under the EC's Transport 2050 Strategy which aims to break away from EU transport's dependence on oil and proposes a global target of 60 % GHG emissions' reduction by 2050, and the corresponding EC's Clean Fuels Strategy, a new proposal has been developed for installing LNG refuelling stations[34] at 139 EU maritime and inland ports identified in the EU TEN-T Core Network;
  - In December 2012, for the first time, a barge powered by LNG was bunkered from a truck in Antwerp. And in July 2013 the EC approved subsidies for the LNG bunkering station for barges the port wants to build until 2015.
- Elsewhere:
  - In January 2013 classification society DNV, a leader in introducing innovative LNG shipping concepts and developing LNG bunkering guidelines, and Korea Gas Corporation (KOGAS), South Korea's national gas company and the largest importer of LNG in the world, have entered into an agreement to perform a feasibility study on the establishment of an LNG bunkering infrastructure in Pusan, Incheon and Pyeongtaek. This is one of the largest and most comprehensive feasibility studies ever initiated in the worldwide LNG bunkering industry;
  - New Jersey-based shipping company TOTE, Inc. has decided to invest in two new 4,210 TEU container ships[35] designed to rely primarily on LNG, lowering emissions of particulate matter 99%, while smog-forming sulfur and nitrogen oxides would fall 98% and 91% respectively. The MAN-powered vessels, scheduled for entering service in 2015 and 2016, will be used on TOTE's shipping routes to Puerto Rico, which pass through several designated sensitive (ECA) areas;

[33] LNG infrastructure for fuelling vessels is at a very early stage, with only Sweden having a real (small scale) LNG bunkering facility for ships.

[34] Which could be either fixed or mobile.

[35] A 14,000 TEU dual fuel burning (HFO and LNG) engine containership has been designed in 2011 by Korean shipbuilder Daewoo Shipbuilding & Marine Engineering (DSME) in cooperation with French shipping line CMA-CGM and classification society Bureau Veritas. At the design speed of 24 kn CO2 emissions would be reduced by 23% and SO2 by 92%.

- Canadian operator Société des Traversiers du Québec ordered in October 2012 the first North American LNG-powered ferry from Italian shipyard Fincantieri. The dual-fuel engine will be supplied by Wärtsilä. The vessel which is due for delivery at the end of 2014 will be employed on routes crossing the St. Lawrence River;
- A growing number of shipping companies are investigating natural gas as a potential replacement for oil and the Wall Street Journal reported a Chinese firm ordered the first in a new series of hybrid LNG-diesel tugs;
- For the first time in 2012 Royal Dutch Shell gas production overtook oil. Plans have been developed to increase the LNG for-transport projects to more than 5 Mt a year. Shell intends to sell about half the volume to the trucking industry in Canada and the USA and the rest to shipping in the Great Lakes, Gulf of Mexico and the Baltic Sea. Today, the price of US crude oil is 4 times more than LNG on a per barrel basis. Meanwhile the price of the equipment and engines necessary for liquefaction and of means of LNG distribution is quickly coming down which makes the operation viable.

The use of LNG still implies a number of challenges:

- Shipowners have three options: the first one is to adapt existing systems which is both costly and difficult. The second is to adopt hybrid systems which are more expensive than traditional designs. The third is to choose pure LNG propulsion: the matter here is that LNG has a lower energy density, meaning that a trip of the same distance requires a greater volume of fuel, adding weight to a ship and detracting from cargo storage space;
- The main concern is the reliability of supply. As already noted worldwide facilities are few at the moment[36].

DNV nonetheless projects that more than 1 in 10 newbuildings in the next seven years (up to 2020) will be delivered with gas fuelled engines.

In addition to evident environmental benefits, the use of alternative fuels to oil will, in the long run, allow stabilizing one of the key cost components of sea freight. Still assumptions at the moment are that the bill for shipowners could reach as much as USD 500 bn between now and 2025 and huge investments will also be needed in new shore infrastructure.

One way or another, this should reflect in freight rates reducing the competitive gap of sea transport versus rail on very long distances such as from China to Europe.

It can however be expected that more stringent emission rules and standards will be applied in the Black and the Caspian Sea sooner or later, compelling shipowners to adapt their fleets and make significant investments to meet to the new environmental requirements.

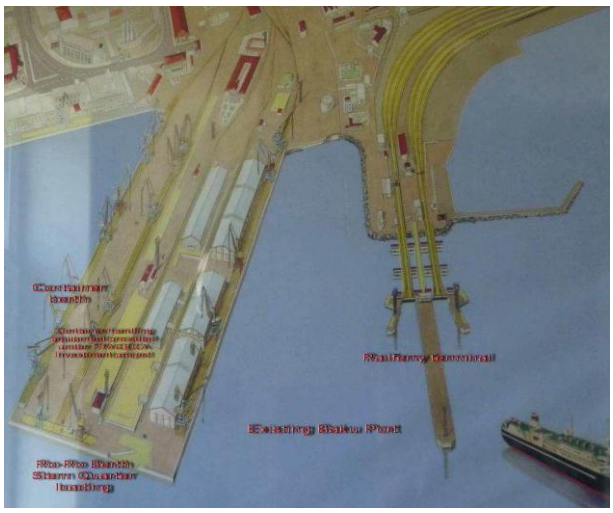
[36] The first private LNG bunkering station in China has been approved in August 2013. It will be built in Zhoushan and have a receiving capacity of 3 Mt upon completion in March 2016. The total investment in the project is about EUR 575 M.

2 PORT SYSTEMS – CASPIAN SEA

2.1 Azerbaijan

The port of Baku is the major non-oil and gas dry cargo sea port of Azerbaijan. It is one of the best harbours in the Caspian Sea, the bay being sheltered by the islands of the Baku Archipelago to the east and the Absheron Peninsula to the north. Baku is also the biggest port in the Caspian Sea with a handling design capacity of 10 Mt dry cargo p.a. Other ports in the Baku area are mostly oil and gas terminals such as Sangachal (45 km south of Baku) and Dubendi (35 km north-east of Baku). It is managed and operated by the State-owned company 'Baku International Sea Trade Port' (BISTP).

Figure 7: Port of Baku



The port is located downtown Baku in a land plot appointed to become a high-standing residential area. It will be replaced by a marina in the future.

BISTP consists of:

- 6 general/dry cargo berths extending over 866 m at 7 m quayside depth, also used for berthing and handling ¾ stern ramp Ro-Ros and performing the container stevedoring operations. These berths are equipped with 16 portal cranes with a lifting capacity from 5 to 40t;
- 24,000 sqm of open storage and 10,000 sqm of covered warehouses. This includes a 1,600 sqm open storage dedicated for containers. BISTP has the capacity to handle 15,000 TEU yearly;
- A railway branch line linked to the national railway network and 4 diesel locos for manoeuvring, ensuring a full inter-modality of container transport through the port. Shore-handling of containers is carried out with modern equipment such as a 42 t Kalmar container forklift and a 40 t reach-stacker (provided under a previous TRACECA investment project enhancing intermodal capacities of the port), mafi-trailers, Terberg tugmasters and small Hyster forklifts; and
- A double-bridge rail-ferry terminal. The second ferry bridge was rehabilitated in 2010 enhancing the handling capacity of the port for rail-ferried cargo from 5.5 Mt to 8 Mt per annum. Maneuvers are carried out with 4 diesel locos.

There is a railway freight station of ADY, the national railway company of Azerbaijan, two km away from the port which serves 5-9 pairs of trains per day (the design capacity was for 17-18

pairs of trains a day) or about 400 railcars per day. At present, the daily rail traffic at the port is about 150 railcars, well below the capacity of the port railway station. The rail track to the port crosses one of Baku's main road arteries thus, trains are hauled back and forth only during night time.

The road access to Baku port is one of the main and busiest arteries of the city. A restriction is, therefore, in force on the exit/entrance of trucks from/to the port during daylight over the working week and a complete ban applies over the weekend.

In 2011, CASPAR, the Azerbaijan State Shipping Company, took the initiative to transfer its Ro-Ro operations to Zykh, a port located on the eastern side of the bay of Baku, which is under its sole control but has not been officially commissioned yet. The shipyards should also be transferred from the city centre to this new facility. There are several berths and a Customs office available at Zykh. This port could become a dedicated permanent maintenance and Ro-Ro operation base for CASPAR at least until the new Baku port at Alyat starts operating.

2.1.1 Port Traffic

Baku registered its highest cargo volume in 1973 when it handled 24.405 Mt (including crude oil). Since the late 1980s there has been a sharp drop but the volume picked up in the last few years and reached 6.374 Mt in 2012 in spite of a decrease in the oil traffic (which went down regularly from 3.172 Mt to 1,403 Mt between 2008 and 2012) and thanks to a strong increase in ferry and dry cargo flows. The major trading partners of the port of Baku are Aktau (Kazakhstan), Turkmenbashi (Turkmenistan), Anzali and Amir Abad (Iran).

Except for a few last-voyage containers, the only significant containerised trade BISTP is handling is the NATO humanitarian cargo to Afghanistan, which is now significantly on the decrease. The boxes are shipped from Baku on board of CASPAR general cargo vessels in lots of approximately 100 TEU.

The sailings are not regular. Most of these containers (proceeding from various origins including Iraq via Turkey) are railed from Poti, some also arrive from Turkish Mediterranean ports.

The vast majority of the ferry and Ro-Ro traffics are transit from and to Turkmenistan to and from Georgia (82% in 2010) while import[37] and export represent the biggest portion of the dry cargo trade (82 and 5% respectively in 2010).

[37] Dominated by construction materials from Iran. There are also some imports from Europe reaching Baku via the Volga-Don Complex during the navigation period of Russian inland waterways from April to November.

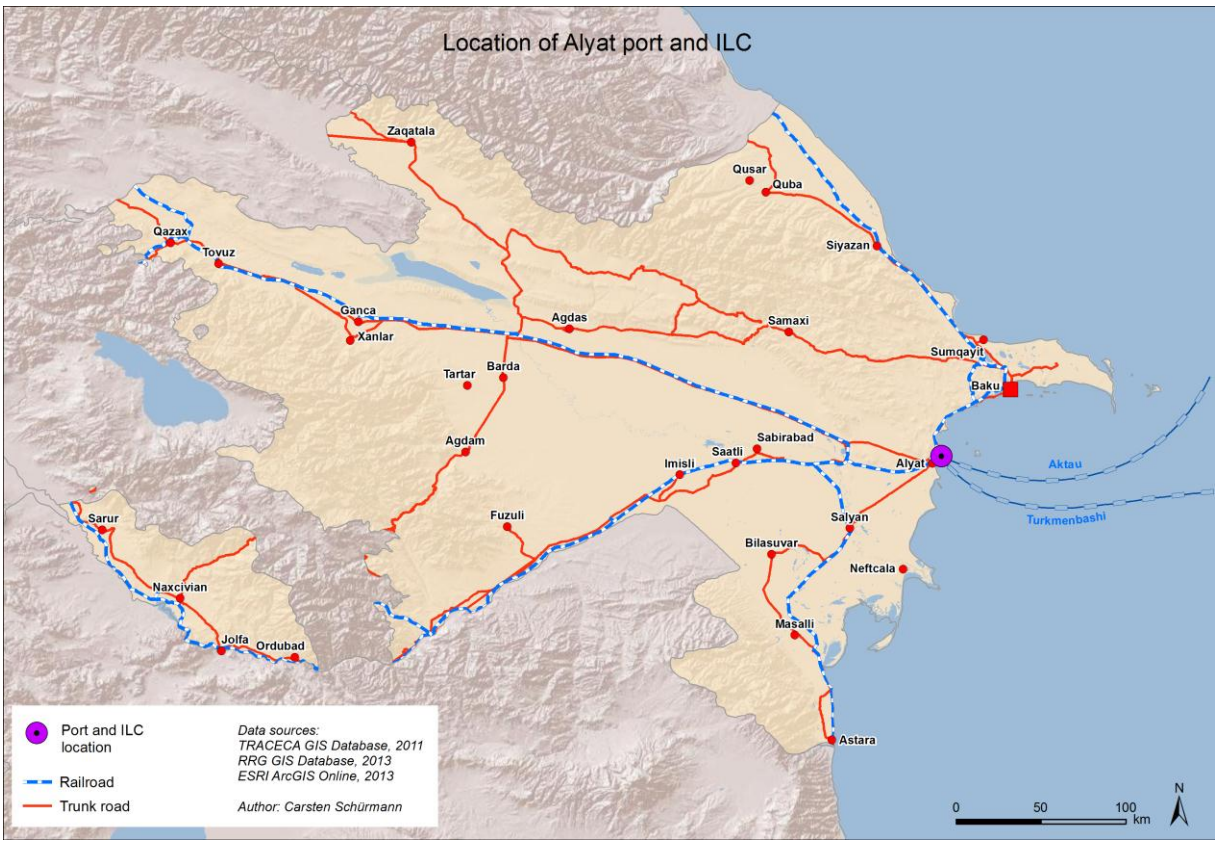
Table 4: Throughput of BISTP (Oil and Oil Products Excepted)

	2008	2009	2010	2011	2012
Containers (number of units)		3,103	9,626	5,744	na
Containers (TEU)		3,172	16,521	9,233	8,491
Wagons (number of units)	31,826	38,370	46,677	58,186	63,559
Rail-ferry Mt	2.088	2.296	2.932	3.836	3.795
Dry and Ro-Ro cargo, Mt	0.78	0.29	0.833	1.128	1.176

2.1.2 Plans of Development

The Azerbaijani Government originally allocated USD 400 M for the construction of the new BISTP, at Alyat, 65 km to the south of Baku. In early 2009 it awarded Royal Haskoning a contract to provide complete design and engineering services, including initial site investigations, port master plan, plus tender and construction support. Works actually started in November 2010.

Figure 8: Location of Alyat Port and ILC



The budget of this first phase was revised in 2011 up to USD 760 M. An area of 400 ha has been reserved for this new hub, out of which 100 have been allocated for the erection of an International Logistics Centre.

The port should be built in three phases, the first (due for completion by 2015), allows for a progressive transfer of the operations from the old port without too much disruption to maritime operations. A major component is the dredging of a two-way navigation access channel 7.5 km in length, 160 m width and 7.6 m depth. In February 2011, Dutch leading dredging and marine engineering company Van Oord and Azerkopru JSC launched the preparation of dredging work, which actually started in September the same year. The major dredging work was completed in March 2013, construction of the quay walls has started and levelling and land filling works are under way on the whole territory.

Rail and road connections to the national Azerbaijani networks will also be built during this first phase (including a new highway between Baku and Sumgait).

The plan also includes the construction of two ferry bridges, three cargo berths for receiving container vessels, Ro-Ro and general cargo/bulk carriers, a container terminal, warehouses and administrative buildings. Upon completion Alyat will be able to handle up to 10 Mt dry cargo and 40,000 TEU from day one.

The second phase of the project includes construction of three cargo berths, and the third, the construction of two additional cargo berths. When the third phase is over Alyat should be capable of handling 25 Mt of freight and 1,000,000 TEU.

The port is designed for vessels with 13,500 DWT that is optimal for the Caspian Sea.

Although no official announcements have yet been made, it is generally expected the Azerbaijani Government will seek private partners for the construction and operation of the ILC (and later development of the port) through JV or BOT arrangements while Alyat should be a port of the landlord type with the involvement of an international operator (probably in JV with an Azerbaijani partner).

2.2 Kazakhstan

Aktau is the only international commercial sea port in Kazakhstan. Bautino (124 km north of Aktau) mainly serves as the marine and supply base and vessel maintenance facility[38] [39] supporting the development of the Northern Caspian Sea offshore oil fields, notably

[38] Built at a cost of USD 95 M out of which 52.3 financed by the EBRD in two phases in 2006 and 2008.

[39] KazMorTransFlot (KMTF), the national shipping company of Kazakhstan has a 30% share in the jont-venture operating the vessel maintenance facility.

Kashagan[40], while Kuryk (70 km south of Aktau) is the construction base for the (huge) artefacts installed at sea in the oil fields[41] [42].

Figure 9: Artificial Islands at the Kashagan Oil Field

Aktau is managed and operated by the Republican State Enterprise 'Aktau International Sea Commercial Port' (AISCP)[43]. Early in 2013 the Government of Kazakhstan (GoK) decided to transfer the management of the port to Kazakhstan Temir Zholy, the Kazakh State Railways[44]. Discussions are also going on with number 3-world container terminal operator DP World to have them manage (to an undisclosed extent) the port operations and Aktau FEZ. It seems the GoK wants to make a package deal and demands that DP World takes over the management of the Horgos FEZ at the same time. The total investment needed in both locations is valued at about USD 1 bn.

The port has an integrated management system incorporating compliance with ISO 9001:2000 and ecological management system compliant with ISO 14001:2004. It is equipped with an oil-skimmer and other devices for containment and response on oil spills.

Aktau has been basically designed for the handling of bulk liquid and solid commodities (oil and oil products, grain) and break-bulk cargoes (metal, steel products, sawn-timber, etc.). A rail-ferry

[40] Kashagan supergiant offshore oil field discovered in 2000, not far from the city of Atyrau, is considered the world's largest discovery in the last 30 years and at a cost of USD 48 bn the most expensive world oil project ever; after 8 years of delay due to unforeseen, challenging technical difficulties, government interference and internal disputes, the North Caspian Oil Company (NCOC) launched oil production on the 11th of September 2013. KazMunaiGas, the Kazakh state oil company, Italy's ENI, U.S. major ExxonMobil, Royal Dutch Shell and France's Total each hold 16.81 percent stakes in the consortium. Japan's Inpex owns 7.56 percent while China National Petroleum Corp (CNPC) acquired a 8.33 percent stake (a deal estimated worth USD 5 bn) from US company Conoco earlier this year. With Kashagan Kazakhstan's oil production is set to increase by 1 M barrels per day rising from 1.6 M b/d to 2.6 M b/d in 2020 catapulting the country into the top league of major non-Opec oil producers. The crude will be exported via the Caspian Pipeline Consortium Terminal in Novorossiysk and the KazTransOil link which also ends in Russia, in Samara.

[41] Kuryk was the docking place where, in 1961, construction materials were shipped to build the port of Aktau connected with the exploitation of local uranium and oil shore deposits in the region of Mangyshlak. The current construction base is operated by ERSAI, a joint-venture established in 2003 between Italian SAIPEM (ENI Group) and Kazakh Lancaster Group.

[42] Vessels (and cargoes) proceeding from foreign origins to Kuryk have to register in passing at Aktau as there are no Harbour Master/Port Authorities at Kuryk.

[43] AISCP also manages Bautino.

[44] As well as, for the record, 17 regional airports.

handling complex was added later on (and later on rehabilitated and modernised with a EUR 2 M EU TRACECA allocation). After a USD 74 M reconstruction partly financed by the EBRD in 1997-1999, the design capacities have been increased to 8 Mt for oil and 1.55 Mt for dry cargo.

The port can accommodate vessels of maximum to 150 m LOA, 20 m width and 6.2 m draft. Towage is compulsory for berthing/unberthing due to the port features and inclement/windy local climate[45]. The port is never frozen and open all the year round, however berthing is often delayed (up to several days) in winter due to bad weather conditions[46].

Today Aktau is composed of:

- 4 oil berths totalling 676 m at 5.5 / 6.2 m permissible draft for tankers of up to 12,000 displacement;
- 4 general-cargo/multipurpose berths extending over 550 m at 4.6 m quayside draft also used for the stevedoring of ore, grain[47], heavylifts and Ro-Ros;
- 1,140 m long rail-ferry berth/ramp at 5.3 m depth;
- Shallow service berths for the port fleet and other internal use; and
- Over 50,000 sqm of open storage areas and 6,000 sqm of covered warehouses.

There are no dedicated Ro-Ro and container vessel berths and no facilities for handling passenger traffic.

The port is equipped with 5 portal cranes with a lifting capacity from 10 to 32 t, 3 mobile cranes of respectively 36, 64 and 80 t lifting capacity, 17 forklifts from 1,8 till 28 t and a fine array of other, new, port stevedoring equipment (including 12 x 50 t semi-trailers).

2.2.1 Port Traffic

Aktau is connected with Baku, Makhachkala and Olya/Astrakhan (Russia) and the Iranian Caspian Sea ports (Anzali, Nowshahr, Amir Abad).

The volume of dry cargo handled at AISCP has jumped from 1.426 Mt in 2004 to 4.072 Mt in 2011.

The recent and sudden development and rapid growth of the TIR-truck traffic (via Baku and mainly from and to Turkey) on the Ro-Ro vessels must be underlined. Figures which were insignificant until 2010, read as follows for the past 2 years.

[45] AISCP operates 2 powerful 1700 and 2720 HP tugboats.

[46] Winds also prevent crane work for about 20 to 30 days each year.

[47] The port silos/terminal of Kazakh major grain trading company AK Bidai/Kostanay allow the transshipment of up to 600,000 t a year.

Table 5: TIR-TruckTraffic

Number of trucks

		2011	2012
Import	total	2,998	2,919
	on rail-ferries	1,912	259
	on Ro-Ros	1,086	2,660
Export	total	1,820	3,502
	on rail-ferries	151	217
	on Ro-Ros	1,669	3,285

The rail-ferry trade has also increased considerably (see Table 6).

Table 6: Throughput of AISCP

	2006	2007	2008	2009	2010	2011	2012
Containers, TEU	716	846	700	3,638	9,970	3,402	5,030
Ferry and Ro-Ro cargo, thousands Tons	310.6	237.8	227.5	221.6	603	1,433	1,383
Number of wagons					9,400	19,000	21,237

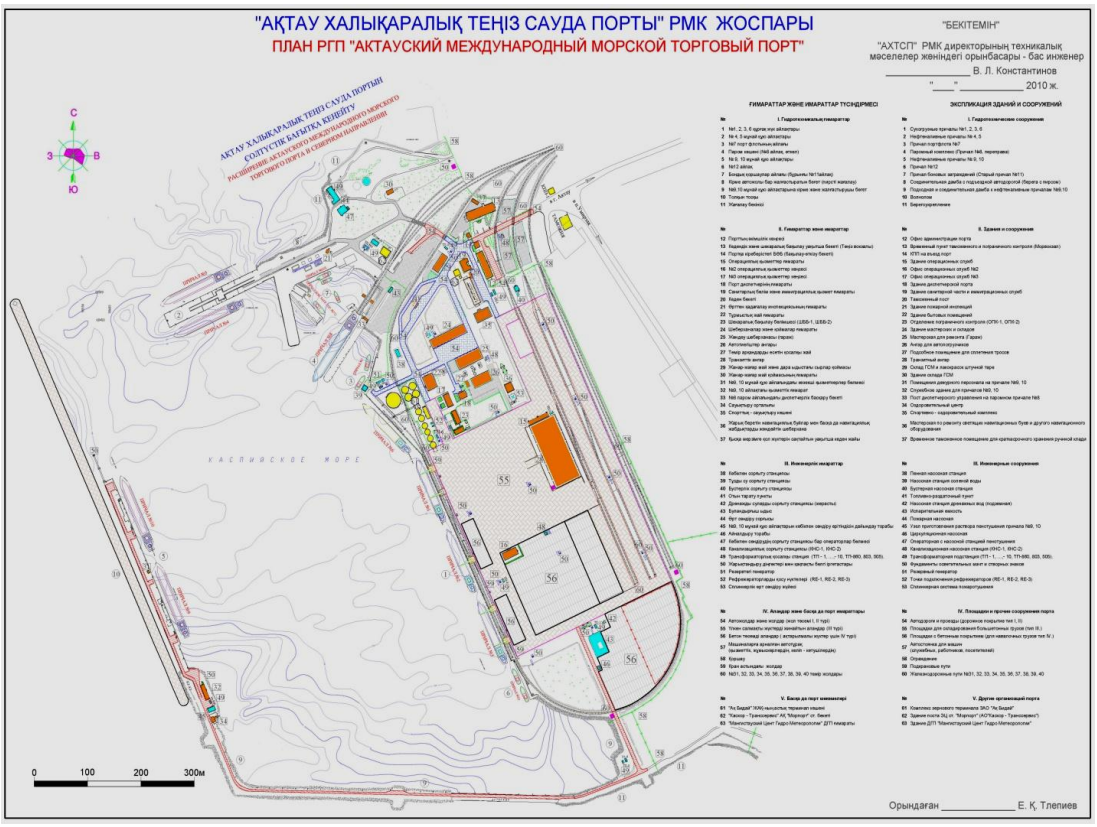
As already mentioned for BISTP, apart from a handful of last-voyage containers, the only significant containerised trade AISCP has been handling (reluctantly, because of its perceived low profitability), is the NATO non-military cargo to Afghanistan which is now increasingly diverted to Turkmenbashi. The once sizeable liner container flow, which used to move from Bandar-Abbas to Enzeli and then with Iranian Kazar Sea Shipping vessels to Aktau, has largely decreased due to the sanctions on Iran[48].

Due to the nature of the main cargo-flows it handles, AISCP is a tramp port, the only regular service being the already mentioned rail-ferry and Ro-Ro lines run by CASPAR to/from Baku performed with rail-ferries of 28 or 52 wagon capacity and small, rather out-dated Ro-Ros of 33 truck capacity. The rail trade is imbalanced. Ro-Ro and rail-ferry services to Russian ports are extremely irregular.

The export commodities (oil, metal and cereals), being shipped within the frame of intergovernmental contracts (for the most part), are given a full priority at political level. Oil is exported by tanker and rail tank cars on rail-ferries predominantly to Baku. These trades, which do not require AISCP to deploy any marketing effort to attract them, are also the most profitable ones for the port (ferry trade represented only 5% of the port revenues in 2010). This reflects the port's management style and approach and also AISCP's plans for infrastructure development.

[48] Ocean Carriers such as Maersk have pulled their vessels out of Iranian ports and very much scaled down their operations in the ports of this country. They are now performed through Gulf-based feeder lines only.

Figure 10: Plan of the Port of Aktau



Source: AISCP

The port is currently operating close to full capacity: 10.95 Mt were handled in 2012 out of which 7.591 Mt oil and oil products[49].

The Ro-Ro berth at the grain loading berth, which is itself also virtually operating at full capacity (0.644 Mt handled in 2012 for a 0.6 Mt design handling capacity). This causes an ongoing conflict with the generally unscheduled Ro-Ro vessels. The berthing situation somewhat improves in winter when the Volga-Don Complex closes due to the freeze of the Russian rivers and the main part of the sea-river vessel fleet.

Likewise the rail-ferry ramp berth also serves small tankers which, at times, results in waiting times at roads for the rail-ferries. Still, the oil trade should undergo a temporary but severe drop in the coming years with the diversion of substantial flows from Kazakhstan directly to Russia through the existing pipeline network. The rail-ferry trade is also hampered by the port's limited storage and handling capacity for empty and full wagons[50].

2.2.2 Plans of Development

1 - Infrastructure

[49] Figures for 2013 should be significantly lower. The total turnover by the end of May amounted to 4.157 Mt out of which 2.968 Mt oil and oil products.

[50] The bottleneck is the T-wise railway tracks that link the empty wagon depot (KTO- upper left branch of the T) to the wagon loading place (upper right branch of the T) and to the port (the straight I branch of the T): if KTO is full, empty wagons are parked on the port track and full wagons cannot be moved down to the berths.

There are plans to build an extension to the current port in the north. This had originally been scheduled to be completed in 2012/13 with the support of the EBRD. Owing to the GFC, and for political reasons, EBRD withdrew and the project is now financed solely by the State-budget. It concerns new grain, container and universal berths and terminals which would increase the port's annual handling capacity by 1.2 to 1.5 Mt. Exports of metal and steel products should however decrease as the main buyer, Iran, is facing growing difficulties in financing its imports.

There are plans for building neither a Ro-Ro berth nor for an additional (and needed) rail-ferry ramp. Building the second ramp in the northern extension has not been pursued as it implies acquiring and pulling down a number of private buildings and laying down a new rail track through an oil storage area. Currently, there is a rail-connected plot already available for erecting a second rail ramp immediately next to the existing one. However, the port management does not favour this option citing security concerns while the main works to be performed amount to diverting a number of pipes from the rail-ferry complex to the port Northern area[51].

On one hand this solution, if implemented, would prevent small tankers from berthing at the rail-ferry complex. Yet, this should not be a problem in view of the overall decrease in oil sea-borne trade via Aktau. Until the oil traffic rises again, off-shore options for loading these tankers could be considered if the capacity upgraded through soft measures does not yield the results needed to meet the demand.

On the other hand, the present rail ramp would always be available to berth the ferries, which would allow (and, to some extent, compel) CASPAR to run them on schedule and alleviate the problem of rail track congestion. A technical feasibility study would also probably unveil the possibility to accommodate and handle Ro-Ro vessels at the second to-be-built ramp, thus freeing space at the general cargo berths or at the (grain) berth (number 6) which could then be used for handling grain vessels exclusively.

Interestingly, on several occasions CASPAR have requested permission to invest their own funds and build this second rail berth/ramp, but this has been rejected by AISCP on the questionable grounds that there is no space available to build new rail tracks and sorting/marshalling yards.

Finally, the ongoing construction of the Zhezkagan – Beineu missing rail link[52] will definitely attract Kazakh, Western Chinese and other Central Asian dry-cargo in wagons to and from Aktau (regardless of the implementation of the Silk Wind Project) and exacerbate the need for an additional rail-ferry bridge.

A third project seriously considered by KMTF is to have the ramp built at Kuryk. The bay of Kuryk is better protected from winds than Aktau and vessels often shelter there when Aktau is closed. Water-depth is also bigger (up to 25 m). However, as can be seen from the below photos, the 1961 berth is in a dilapidated condition, there is no rail connection and only a pothole sandy track to reach it.

[51] In actual facts these pipes do not belong to the port but to an oil company which uses them for connecting its nearby tankfarms to the port bunkering facility located at this potential rail-ferry berth. Regardless, relocating the pipes is neither a major technical issue nor a big expenditure. It may rather be assumed the port is not keen on elaborating solutions to increase the rail-ferry (or Ro-Ro) trade which is reportedly not as financially profitable as the other traffics handled.

[52] Furthermore the GoK, having taken stock of the fact that a parallel technical road had anyway to be constructed to enable and support the construction of the railway line, has decided to upgrade this road project to a main, fully-fledged (Republican) road along the same Zhezkagan – Beineu axis.

The investment would amount to some EUR 60 M, according to preliminary studies, which would include a great deal of land reclamation across stretches of swamps on which the foundations and ballast of the rail connection to the main Aktau-Kuryk track would have to be laid. These marshes, additionally, form the natural habitat of black swans, ducks and other, in all likelihood protected, bird species.

Apart from the amount of investment involved, which, in the end may well exceed the above-mentioned figure, and time needed to carry out the first feasibility study, followed by a massive workload, dividing the rail-ferry operation between two distant sites is highly questionable from the point of view of efficiency and costs.

Figure 11: Kuryk

Source: LOGMOS Project

Figures 12 and 13: Kuryk (March 2012)

Source: LOGMOS Project

Discussions held with KMTF and AISCP within the scope of the LOGMOS national Kazakh Working Group in February 2013 clarified several points and led to a number of joint conclusions:

- The theoretical maximum handling capacity of the railramp in Aktau, as per AISCP's own words, is of 2.5 Mt cargo but 2 Mt should be retained as a more realistic figure[53];
- The time needed for the construction of Kuryk will probably be longer than the rather optimistic 5 years planned by KMTF. It is unlikely that Kuryk will be even partly operational before 2019-2020, even if the decision to build is made now (September 2013);
- In the meantime there is no other choice than to use Aktau's capabilities up to exhaustion. This limit may however be reached very soon, should the rail-ferry trade continue to grow. The pace over the past few years is as follows: +229% between 2010 and 2012 and +624% between 2009 and 2012;
- Should the growth rate remain indeed unabated, there will be a need for political arbitration and further review of the option to build a second rail-ferry bridge at Aktau;
- The (re)construction of Kuryk, which is becoming rather compulsory, should represent an opportunity for Kazakhstan that is often missed by other TRACECA countries. This opportunity involves specialisation of its ports by assigning specific traffics to nominated ports, thus avoiding useless and devastating competition between them and ensuring optimal asset-management of their infrastructure; and
- Finally, regardless of the plans adopted between Kazakh stakeholders, they need to be discussed and agreed upon with the Azerbaijani partners, i.e. the port of Baku and CASPAR who are the only members in the region that have a deep and lengthy experience of rail-ferry and Ro-Ro operations and will be instrumental in the establishment of joint liner services in the Caspian basin.

2 - Soft Measures

The analysis carried out by port management highlighted a range of soft measures that would improve the efficiency of port operations, berth occupancy and information systems and as a result significantly increase the size of the port output.

Among the problems that have been identified, the handling of vessels' clearance (inward and outward) is an issue of major concern (in the whole Caspian basin), since this operation, may, reportedly, take up to 6 hours per call[54].

The port management is actively involved in defining and implementing altogether new procedures which, through a totally revamped port community system/Customer Service

[53] Considering a 52-wagon rail-ferry under operations every day, all-the-year round, loading and discharging full wagons only (which is, actually and unfortunately not the case as the traffic is disbalanced), the theoretical yearly capacity is: 52 wagons*2 (import+export)*365 days*60 Mt (average)/wagon= 2,277,600 T

[54] The economy of only one hour on 760 dry-cargo vessels (2011), handled in 16 hours (as per port figures), regardless of any other measure, would result in a total of 47 vessels or 6% more dry-cargo vessels handled at the port of Aktau, (notwithstanding what can be saved on other vessels including rail-ferries). This, by EU standards, is a considerable figure. In other ports worldwide, there is a time-frame set by law/regulation for the Commission to present itself in order to carry out its duties as from the moment the Master's notices of readiness to have his lady handled have been received (whether the vessel is at berth or not and provided the Commission is entitled to perform its task at outer or inner roads. In some ports this can be carried out only once she is lying alongside) or leave the berth and sail. Another specific lapse of time is fixed for completing all checks and granting the corresponding clearances. Port regulations and/or Maritime Codes usually include penalties for the State Agencies side in case they exceed these norms (actually this translates into discount on port dues for shipowners). Such regulations existed and were applied during Soviet times.

Centre, would decrease waiting times at roads[55] or at berth for vessels and facilitate the entry[56], exit, identification[57], handling, storage and clearing of cargo in and out of the port. However, the success of the project very much depends on the third parties in other countries around the Caspian basin that subscribe to this project.

There is a clear tendency in modern logistics to outsource transport and logistics operations to specialised companies. This means that the central role of the private sector (forwarding companies/logistics service providers) is increasing and that no port can take over the role of the door-to-door freight forwarding or logistics company vis-a-vis cargo-owners. The philosophy of AISCP seems to be towards creating a new monopoly, which is neither in line with the approach described above, nor a step towards reducing logistics costs. Port procedures are heavy and time-consuming. They still owe much to the Soviet system where the role of the Shipping Agent was minimal and unrelated to cargo operations. Container handling provides a good example (see Appendix II).

It is, therefore, recommended to create a platform (advisory panel, permanent working group, etc.) of all parties involved (port, terminal operators, state agencies, freight forwarders/logistics service providers, railway companies and railway operators), including the IT-platform, to discuss problems of common interest and find solutions to improve day-to-day operations. Such bodies exist and successfully function in most Western European ports.

The first exercise of this beneficiary-run platform could be to benchmark existing processes against the practices commonly adopted in other ports in the world in order to simplify and shorten them.

3 – Pending Matters and Prospects

The organisation of railway operations in Aktau and the distribution of tasks and responsibilities between various entities remain opaque. There are currently two companies operating the Oblast capital city and main regional rail node, to the port. They are KTZ, the National Railway Company and KaskorTranService, a private operator who manages the last 18 km rail stretch from Mangystau.

Domestic and foreign users regularly underline the reportedly excessive, non-transparent tariffs of KaskorTranService as the main reason for them not to ship via Aktau: Rather than sending cargo to Baku, it is seemingly cheaper and quicker to rail it to Atyrau and then, after crossing the Russian border, reaching Azerbaijan through Dagestan. Generally, KTZ tariffs are deemed not transparent and the rail transport insurance regime is a real issue.

Users also emphasize the issue that consumer goods movement by rail is difficult in Kazakhstan due to the slow pace of the domestic freight trains, which steam a lower than (Soviet) standard 200 km per day (7 to 10 days are needed to reach Almaty from Aktau). Depending on the volume of the goods, many companies prefer to send them with an employee by passenger train, which will arrive in Almaty just 3 days later[58].

[55] The target is to decrease the present 3-4 days average to 1 day only.

[56] Shortening the time necessary to complete formalities from 6 hours to 30 minutes.

[57] The implementation of a bar-code system will reduce the time necessary for tallying the steel products meant for export and getting them ready for loading on board of vessels from 52 down to 37 hours.

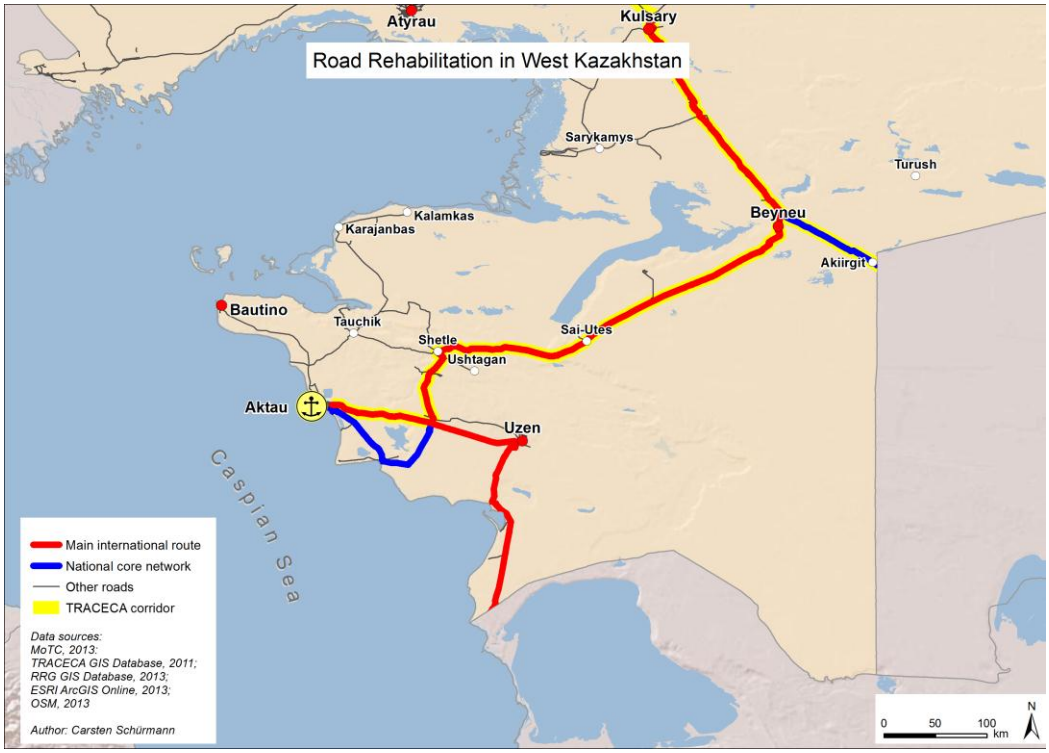
[58] Still KTZ has proven on several occasions that it may provide a much better service: block-container trains transiting Kazakhstan on their way from Western China to Western Europe are steaming at 700 km/day.

The railways' information system appears to be unreliable. Therefore the arrival time of goods at final destination is hard to predict[59].

Finally, road transport operators and logistics services providers have long been deterred by the poor condition of the road network in the Mangystau Oblast where Aktau lies. The GoK have addressed the issue and a total of 681 km of roads are or will be constructed or rehabilitated in the region during the period 2010-2020, at an estimated (in 2012) cost of Tenge 193.676 M (about EUR100 M).

This includes the vital 313-km segment between Aktau and Beineu and the 164-km link from Aktau to the Kazakh-Turkmen border (which is part of the North-South transport corridor project from the Persian Gulf to Russia).

Figure 14: Road Network Rehabilitation in West Kazakhstan



Containerisation – The Grain Case

Kazakhstan is among the top 10 wheat exporting countries in the world. As previously noted, export contracts are mostly concluded at inter-governmental level and involve very large quantities of product. As such, this trade is vulnerable to fluctuations in political conditions (as, for instance with Iran, one of Kazakhstan's biggest customer), crops in importing countries, world market prices, etc.

Exports could be boosted if the structure of the trade would change and the Customers' base was broadened, i.e. if Kazakhstan could start dealing on a much larger scale with foreign private

[59] One consequence is that consumer good trading companies keep an inventory much bigger than what they use to do in other parts of the world. This reflects in turn in higher retail prices. Volvo Belgium adds for instance a 3-week storage cost on top of its prices for all the goods exported to all CIS countries.

importers. This is made all the more certain as Kazakhstan durum wheat (used in the production of pasta) is among the best in the world.

In a (probably large) number of cases this creates a need for relatively small consignments (a few thousand tonnes) to ship in containers that could be partly routed via Aktau. This would represent significant savings for the country, which, at times, has to subsidise the cost of rail transport of grain through foreign countries[60]. It would also foster the creation of added-value jobs in Aktau for sampling, testing, storing, containerising the grain, etc., which are carried out today by Baltic and Ukrainian companies in their ports.

Initiating export container-flow dynamics via Aktau would also provide the flexibility needed to promote imports in containers, which, in turn, would increase the attractiveness of Aktau FEZ (including the planned Logistics centre) and arouse the interest of domestic and foreign industrial and trading companies as well as entice logistics services providers to develop new activities there.

Obviously, all this requires a great deal of work and investment, as well as a 'trimming' of railway tariffs and procedures by KTZ to make the transport of containers by rail, in general, competitive versus bulk transport and versus routing via foreign ports. As far as grain is concerned, the USA very successfully followed such a path less than two decades ago and keep on developing new projects along the same lines (Appendix XI).

2.3 Turkmenistan

Turkmenbashi, the main commercial sea port of the country, is located 165 nm (about 305 km) East of Baku, at a short distance from the Western coast of the Caspian Sea and approximately 550 km from the capital of the country, Ashgabat, to which it is linked by road and railway.

It is managed and entirely operated by the State Service of Maritime and River Transportation of Turkmenistan (SSMRT) through the State-owned company 'Turkmenbashi International Commercial Sea Port' (TICSP). The SSMRT also manages the Turkmen commercial fleet. Discussions have been going on for years between the Government and UAE-based terminal operator, Gulftainer, who showed a strong interest in investing in the planned port extension and operating the facility but without any result so far.

2.3.1 General Description

The 22 km, 140 to 200 m wide, one-track access channel was last dredged in 1968 and as a result of siltation the maximum acceptable draft has been decreased to 5.1 m (the actual minimum and thus critical depth being 5.5 - 6 m). This halved the lifting capacity of the 12,000 DWT tankers (which have a fully laden draft of 7.1 m) and hampered moves with the rail-ferries under windy conditions. In 2012, the navigation channel was entirely modernised with a new light buoy of international standard with AIS system (Automatic Identification System) enabling vessel to move at night.

There are two bulk-oil piers at the nearby UFRA terminal on the Eastern side of the bay.

The 1963-built double 2-railtrack ramp cargo ferry terminal (PPK2), used for the handling of both wagons and trucks, occupies 41.7 hectares. This includes the parking area for outgoing trucks and the maritime station for ferry passengers. There is a customs post in the maritime station, which is in charge of the ferry freight + pax traffic only.

[60] Mainly Russia. In all probability this situation will quickly evolve with the rehabilitation and modernization of the railway links in the Caucasus (up to Turkey). Georgian and Turkish ports will then represent a competitive alternative to Baltic ports.

The gates from the parking area into the terminal are equipped with scanning equipment for the trucks. The landward ramp has been rehabilitated through an EBRD loan; the seaward ramp should be repaired in the near future through a USD 62 M WB loan.

From the ramps, the rail tracks lead to a marshalling yard located half a kilometre behind the dry cargo port. The marshalling yard is in poor condition and only part of the original 12-track network is operational.

The underground electric cable network was once automatic but has been operated manually since it was flooded by the Caspian Sea. The main road from the port entrance to the truck parking area and rail-ferry terminal was upgraded in 2010-2011 and now a 500 truck parking-slot is available. The main rail track to the ferry ramps has also been revamped. Two additional separate road access points, leading from the port directly to the Ashkhabad highway, are planned/under construction.

A newbuilding is under construction for Customs and other Governmental Agencies to implement a one-stop shop for border-crossing procedures.

Figure 15: Aerial View of the Port of Turkmenbashi with the 2 Rail-Ferry Ramps

The port also consists of a strong 430 m general/dry 3-berth cargo facility (PPK1) designed for the handling of heavylifts discharged, mostly, from Russian sea-river going vessels proceeding from the Volga-Don Complex.

Lifting gears include 11 berth cranes of 6 to 100 t, 3 Liebherr mobile crane including one of 150-200 t and 2 of 64 t (installed in October 2012), 2 top loaders of 35 t lifting capacity plus a number of tug masters and mafi-trailers.

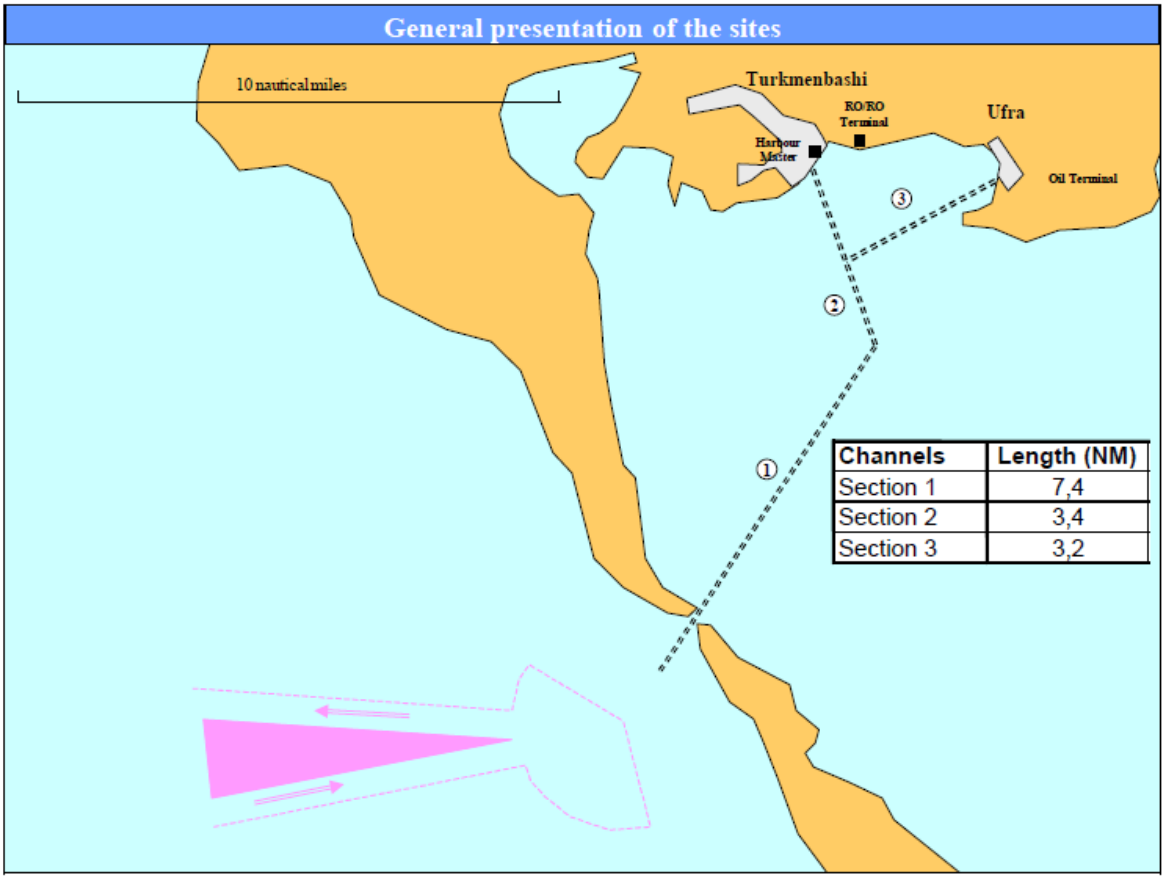
Furthermore, the port fleet was expanded and the following equipment was purchased: KAMAZ and MAZ mobile complex for oil spill response, mobile multicomputer diving system, vacuum truck, tank capacity of 10 cubic metric with a vacuum pump, mobile mechanical repair truck, repair car with special fitting and a fire tanker.

There are 2 warehouses in the port, one of 5,000 sqm for general cargoes and another, dedicated to the storage of PP, measuring 12,000 sqm. Another 4,000 sqm open storage area is allocated for the handling and storage of containers.

The cranes at the port railway station have a 5 t lifting capacity only. Therefore, when discharging from the vessels, containers, which have to be dispatched inland by rail, are trucked to better geared private terminals where they are reloaded onto rail platforms. The reverse procedure applies for full export containers.

Apart from the ferry line to Baku, other shipping links include Russian tramp sea-river vessels and Iranian coasters of Khazar Sea Shipping Company, plying irregular services to and from Iran (Anzali, Amirabad) and Russia (Astrakhan, Olya) and rail-ferries to Makhachkala (Russia).

Figure 16: Map of Turkmenbashi and Ufra Port Accesses



Source: EGIS / BCEOM

The volume of containers and cargo remains, however, very low compared to the potential of the Turkmen economy and is mostly made up of last voyage boxes (part of this traffic consists now in NATO non-military cargoes to Afghanistan)[61].

A significant quantity of oversized and heavy parcels shipped to Turkmenistan (as well as other Central Asian Republics) mainly destined for the oil and gas industry, are moving via Turkmenbashi. Users, however, complain that the aforementioned port means are not powerful enough for the sizeable quantity of super-OOG/very heavy lifts imported at Turkmenbashi and at times additional lifting gears have to be brought in from other locations around the Caspian.

[61] TICSP, which started working with TACIS on the container matter in 1998, reckons it can handle 10,000 containers p.a. with the current equipment.

2.3.2 Plans of Development

Turkmenbashi port is a strategic point on the way to and from several landlocked central Asian countries at the end of a Trans-Caspian railway line.

Forecasting a high and long term national economic growth and the development of maritime transport in the Caspian Sea, the SSMRT adopted in a presidential decree of June 8th 2011 a General Development Plan (GDP) of TISCP and of the Merchant Fleet of Turkmenistan until 2020. The main provisions of this plan have been reflected in the 2012 'Blue Book' which mirrors the long-term projects of Turkmenistan in (mainly) the field of road transport.

The initial port Master Plan[62] included:

- The modernisation/rehabilitation of the second (seaward) ferry terminal ramp;
- The dredging of the access navigation channel, specifically to allow loading of crude oil tankers up to full DWT. A bathymetric survey of the sea-bed was performed in 2007. According to the corresponding feasibility study some 4,100,000 cbm of earth (accretion) has to be dug out to reach the desired depth of 8 - 8.5 m at a cost (then) of about 5 EUR/cbm; the renewal of a number of navigation lights, which was part of this project, was completed in 2012 as previously noted;
- A new control tower and improved equipment for monitoring ships' movements. All Caspian Sea ports have the same old VTMS, with the exception of Astrakhan (which also acts as the security focal point for all the Northern Caspian Sea Region): the port there acquired a system, manufactured by Transas/Saint Petersburg, that allows control of the traffic on the Volga-Don by cameras;
- An increased storage facility for the PP and improved handling means coping with the planned increase in PP production and exports. This amounts to about 90,000 t yearly and represents some 3 - 4% of the export volume in value;
- An extension of the port to accommodate a container terminal along with an ILC;
- A specialised dry-cargo terminal for the export of construction materials next to the future container terminal, plus another terminal for handling the grain exported from Russia and Kazakhstan via Turkmenbashi to other Central Asian countries and Afghanistan;
- A shipyard for shipbuilding and repairs;
- A specialised cement export terminal (there are plans to build cement producing plants in 5 regions of Turkmenistan)[63]; and
- A Ro-Pax terminal to be built on the shoreline outside of the port (directly in front of the Çarlak hotel) on the site of an existing fish factory, which will be demolished. The terminal would double up as an oilfield supply base.

The EBRD and JICA have shown interest in the project and a MoU for the modernisation of the port has been signed between the IBRD and the Government of Turkmenistan. The international tender was announced on August 17th 2012.

[62] drawn in 2010

[63] 1,500 m of new berth would be constructed in total and all these new facilities should be interconnected by rail (rail movements in the port are under TICSP control who also owns the locos used for shunting/marshalling).

In 2013 Turkish company Gap Insaat, part of Calik Holding, won a USD 1.5 bn contract and works started in August of the same year. The project should be completed in four years. The existing infrastructure will be entirely overhauled to include a ferry port designed to service 300,000 passengers and 75,000 vehicles a year, freight terminals with a capacity of 4 Mt p.a. for general cargo, 3 Mt for bulk and 400,000 TEU as well as shipbuilding and ship-repair plants.

The port's development plan goes together with the country's projected increase in its merchant fleet. This would allow the country to gain independence from foreign maritime companies and lower the transport costs Turkmenistan is exposed to.

According to national statistics, in 2010, only 17% of oil products were exported by national vessels. At present Turkmenistan runs 9 vessels (4 bulk carriers and 5 sea-river oil carriers).

The measures envisaged in the GDP are scattered across the period 2012 - 2020. They include the acquisition of 6 more oil tankers, 1 LPG carrier, 4 tugs, 4 supply vessels for the oil platforms in the Caspian Sea (today served by foreign companies) and one crane vessel[64]. The international tender for the purchase of the 4 tugs and the design and construction of buildings and facilities for salvage, rescue and underwater technical operations and acquisition of further environmental equipment was announced on 31st July 2012.

The 6 oil tankers will allow Turkmenistan to control 50% of its total exports. The vessels will be deployed on the following routes: Turkmenbashi – Makhachkala, Turkmenbashi – Baku, Turkmenbashi – Neka/Enzeli/Nowshahr.

Relying on significant development in the national Awaza touristic zone[65], Turkmenistan also intends to participate actively in passenger, car and truck traffic and diversify the shipping offered by opening its own liner services to ports other than Baku, the only port regularly served so far. One of the stated main goals is to reduce travel times for those crossing the Caspian Sea or driving around it to reach or leave Turkmenistan. This proposal therefore concerns sea links with Russia, Iran, Azerbaijan and, to a lesser extent, Kazakhstan, which is to be connected by a new rail link in the near future.

A contract was signed in September 2012 with 'ULJANIK Brodogradiliste', the Croatian shipyard that builds rail-ferries and other vessels, specifically designed for the Caspian Sea, for the construction of 2 x 155.8 m LOA / 17.8 m width Ro-Pax with an option for 4 sister-ships. The vessels will have a capacity of 970 lm and 200 Pax and extensive on-board services for drivers and passengers. Their design service speed is of 17.6 kn.

On the basis of Japanese and Korean pre-feasibility studies the vessel(s) would be deployed between Turkmenbashi and Anzali (Iran), Olya (at the Russian year-long ice free port at the mouth of Volga down the river from Astrakhan), Aktau and Baku.

[64] The question of purchasing LNG carriers is under review: the LNG produced at Turkmen refineries is now carried mostly by trucks and in rail wagons (and then shipped by a Russian rail-ferry to Makhachkala, Daghestan, Russia). Sea bulk transport would allow the efficiency of the operation to improve. The purchase of one LPG carrier vessel is expected to boost the export and master 88% of national production.

[65] Awaza is a megaproject in which over US 1.4 B have already been invested since 2006. The Turkmen leadership plan to make it a Dubai on the Caspian and attract foreign tourists as well as Turkmen citizens.

Figure 17: Rail Link from Kazakhstan to Iran through Turkmenistan

3 PORT SYSTEMS – BLACK SEA

3.1 Bulgaria

Ports of national importance are managed in Bulgaria by a state company under the Ministry of Transport, Information Technology and Communications (MTITC), the Bulgarian Ports Infrastructure Company. Its headquarters are based in Sofia and it has four regional offices (Territorial Directorates), two on the Danube in Ruse and Lom and two on the sea shore in Burgas and Varna.

Stevedoring and other operations are performed by state port companies.

Although the ports have been earmarked for concession since 2005, the privatisation process of the (river and sea) ports takes time and is not without difficulties.

In June 2010, Vidin North Terminal (on the Danube) was awarded to BRP (the Bulgarian River Shipping Company) under a 35-year concession and in June 2011, a 35-year concession for the bulk cargo terminal and Terminal 2A in the country largest port, Burgas, was granted to the national shipping company, NaviBulgar[66] [67]

Between April and November 2012 calls have been published in the State Gazette for six Danube ports or terminals (including a third call for the port of Lom on the Danube). The MTITC prepared calls for an additional three Danube river ports and for various terminals in the two country main seaports, Burgas and Varna[68].

In January 2013, one of the largest Bulgarian capital investment company, Chimimport, 99,13% owner of BRP, won the 35-year concession to operate Lom and the Nikopol ferry terminal. USD 15.5 M will be invested to transform Lom into a competitive international river port, with bulk, container, Ro-Ro and Ro-Pax facilities. As part of the tender requirement, Chiminmport will have to move 480,000 t of cargo and about 1,800 ferry passengers per year on average while keeping the full dockworker staff (not the port management) for at least one year.

During the same month the Terminal of Ruse-west was awarded under a 35-year concession to the local ship-building company Rousse Shipyard JSC, with the obligation to invest some EUR 6.2 M in the port's infrastructure, facilities and services during the entire period of the concession and at least half of it during the first six years.

In March 2013 NaviBulgar won also the concession for the 64-ha Burgas Terminal West with the obligation to invest at least EUR 5 M during the first seven years, and a minimum of 10 M over the 35-year term.

[66] As noted by the Bulgarian media: "the new concessionaire was the only candidate remaining, after all other applicants pulled out because of the complicated proceedings". The same later happened with the Burgas-West Container Terminal for which NaviBulgar was, again, the sole bidder .

[67] Although pressed to generate much-needed revenues and therefore willing to pursue the privatisation plan, the government also has to address the burning issue of high unemployment in the country which increased dramatically ever since the GFC started (2008 – 5,6%, 2009 – 6,8%, 2010 – 10,2%, 2011 – 11,3% and 2012 12,3% of the population aged 15 and over). Under the above-mentioned concession contract, NaviBulgar had to agree to keep a minimum of 288 workers out of the 1,018 currently employed.

[68] The rail-ferry terminal "Varna Ferry Complex", jointly managed by NaviBulgar and BDZh, should be included in the call as well as both Varna-East and West Container Terminals. A former attempt to give Varna-West Container Terminal under concession failed in 2005.

Maritime transport via the two main Bulgarian seaports of Burgas and Varna, plays an important role in Bulgaria's external trade. Bulgaria has been seriously affected by the global economic downturn and the sea-borne trade is only starting to pick up again.

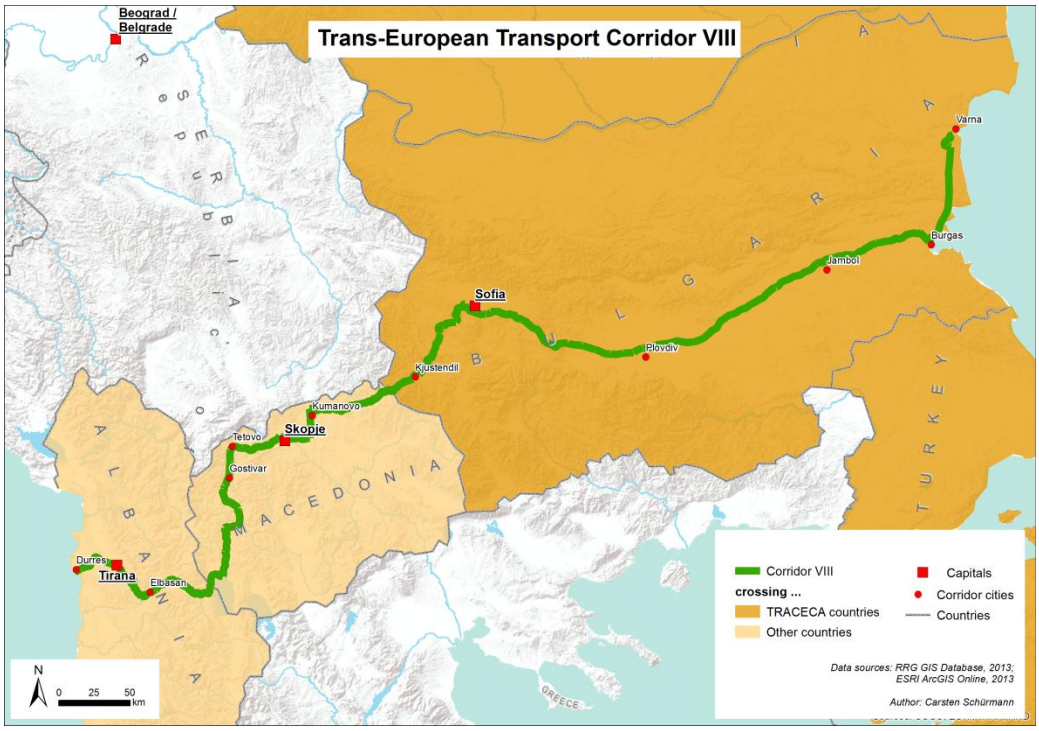
Table 7: Bulgarian Sea Ports Traffic (in thousands of tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012
Imports	14,293	16,250	15,853	16,791	11,797	11,847	13,036	12,722
Exports	10,548	11,263	9,047	9,785	10,096	11,099	12,149	13,290
Total	**24,841**	**27,513**	**24,900**	**26,576**	**21,893**	**22,946**	**25,185**	**26,012**

Source: NSI

The considerable decrease in the tonnage of imports is mostly linked to the December 2008 closure of the factory of Kremikovtzi, the largest steel and cast iron producer and biggest importer of coal and iron ore in Bulgaria, after the GSHL Group of Pramod Mittal (not to be mistaken with his brother, Lakshmi Mittal, main shareholder of the Arcelor-Mittal Group) withdrew from the company.

Figure 18: Trans-European Transport Corridor VIII



3.1.1 Burgas

The port of Burgas lies at the Black Sea end of the Trans-European Transport Corridor VIII, which via Sofia, Skopje, and Tirana (the respective capital cities of Bulgaria, FYROM, and Albania) reaches the Albanian port of Durres on the Adriatic Sea.

Figure 19: Aerial View of the Port of Burgas

Source: Port Burgas EAD

Infrastructure investments are ongoing and planned for improving the rail and road connections between Burgas and other Bulgarian cities. In particular the rehabilitation of the Plovdiv-Burgas railway link should be completed during the next EU programming period (2014-2020).

As in many countries of the former Eastern Bloc, there is no port specialisation in Bulgaria, and Burgas handles practically any type of cargoes from bulk commodities to containers, at 19 berths stretching over 3,233 m with a maximum draft of 11 m, distributed between two terminals (to be increased to four terminals as per the Port Development Master Plan)[69].

Cargo volumes have dropped under the double effect of the financial crisis and the demise of Kremikovtzi.

Table 8: Burgas Port Total Traffic (in thousands of tonnes)

2006	2007	2008	2009	2010	2011	2012
6,771	5,180	4,616	3,564	3,139	3,552	2,194

New regular traffic could nonetheless be attracted in 2011 (for example, chemical in big bags by vessels from Turkey proceeding further by rail to the Baltic States).

Several rail freight operators have contemplated opening a weekly block-container train between Burgas and Plovdiv, which could later be on extended to Sofia[70], with the ultimate target of being able to capture part of the traffic to FYROM and Serbia.

The Port, however, places a great importance on the development of value-added cargoes carried in containers and on Ro-Ros and trying to attract new such operators to use its facilities.

Container volumes remain modest though increasing after a sharp drop in 2009.

[69] The Strategy for the Development of the Transport System of the Republic of Bulgaria until 2020 lists the construction of one of these additional terminals (for container handling) under priority number one.

[70] The container transport market to/from Sofia and the surrounding Western Bulgaria region (the most populated area of the country) is highly disputed between the ports of Varna and Thessaloniki, in addition to Burgas.

Table 9: Total Number of TEU Handled at the Port of Burgas

2006	2007	2008	2009	2010	2011	2012
25,936	30,587	45,927	23,833	23,538	29,449	46,000

Two container shipping lines, MSC and Maersk, serve Burgas on a weekly basis with medium-size feeders starting from ports in the Ambarli region (Sea of Marmara, Turkey).

The Customs have purchased scanners and fifty officers have been trained to learn how to use them. Scanning was implemented in April 2012 on a 24/7 basis, and has eliminated the unstuffing - restuffing of containers for inspection checks as performed previously. Within the frame of the 2014-2020 SOP for Transport and plan for establishing 10 intermodal terminals in Bulgaria, the Municipality of Burgas and the Ministry of Economy created a company to establish a 728 ha industrial/logistics zone in Bulgarovo, in the North-Western part of the city, on a land plot given by the Municipality, 7 km from the port and 10 from the airport. This plot is well connected to the port and easily accessible by railway.

The Port is planning to develop a container freight station for frozen cargoes at their 10,000 sqm reefer warehouse, in the West Terminal, and a distribution centre with dedicated areas for specific clients and geographical destinations in and outside Bulgaria.

Discussions are also going on with an (unnamed) line for reviving the Burgas-Poti liner Ro-Ro service which, until 2010, was performed by Somat, the subsidiary of a German leading trucking company, Willy Betz.

However, as Bulgaria will sooner or later be integrated in the Schengen space, there are specific/additional requirements from the EU that are related to security (full adherence to ASTS Code) with regard to the existing Ro-Ro Terminal. Therefore, there are plans to open a new terminal that would be able to accommodate 50 to 60 trucks.

In line with the growing interest of cruise operators for Black Sea destinations, the Port Master Plan also lays great emphasis on the development of tourism and cruise activity around the marina located in the Terminal East basin.

Burgas is certified as per the requirements of the International Ship and Port Facility Security (ISPS) Code as well as per the ISO 9001 Quality Management Systems requirements.

Figure 20: Burgas Port Development Master Plan

Source: Port Burgas EAD

3.1.2 Varna

Varna includes two distinct port areas, Varna East on the Black Sea coast and Varna West accessible through two inland 11 and 11.5 m-draft canals connecting the sea and Lake Varna and Lake Beloslav.

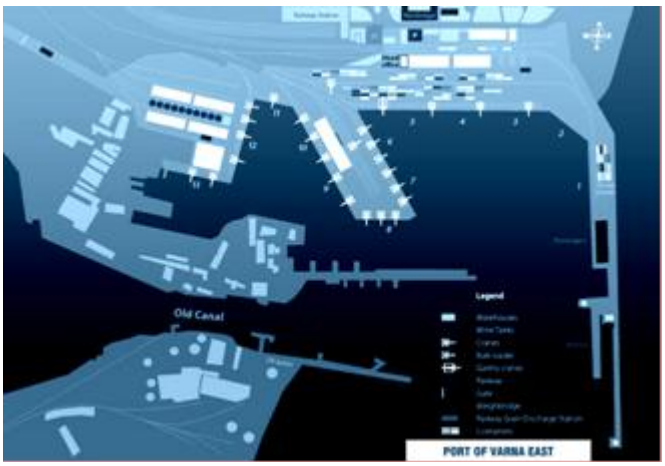
Varna is the largest Bulgarian port and, like Burgas, a multi-purpose facility, handling any type of cargo, including (since 2001) dangerous liquid chemicals. A total of 32 berths span over 5,601 m.

While general cargoes, grain and other bulk commodities represent a large portion of the volume handled at Varna, the port has, through two terminals (one in each geographical location), also established itself as the leading container gate of Bulgaria (see Appendix III). Still Varna, as Burgas, is served by feeder vessels only.

Table 10: Varna Port total Traffic (in thousand tonnes)

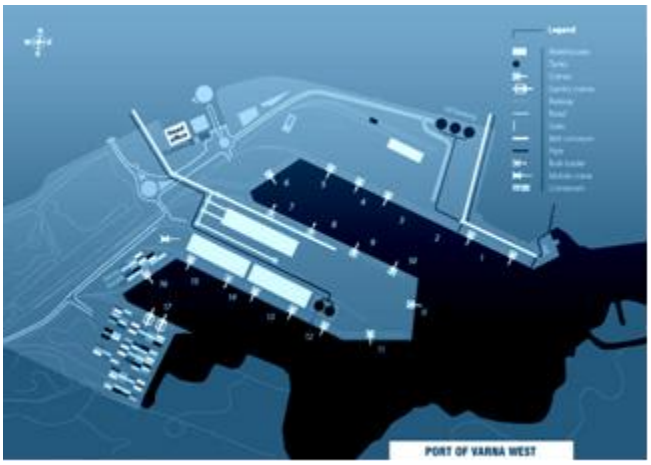
2006	2007	2008	2009	2010	2011	2012
7,922	6,622	7,723	6,729	8,039	9,142	10,000

Figure 21: Varna East



Source: Port Varna EAD

Figure 22: Varna West



Source: Port Varna EAD

Most of the containerised trade meant for inland destinations or from inland origins, move by truck and there is, so far, no strong link with the Danube (although the Port, jointly with BDZh, BRP and the Port of Ruse have tried to develop such an intermodal offer to/from Central Europe quoting preferential 'package' prices).

Since 2010, the Port of Varna has implemented the 'Integrated Management System', which includes certified management systems to international standards ISO 9001:2008; BS OHSAS 18001:2007; ISO 14001:2004. Varna is ISPS certified.

The Varna Ferry Complex (VFC) located at Varna West is one of the main ports of call of the rail-ferry liner service jointly performed with 4 x 108-wagon vessels by Navigation Maritime Bulgare (NaviBulgar)/Varna and UkrFerry/Odessa linking Bulgaria, Ukraine and Georgia.

Figure 23: The Varna Ferry Complex with a NaviBulgar 108-Wagon Rail-Ferry under Operations

Source: Port Varna EAD

This huge facility was designed and built in the late 70s and high-tech at the time. It was also considered a natural prolongation of the Soviet rail network and therefore placed under Railway management. During the Soviet years there was a ferry from Iliychevsk calling every 12 hours with 108 full wagons out and the same quantity in. Furthermore, the railway plan was established on an hourly basis. Today the plan is a monthly one, due to the sharp drop in the trade from/to Iliychevsk, and the service has become even more irregular due to the crisis (see Appendix IX).

The original infrastructure (which includes a number of state-of-the-art warehouses for stuffing / un-stuffing the railcars, a special shed for changing the wheels[71], storage areas for cistern-wagons containing hazardous cargoes, customs bonded parking areas for trucks, etc.) remains in place and is operational but is greatly under-used, ageing and maintenance leaves much to be desired.

Although there are two rail ramps, the left one is in a bad condition and is not used any more. This could be a problem if traffic resumes to its pre-crisis levels and also in view of the development of the line with Russia.

Since March 2009, the rail-ferry liner service, jointly performed by Varna Ferry Ltd (a joint-venture between NaviBulgar and the Bulgarian River Shipping Company) and the Russian Railways, connects Port Kavkaz in Russia and the VFC. This link shortens the distance between Bulgaria and Russia by 800 km and reduces the travel time by about 40%.

One of the main commodities carried is liquefied petroleum gas (LPG). According to statistics 1,775 rail tanks containing 59,898 t of LPG (accounting for over 92% of the total imports from Russia otherwise mainly consisting of base oils and white beans) were discharged at the VFC during the first half of 2013.

The trade is heavily unbalanced: 64,900 t from Russia to Bulgaria versus 11,246 t in the opposite direction during the first six months of 2013[72].

[71] The wheels are changed in a covered building equipped with double European and Russian gauge rail tracks and 40 t lifting capacity jacks at the pace of 24 wagons per 65' (1 man/4 jacks per wagon). Once removed, the wheels are marked, stored and kept, waiting for the return of the very same wagon from which they have been taken.

[72] For the sake of comparison a total of 2,089 wagons loaded with 48,026 t were carried in 2011 between the VFC and Port Kavkaz.

The service is scaling up with Varna Ferry having acquired a new vessel[73] which should be introduced in the service during the fall of this year beside the two Russian 50-wagon 'Avangard' and 'Slavyanin' vessels. This should entail a further deviation from the Varna-Iliychevsk service to the Varna-Port Kavkaz line of the trucks which currently have to cross Ukraine to reach their final destinations in Russia. The Bulgarian operators also hope to attract cargo-flows from other Danube countries. To this end the MTITC plans the rehabilitation of the oldest railway line in Bulgaria, between Ruse and Varna, a 305 M Euro-project which will be funded with EU money under the Transport 2014-2020 operational program.

Today, despite the increased occupancy of the sole operational ramp, the discharging and loading operations last only 2-3 hours (on the basis of 108 discharge plus 108 load moves) as there is no waiting time for the arrival of the wagons.

Recently (February 2012), due to the increased level of activity that frequently resulted in congestion and waiting times for berthing/handling the vessels, VFC started to resume working round-the-clock.

At their meeting in January 2012, the Ministers of Transport of Turkey and Bulgaria confirmed the intention of both countries to develop new Ro-Ro connections between Varna, Zonguldak and Samsun, which, once established, should benefit the VFC.

Reportedly, there is an increasing demand for transportation of road trailers and trucks between the VFC and Caucasus as well as to Russia.

3.1.3 ECOPORT8 and TEN ECOPORT

'ECOPORT8 - Environmental management of transborder corridor ports' was a project that ran from March 2009 till June 2012 within the framework of the South East Europe Transnational Cooperation Programme (SEE), co-funded by the EU.

Through a strong partnership involving Port Authorities, Universities & Research Organisations, the aim of ECOPORT8 was to improve the environmental performance of the ports within the SEE area. The initial goal of its implementation was the reduction of environmental nuisances caused by port activities and the sensitization towards compliance with the regulations set at international, EU and national level.

The existing certification systems, such as the EU Eco-Management and Audit Scheme (EMAS) and the international standards of the Environmental Management ISO 14000 family indisputably constitute valuable tools. However, they are not compulsory.

ECOPORT8 involved TEN VIII ports in Albania[74], Bulgaria[75], Greece, Italy, Montenegro and Romania. Integration of the ongoing international dialogues on the developments in maritime traffic and implementation of monitoring of the environmental impact of port activities should result in a common environmental policy addressing the lack of/gaps in specific national environmental regulations, fragmentation and non-homogenous nature of the solutions adopted by single ports with a view to define shared standards. Key parameters to be measured and controlled have been identified as follows:

[73] This second-hand Ro-Ro, built 1994, of 140 m LOA, 16 m breadth and 4,577 DWAT has been purchased from an UAE, company. It has been completely overhauled and transformed at the MTG Dolphin shipyard in Varna. It now offers a 42-wagon capacity on the upper deck and a 25-TIR truck capacity in the garage plus an adequate number of cabins for truck drivers. The vessel is scheduled to enter service in October 2013.

[74] IPA Partner as Montenegro.

[75] ERDF Partners: National Institute of Meteorology and Hydrology - Bulgarian Academy of Sciences and BPI Co.

- Water quality of port aquatorium
- Releases to water
- Air quality (including asbestos)
- Waste (including electrical and electronically waste)
- Dredging
- Noise
- Odours
- Energy efficiency
- Soil contamination
- Bunkering
- Cargo handling, transportation and storage
- Biodiversity
- Drinking water

The port of Burgas was selected as one of the four pilot ports for testing and monitoring survey on site. A state-of-the-art high-tech Automatic Monitoring System that provides in real time air and sea water quality measurements has accordingly been installed in several monitoring points ashore and at sea in the port in March 2012.

The Project activities were summarised in a final publication 'ECOPORT8 Handbook' and a web-based multilingual application was developed under the name 'Ecoport 8 WebGIS', presenting measurements of environmental parameters in the project ports through an interactive electronic map based on Google maps.

'TEN ECOPORT – Transnational Enhancement of ECOPORT8 network', the follow-up Project of ECOPORT8, held its opening event in December 2012. New ports have been added, among which Varna. An underlying challenge has been recognised in light of the ECOPORT8 experience, namely different environmental legal frameworks across the SEE countries place different obligations (and therefore different financial burdens) on the shoulders of Port Authorities. This affects the economic interests of the ports and may result in distortion of competition. Both of these undesired results have to be mitigated especially as the EU is under the grip of the economic crisis. TEN ECOPORT is therefore promoting a step-by-step implementation, starting from more critical issues, which will reduce initial investments.

The main practical targets of TEN ECOPORT are to benchmark the sustainable processes implemented during ECOPORT8 against the actual and expected results, define the constraints that hamper the sustainability of the results, establish a platform for discussion among Port Authorities and between each port and its stakeholders, establish a Transnational Task Force defining best practices and assisting project Port Authorities in their implementation.

Finally it should be noted that Burgas and Varna are both members of the ESPO, the 1993-established European Sea Ports Organisation based in Brussels which acts as an independent lobby for seaport interests. Besides, Varna is now part of the ECOPORTs Network implemented by the ESPO to promote the environmental performance of the EU and Norway port industry on the basis of voluntary self-regulation.

3.2 Georgia

The Georgian port system comprises two medium-size bulk, general cargo and container ports, Poti and Batumi, plus dedicated oil terminals at Supsa and Kulevi. Supsa, 10 km south of Poti, is the Black Sea end of the BP-operated Western Route Export Pipeline which runs on 833 km from the Sangachal Terminal near Baku.

Batumi being the country's only deep sea harbour, a billion-dollar plan was initiated in 2010 for the extension of Supsa (which has a water depth of 18 m) and construction of a 40 Mt-capacity dry and containerised cargo port. Likewise, the construction of an entirely new port at Lazika, north of Poti, was considered in 2011. However, given the huge investment costs and the unfortunate timing for building such big facilities, i.e. at a time when a global economic crisis reduced the demand for freight transport, these plans have been dropped.

Poti and Batumi are the Eastern Black Sea intermodal gateways westbound to Black Sea, Turkey and Europe and eastbound to the Caucasus and Asia.

Both ports are served by regular rail-ferry and container services linking them with other Black Sea ports and Mediterranean ports. They are geographically close, handle both containers but different types of non-containerised cargo (Batumi being more specialised in liquid and solid bulk and Poti in solid bulk and general cargo).

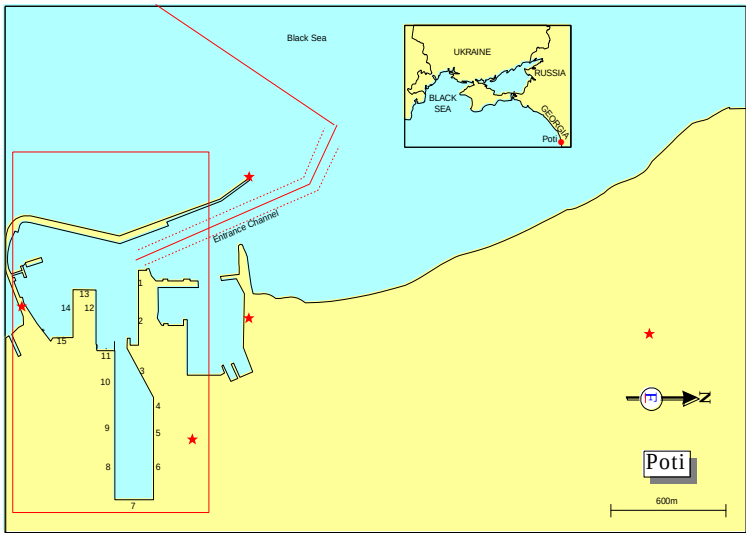
Poti has an advantage inasmuch as it offers a shorter rail route to Tbilisi and Baku, whereas the rail link between Batumi via Poti has restricted train lengths.

Batumi, on the other hand, has greater depths and does not need permanent dredging like Poti where the Rioni river washes sediment into the port aquatorium.

3.2.1 Poti

The port of Poti is the largest commercial (predominantly non-oil and gas) port on the Black Sea of Georgia having a 10 Mt design capacity.

Figure 24: Port of Poti, General Outlay



It has 15 berths, with a total berth length of 2,900 meters and more than 20 quay cranes and a capacity of 12 Mt per year. Berth №13 in the South Basin is used for handling Ro-Ro vessels.

Rail-ferries have been accommodated since 1999 at berth №2. This 183 m long and 12.5 m deep berth cost EUR 3.4 M, funded by the TRACECA Program. The ramp has a 1,520 mm

Russian gauge. The complex includes a 10,000 sqm lorry park. The nominal cargo throughput is estimated at 700,000 t.

Container vessels are berthed at pier №7 (210 m long, 8.5 m deep) adjacent to a 16,000 sqm/800 TEU storage area and pier №14 (250 m long, 8.5 m deep) rehabilitated in 2009, thanks to EBRD funding, to receive 1,000 TEU feeder vessels. Both terminals are rail-connected but there is no container storage facility at berth №14.

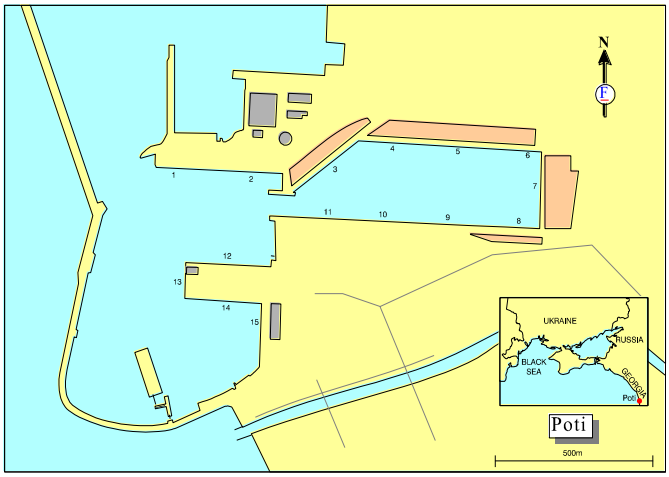
Limited storage facilities in the port area so far compel the stevedore to evacuate discharged containers to 8 off-dock private terminals where empty containers are stored and wherefrom full and empty export boxes are brought for loading upon vessels' calls. In an initial move to integrate activities, a storage area in the port was completed in 2010 to handle second-hand car containerised traffic.

Reportedly, the port is often congested (shipping lines report an average of 3-day waiting time for vessels, which may occasionally surge up to 7 days in case of bad weather[76], for instance), which has led some operators to divert their vessels to Batumi and others to implement a congestion surcharge.

The port has received the quality management ISO 9001-2000 certification.

In 2007, the Ministry of Economic Development of Georgia invited letters of interest towards operating Poti Sea Port by leasehold and creating a Free Industrial Zone (400 ha) adjacent to the Port territory. In April 2008 the port of Poti was entirely privatised to RAKIA (Ras Al Khaimah Investment Authority of UAE) and a 49-year concession contract signed to operate the port and develop a Free Economic Zone investing over USD 200 M within the next five years.

Figure 25: Port of Poti, Cargo Berths



In April 2011, RAKIA sold 80% of its shares to global container terminal operator AP Moeller Terminals, a sister-company of Maersk Line.

The change from state-owned company to private enterprise and from public service to a supposedly more efficient type of operation has led to a significant number of redundancies in the port staff (reportedly over 400 in 2011 alone) as well as to the implementation of a new wage and social benefits policy.

[76] For instance the port was closed during 21 days in January-February 2013 when winds blew at speeds of over 12m/sec.

This resulted in an unprecedented spate of strikes in October-November 2012 which paralysed port activity for nearly two weeks.

APM plans a USD 110 M investment in the next five years, which includes a new comprehensive container terminal to be built on a 100 ha site adjacent to the existing port. To start with, a rail and road-connected 15 ha yard equipped with 13 RTG and with the capacity to handle up to 400,000 TEU yearly should be opened in the near future. This should, in principle, allow avoidance of off-dock operations and should carry out block-trains operations right in the yard.

Extending the breakwater[77] and dredging at 17m water depth (yielding 13-14 m draft) is projected to receive mother vessels of up to 5,000 TEU.

Poti port is directly linked to the Georgian railway network. There is an ongoing project for modernising and improving the connection with Tbilisi including the construction of new tracks and tunnels due for completion in 2016. This will coincide with the renewal of the Beyuk-Kyasik (on the border via Azerbaijan) - Baku railway line as well as the construction of the missing railway link Zhezkazgan-Beyneu and planned implementation of the Silk Wind Block Container Train Project in Kazakhstan. This will enable rail containers to travel in a fast and reliable manner back and forth between Poti and Horgos (PRC's border-crossing point with Kazakhstan) in the future.

Poti is also the Georgian gate of the E 60 European route (running from Brest, France to Irkeshtam, Kyrgyzstan on the border with PRC). In Georgia this major axis known as the 'East-West Highway' links Poti to Beyuk-Kyasik, via no less than 7 of the 10 other biggest Georgian cities (including the capital city Tbilisi)[78].

Its rehabilitation and upgrading (financially supported by the WB) has been going on since 2006. Once completed it should further enhance the function of Poti as a port for the transit of cargo-flows to neighbouring Armenia and Azerbaijan as well into Central Asia. Conversely, this should foster the development of Ro-Ro services across the Black Sea to and from Poti[79].

Table 11: Poti Container Throughput (in TEU)

2007	2008	2009	2010	2011	2012
184,792	209,614	172,800	209,797	254,000	284,559

Maritime Services[80]

LOGMOS relevant shipping services are of two types:

- Those connecting directly one TRACECA port to another/other TRACECA port(s) – marked (a)
- Those connecting one TRACECA port to a non-TRACECA port(s) whose traffic, totally or partially, is destined to/originates from the ILCs and from other LCs/hubs/urban centres which could be selected for inclusion in the LOGMOS Master Plan core network – a system of routes suitable for logistics of MoS type of

[77] At a budgeted cost of EUR 85,000 per 1 m length on 15-16 m depth.

[78] The others are, in descending order, Kutaisi, Rustavi, Gori, Poti, Khashuri and Samtredia.

[79] For many years the Port has been mulling over plans to establish Ro-Ro connections with Istanbul and Constanza. Until recently however there was no evidence of a sound commercial and economically viable basis to run such lines.

[80] The same classification as the one given here will be used for other ports under review.

cargo flows in view of the EU concept definition . This traffic is all the more significant as it generates a greater use of specific hinterland connections which contributes to, and enhances, the corridor dimension of the network – marked (b).

Regular services calling at Poti include the following:

Rail-ferry

- UkrFerry-NaviBulgar weekly joint service to/from Kerch[81] (a)
- UkrFerry-NaviBulgar three-times a week joint service to/from Iliychevsk (a)
- UkrFerry-NaviBulgar fortnightly joint service to/from Derince (a)
- BMF, a subsidiary of RZD (the Russian Railways), weekly service from/to Port-Kavkaz[82] (b)

Cargoes carried in wagons by these lines are mainly destined to Georgia and Armenia (especially to Armenia for BMF since the (Armenian) South Caucasus Railways are also a subsidiary of RZD) and to a smaller extent to Azerbaijan. There is practically no transit cargo to/from Central Asia.

UkrFerry-NaviBulgar plan to include Constanza in the service to/from Derince as from mid-October 2013.

Containers[83]

- CMA-CGM feeder to other Black Sea ports, Mediterranean (a)
- Maersk feeder to other Black Sea ports (a)
- MSC feeder to Romania, Turkey and Ukraine (a)
- Arkas feeder to other Black Sea ports (a)

So far, due to the port features, only container feeders call at Poti relaying boxes from/to main hubs in the Black Sea (Constanza, Istanbul) or the Mediterranean (Malta). The lines are run with vessels of up to 1200 TEU maximum capacity. The world's three leading Ocean Carriers, Maersk, CMA-CGM and MSC, dominate the container market in Poti with a market share in excess of 80%, MSC holding the lion's share with nearly 50% of the import market and one third of the export one.

Although trucking remains the dominant inland carriage mode, import containers into Georgia are increasingly railed due to the implementation of drastically reduced tariffs and improvement in the rail transport service offered by Georgian Railway, particularly the launching in June 2011 of a fixed-day block-train service every other day to/from Tbilisi Georgian Railway Eastern Terminal. This, in turn, has a positive effect on the containerisation of exports which, thus far, were shipped in break-bulk in closed wagons for further stuffing at Poti.

[81] This service is provisionally suspended.

[82] Due a decrease in cargo-flow this service has been downgraded to a fortnightly frequency.

[83] Several other container shipping lines not mentioned in the list, having not developed an in-house feeder service because of their small traffic with Caucasus, usually buy slots (space) on the feeders of the main operators.

Table 12: Containers Carried by Rail (in TEU)

	2007	2008	2009	2010	2011	2012
From/to Poti To/from all Georgian destinations	16,080	14,444	11,120	12,872	13,100	21,354
From Poti to Tbilisi	7,011	6,253	4,100	4,234	4,173	8,387
From Tbilisi To Poti	7,803	6,899	5,309	4,787	5,089	8,295

Containers to/from Armenia are partly railed on the regular train from Poti to Yerevan[84] and partly carried by truck.

Due to the non-competitiveness and non-transparency of rail tariffs, insufficient quality of service, shortage of platforms and lack of container handling equipment at railway stations, longer transit-times and customs issues, trucking to Azerbaijan either in containers or after unstuffing at Poti is by far the preferred mode of transport. This applies to all cargo except for heavy loads, moving mainly in 20' containers, and for the decreasing flow of NATO humanitarian cargoes moving to Afghanistan. Still, border-crossing formalities for trucks reportedly take about four hours in total, dignity issues have been reduced but probably not erased and the implementation of EDI systems have failed on the Azerbaijani side as there is no possibility to file pre-declarations. Due to the unavailability of container logistics services in Azerbaijan, boxes, after devanning, are brought straight back to Poti, whether by rail or truck. As a result all exports from Azerbaijan, even containerizable goods, move to Poti either by truck or, for heavy cargoes, in closed wagons or gondolas.

Given the sanctions, an increasing portion of the cargo-flows, which used to move via Iran, is being repatriated (temporarily?) to the Caucasus corridor, partially via Georgian ports. Still, non-negligible volumes of containers shipped from the Far-East to Baku[85] (and Central Asia) keep on being discharged at Bandar-Abbas (BA)[86].

By the same token there has been a significant increase in containerised traffics between Poti and Central Asia, although volumes remain altogether modest.

Still, as Ocean Carriers and container lines do not offer inland transport service, customers have to perform the on-carriage till final destination in merchant haulage. The container lines, who are afraid of losing their boxes, request the cash payment of a deposit equal to the value of the

[84] Actually South Caucasus Railways (SCR) upgraded in 2012 its former twice-a-week Block Train operation between Yerevan, Poti and Batumi to a daily connection, including platforms carrying containers in normal scheduled heterogeneous trains. Furthermore, SCR developed a reefer container service using 12 specialised platforms, which run from Poti to Yerevan every other day. This, combined with the ongoing rehabilitation of the 308-km rail track and 8 bridges between Yerevan and the Georgian border, should boost the transport of containerised (and non-containerised) cargo by rail (a strategic necessity for landlocked mountainous Armenia where access by road in winter is often risky and lengthy).

[85] According to estimates from the freight forwarding industry about 60% of all containers entering Azerbaijan originate from China and 70 to 75% out of them arrive via BA.

[86] Under the present circumstances, the sea voyage duration from Chinese ports to Poti or BA (both reached via transshipment hubs, in the Mediterranean or Marmara Sea for Poti, in the UAE for BA) is about the same, between 30 and 33 days on average. The road distance is much shorter from Poti than from Batumi to Baku (886 km versus 2,126 km) but the driving time, due to different condition of the roads, time spent at border-crossing points, etc. is only 14 hours shorter (11 hours versus 25). Freight rates to BA (about USD 600 /20' – USD 900 /40' in January 2013) are about 10-15% cheaper than to Poti while THC+port-transit+trucking costs are about the same (USD 2,200/20' – USD 2450 /40').

container which most clients reject, unstuffing instead their cargo into conventional wagons in Poti. Another reason for the low container statistics in Poti is the cost of returning an empty back to the original port of discharge: depending on the distance, it is often cheaper for shippers to buy and send a last-voyage container.

Table 13: Containers Carried by Rail between Poti and Central Asian Countries (in TEU)

	2007	2008	2009	2010	2011	2012
From/to Poti	588	562	437	717	1,823	3,707
To/from Central Asia						

In all likelihood this situation will change dramatically in the next few years with the completion of the ongoing regional rail projects (Tbilisi Bypass, Baku-Tbilisi-Kars, Silk Wind). Furthermore, the interest taken by Georgia, Azerbaijan and Kazakhstan in becoming partners in the contrailer Viking Train (running presently between Klaipeda, Lithuania and Iliychevsk, Ukraine via Minsk, Belarus) should speed up and strengthen these changes.

Container export/import flows through Poti remain very imbalanced with a ratio of nearly 1:6[87].

Poor logistics services, overly expensive rail tariffs, long and unpredictable transit-times, as well as infrastructure constraints (narrow roads, tunnels and bridges) cause an important part of the flow of non-containerised general cargo[88] destined to Baku and (mostly) to Central Asia via Turkmenbashi and Aktau to be diverted during the river navigation period (April to November) to the Volga-Don Complex.

Figure 26: Discharging of Passenger Rail Wagons for GR at Poti Port Berth №14

This solution is not only less expensive and easier, it is also quicker, as sea-river vessels (able to load between 3 and 5,000 t) perform the voyage from Turkish Marmara Sea ports to Caspian ports in 8 to 10 days only and much less if loading from Azov Sea ports (Mariupol, Taganrog or Rostov-on-Don). This brings about the loss of whole contracts for Georgian ports and the

[87] In 2012 imports represented 64% of the total container volume handled at all Black Sea ports (including Novorossiysk in Russia) against 36% only for exports. Exports however grow quicker than imports at all ports except Georgian ones (respectively +13.46% and +1.16% in 2012 in comparison with 2011).

[88] Construction materials, steel products, heavylifts and OOG parcels.

central TRACECA corridor[89]. Nonetheless, the port handles significant volumes of heavylifts and OOG cargoes for destinations in the Caucasus.

3.2.2 Batumi

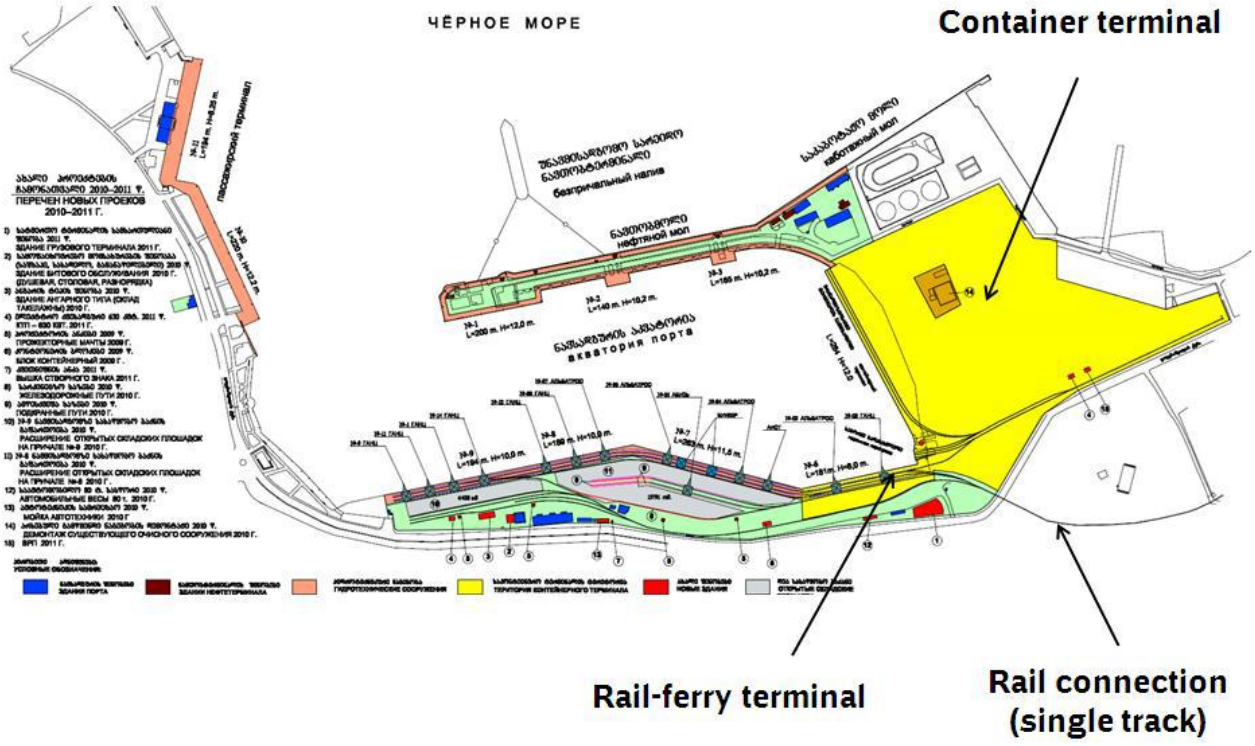
In November 2007, the container berths №4 and №5 (which total 284 m in length at a depth of 11.7 m), the adjacent terminal and the rail-ferry bridge and berth №6 of 187 m length and 8 m depth were leased to Batumi International Container Terminal, a subsidiary of ICTSI/Manila and a major maritime terminal operators in the world, operating in over 18 countries.

In February 2008 KazTransOil, the main transport operator of Kazakh oil, both for export and domestic market and a member company of the Kazmunaygaz Group, acquired the exclusive long-term management rights of Batumi Sea Port and purchased the Batumi Oil Terminal.

Over USD 8 M had already been invested by 2009 for the purchase of new equipment (such as a 18-32 t portal crane, the first bought in Georgia in over 30 years, and a new mooring tug), repair and upgrading of the existing equipment, port buildings and berths and development of modern IT systems.

Work is going on to pull down old dilapidated warehouses in order to increase the present-day 16,412 sqm open storage area capacity and to better meet the needs for the dry bulk traffics moving via Batumi.

Figure 27: Port of Batumi



Source: Port of Batumi/DB International

Batumi is predominantly a liquid bulk terminal. Depending on the year, crude oil and oil products can represent up to 80-90% of the total turnover.

[89] Estimated by the Port of Poti in 2010 at some 300,000 t p.a

The port consists of 5 terminals: the oil terminal (berths №1, №2, №3 and CBM-conventional Buoy mooring, which can accept 4 tankers simultaneously), the multi-purpose container terminal (berths №4, №5), the railway ferry terminal, the dry cargo terminal (berths №6, №7, №8, №9) and the passenger terminal (berths №10, №11). Maximal throughput is 18 Mt at the oil terminal, 2.3 Mt at the dry cargo terminal and 0.7 Mt at the rail-ferry terminal. The prospective throughput of the container terminal is 300,000 TEU per year.

ICTSI set up the Batumi International Container Terminal on a plot of 13.6 ha in total[90], investing USD 15 M. Modern container handling equipment such as prime-movers, reach stackers and 2 x 100 Mt SWL capacity mobile harbour cranes, a customs warehouse, a container freight station and other state-of-the-art facilities formed part of this investment.

Table 14: Batumi Container Throughput (in TEU)

2008	2009	2010	2011	2012
44,197	8,813	16,318	45,400	73,095

The Batumi International Container Terminal is handling the planning process for the first phase of a new project that will increase its operational space and capacity.

The project involves several million dollars of investments[91] in infrastructural improvements and creation of additional material and technical bases, in order to provide an enhanced quality of service for high-value goods with reduced handling times.

Batumi Sea Port is certified in accordance with the requirements of the international standards of quality management ISO 9001-2008 and of environmental protection ISO 14001-2004, as well as per the International Code for Security of Ships and of Port Facility (ISPS).

Maritime Services

Regular services calling at Batumi include the following.

Rail-ferry

- UkrFerry-NaviBulgar weekly joint service to/from Varna and Iliychevsk (a)

Cargoes, as in Poti, are mainly destined to Georgia and Armenia and to a smaller extent to Azerbaijan. There is practically no transit cargo to/from Central Asia.

Containers

- MSC feeder to Romania, Turkey and Ukraine (a)

[90] Out of which only 3.6 are used at the moment providing the capacity to store up to 2,500 TEU and handle 100,000 TEU p.a.

[91] In total ICTS invested USD 30 M by the end of 2012 and plans another USD 20 M investment in the following years.

Figure 28: 'MSC HINA', the Largest Containership To-date in Georgia, Docking at BICT on the 6ht of August 2012[92]

Container traffic started in Batumi in 2008 only and was severely hit by the GFC. The closeness of Poti and longer road and rail distances to Tbilisi and further on to Azerbaijan also bear on BICT development.

Batumi port, however offers better drafts and, in an effort to compensate its less favourable geographical location, the Port is proposing more attractive tariffs than Poti's (users in 2011 reported a D/A difference of up to USD 4,000 per call). Negotiations are going on with GR for the set-up of a block container train to Tbilisi.

Furthermore existing and planned rail infrastructure projects[93] will allow shortening the distances and equalising tariffs with those from/to Poti in a not too distant future.

[92] 203 m LOA, 9.80 m laden draft, 1,254 TEU nominal capacity. A record 2,200 moves were performed during this call.

[93] GR Modernization Project focuses primarily on the railway line from Tbilisi to the Black Sea, in particular to the terminals at Poti and Batumi. GR intends to modernise the railroad and electric supply infrastructure between Tbilisi and Batumi (315 km, including a 40-km mountainous gorge region in Central Georgia). The process was launched in 2010, work started in 2012 and is due to be finished in 2013.

Figure 29: Rail-Ferry under Operations at BICT

BICT has meantime developed a specialty in handling and providing all related services for the second-hand car traffic which represents about 85% of its import flow.

As in Poti, export/import flows are heavily imbalanced.

One of the main obstacles to the development of BICT and the whole port of Batumi is the fact the rail tracks to the port cross the city centre and the main access road to Poti, Tbilisi and the rest of Georgia. The municipality is considering the construction of a fly-over which would cost some USD 16-18 M.

The road network in the region is being rehabilitated and improved: in December 2010, ADB signed a Multitranche Financing Facility of USD 500 M as its contribution to the Road Corridors Development Program in Georgia which includes the 48.4-km Adjara Bypass around Kobuleti and Batumi (tranche 1 – due for completion late 2014/early 2015).

This infrastructure investment is direly needed to cope with the increasing traffic through the nearby border-crossing point with Turkey at Sarpi, 16 km from Batumi[94].

It is also necessary in view of the rising TIR-truck traffic carried by UkrFerry-NaviBulgar liner service (mostly from and to Varna). Both the road and sea-borne Ro-Ro trades will certainly develop further via Batumi if and when GR implements its long-awaited project of building the

[94] Sarpi is actually the busiest road border-crossing point in Georgia. The number of trucks which passed it grew unabated through the GFC as follows:

2007	76,552
2008	85,496
2009	92,408
2010	97,084
2011	107,922

Batumi and Tbilisi Intermodal (Contrailer) Terminals establishing a Ro-La connection between both[95].

Figure 30: Container Stripping at BICT

It however remains to be seen which way the Georgian Authorities will find to ensure the balanced development of the port of Batumi and of the city itself.

Since coming to power in 2003 President Mikhail Saakashvili, taking stock of the limited natural resources of his country, has turned the tourism industry into a key sector of the Georgian economy, comprising 7.29 percent of the Georgian GDP in 2012 (up from less than 3% in 2003). Georgia is now regularly ranked as one of the world's fastest-growing tourist destination by the World Tourism Barometer (4.017 M foreign tourists visited Georgia in 2012, a 42% increase compared with 2.822 M in 2011 - which already represented a 40% increase from 2010).

In Batumi alone the number of tourists rose from 75,000 in 2004 to over 1.6 M in 2012. Within the last few years a number of remarkable buildings and monuments of architecture were erected and US real-estate developer Donald Trump, who signed an agreement in April 2012 to invest USD 100 M in the luxury residential 47-story Trump Tower Batumi Project, rightly nicknamed the town 'the Monte Carlo of the region'.

Still, in Monte Carlo there is not an oil terminal handling nearly 5 Mt crude oil and products and a dry-cargo terminal handling, among other cargoes, ammonium nitrate[96], just a few hundred meters from the city centre.

[95] GR plans include a further extension to Yerevan to facilitate truck movements particularly during winter time.

[96] A high-nitrogen fertilizer, also used as an oxidizing agent in explosives. In 1947 a ship carrying ammo-nitrates exploded in the port of Texas City (USA) causing the death of 581 people. This disaster is generally considered the worst industrial accident in American history.

3.3 Romania

The National Company Maritime Ports Administration SA (CN APM SA) is a joint stock company assigned by the Ministry of Transport to develop activities of national public interest in its capacity of port administration. It exerts the role of port authority for the 3 Romanian sea ports of Constanza, and its satellites Midia[97] and Mangalia[98] (respectively located 25 km north and 38 km south of Constanza).

As such, it undertakes infrastructure works and monitors and implements security, safety and environmental port policy.

Ongoing infrastructure projects at Constanza financed through the SOP 2007-2013 include:

- The 642,487,000 RON (about EUR 144 M) extension of the Northern breakwater by 1,050 m (suspended after being awarded to Van Oord due to complaints lodged by other bidders);
- The construction of a road bridge over the Black Sea-Danube Canal at a cost of 160,018,000 Lei (about EUR 36 M) to offer a quicker and easier connection between the Northern and Southern parts of the port as well as to the Constanza-Bucharest highway bypass; the work is due for completion in 2013;
- The development of the railway capacity in the river maritime area of the port to better serve existing operators there budgeted at 93,219,000 Lei (about EUR 21 M), running until 2015; and
- The Southward Extension of the Lighter Berth. Fillings will be carried out between the southern edge of the lighter berth and the future quay, resulting in the gain of 10,900 sqm. of reclaimed land from the sea. The estimated value of the works is 19,873,286 Lei (about EUR 4.5 M) and their duration 24 months (until 2014).

Among many other projects, which are deemed to be eligible for financing under the SOP and are now under review, stands the Master Plan of the port. The objective of this EUR 2 M project is to carry out medium/long term (until 2040) strategic planning aimed at providing a tool for decisions regarding investments in the port. The corresponding tender was launched in November 2012 but has not been awarded yet.

CN APM SA[99] is also partner in the ADB Platform (Adriatic - Danube - Black Sea Multimodal Platform) project, part of the SEE Programme, involving thirteen countries out of which three are TRACECA ones (Bulgaria, Romania and Ukraine).

[97] Midia is mainly used for the supply of crude oil for the nearby Petromidia Refinery. In 2010 the largest liquefied petroleum gas (LPG) terminal in Romania was opened in this port.

[98] The Constanza Shipyard is the main user of Mangalia.

[99] Together with the Constanza Chamber of Commerce, Industry, Shipping and Agriculture and the national rail freight company, CFR Marfa S.A.

Figure 31: Satellite View of the Port of Constanza

The main objective of the project is to better integrate South-eastern Europe in the European Union's market, by increasing the efficiency, the attractiveness and the competitiveness of the regional transport system and thus to establish an integrated network in the Adriatic-Danube region.

CN APM SA implements the 'Integrated Management System', which includes certified management systems to international standards ISO 9001:2008; SR OHSAS 18001:2008; ISO 14001:2005. The port is ISPS certified[100]. The port gates and accesses have been completely re-constructed and equipped with scanners and security measures re-inforced in 2012-2013.

CN APM SA is a member of already described ESPO but Constanza is not yet part of the EcoPorts network. The National Institute for Marine Geology and Geo-ecology (GeoEcoMar) was the Romanian partner in the already mentioned ECOPORT8 environmental project of the SEE Programme. GeoEcoMar is a research-development institute established in 1993 under the Ministry of Education and Research. The main activities of GeoEcoMar relate to marine, deltaic and fluvial environmental and geo-ecological studies regarding the ecosystems of the geosystem River Danube - Danube Delta - Coastal Zone - Black Sea. GeoEcoMar has been joined by the Romanian Naval Authority as Romanian partners in the successor TEN ECOPORT project.

Despite losing cargos against the background of worsening of the economic situation in Romania, Constanza is the biggest Romanian port, as well as the biggest EU port in the Black Sea, the 4th largest in Europe and the biggest Black Sea port.

It is located 179 nautical miles from the Bosphorus Strait. The port covers an area of 3,926 ha out of which 1,313 ha is land and the rest 2,613 ha is water.

Constanza boasts a 100,000,000 tonnes yearly handling capacity at 156 berths running on 29.83 km with depths ranging between 8 and 19 meters allowing the accommodation of tankers of up to 165,000 DWT and bulkcarriers of up to 220,000 DWT. Practically any type of cargo/vessel can be handled at the several, privately-operated, terminals of Constantza including rail-ferries and Ro-Ros.

[100] Compliance with the ISPS and ISM Codes are actually under the responsibility of the Romanian Naval Authority - the specialised agency of the Ministry of Transport for the safety of navigation at sea and on the rivers.

The Ferryboat Terminal, located in Agigea, is equipped with about 5,250 m European-gauge railtracks for the reception/delivery of railcars and preparation/loading/unloading of trains. From 1995 till 2009, CFR Marfa, the Freight Division of the Romanian Railways, ran a number of liner services in the Black Sea with its 2 sister Ro-rail-ferry partners 'Mangalia' and 'Eforie' (built respectively in 1988 and 1991; 85 up to 100 wagons/alternatively 80 TIR trucks capacity) between Constanza and Poti/Batumi in Georgia and Derince and other Turkish ports.

However, a number of technical difficulties (obligation to tranship cargoes from Romanian to Georgian wagons on board of the vessels in Poti/Batumi with subsequent long duration of calls and increased costs, impossibility to re-load cisterns used for the carriage of crude oil from Azerbaijan to Romania with Romanian refined/white products back to Caucasus), the harsh competition of overland trucking to Turkey, and, finally, the market collapse brought the operation to a standstill. The vessels are presently laid off.

Constanza is a typical 'landlord' port. All cargo-handling terminals are operated by concessionaires including the 4 container terminals, the biggest one (which is also the biggest in the Black Sea), the Constanza South Container Terminal (CSCT), having been built and being operated under a long-term concession contract by giant container terminal operator DP World[101].

The peak traffic at Constanza was reached in 1988 at 62,342,000 t and nearly equalised in 2008 (61.8 Mt) during a pre-crisis dramatic growth period. The volume handled dropped down to 42 Mt in 2009 and has been slightly recovering since then.

Constanza is both a maritime and a river port linked to the Danube through the Danube–Black Sea Canal. The river traffic which makes about 20% of the total dropped considerably in 2011 due to the prolonged drought then freeze of the Danube which practically prevented navigation from August till December but recovered to over pre-crisis levels in 2012.

Table 15: Constanza Port Traffic (in tonnes)

Year	Maritime	River	Total
2000			33,104,300
2001			33,800,500
2002			40,523,900
2003			43,245,400
2004			50,433,300
2005			60,632,000
2006			57,138,000

[101] Top-ten world container terminal operators 2011 (source: Drewry Maritime Research)

Operator	M TEU	% share of world throughput
1 PSA International	47.6	8.1%
2 Hutchison Port Holdings	43.4	7.4%
3 DP World	33.1	5.6%
4 APM Terminals	32.0	5.4%
5 COSCO Group	15.4	2.6%
6 Terminal Investment Limited (TIL)	12.1	2.1%
7 China Shipping Terminal Development	7.8	1.3%
8 Evergreen	6.9	1.2%
9 Eurogate	6.6	1.1%
10 HHLA	6.4	1.1%

2007	47,014,528	10,768,787	57,783,315
2008	50,452,587	11,385,192	61,837,779
2009	34,149,949	7,864,229	42,014,178
2010	36,975,597	10,588,282	47,563,879
2011	37,224,600	8,747,400	45,972,095
2012	38,854,222	11,730,440	50,584,662

Figure 32: The Black Sea – Danube Canal at Constanza

It is the hub port for the container feeder service performed since 2010 by 'Tavria Line', a shipping company of 'Aquarelle', the logistics arm of the Alef, Dnepropetrovsk-based Ukrainian industrial group.

This regular service, linking Constanza to Dnepropetrovsk through the Black Sea and along the Dnepr River, is performed with two STK Class sea-river vessels of 112 TEU nominal capacity. The volume carried reached 5,900 TEU in 2011.

Figure 33: Tavria Line M/S 'ALKOR' in Service between Constanza and Dnepropetrovsk

The Ro-Ro traffic (consisting for a significant part in new vehicles carried by larger and larger PCCs[102] [103]) has been steadily on the increase since 2000, passing from 4 calls a year to 81 in 2010.

In November 2011, Turkish shipping company U.N. Ro-Ro[104] opened a line between Pendik (Istanbul) and Constanza offering 3 journeys per week from each port, deploying in this service a chartered 2007-built Ro-Pax[105] of 2,500 lane meters (160 trailers) capacity and 24kn speed.

[102] Small imports by sea in Romania of passenger cars and utility vehicles of all foreign makes, huge exports of Ford and Dacia vehicles manufactured in Romania (respectively in Craiova and Pitesti) and imports by sea into Romania of cars of this latter brand produced elsewhere such as Renault Laguna from Morocco and transit of vehicles towards Ukraine and Russia are picking up year-on-year. For the record the main car terminal operator in Constanza, Romcargo Maritim, handled no less than 100,000 vehicles in 2012 and expects to load and discharge 150,000 in 2013. A non-negligible share of the new-car import trade reaches the Romanian market either by road or rail from Piraeus or Koper (Japanese and – to a much lesser extent – Chinese brands), or by rail or barge (on the Danube) from Europe.

[103] Romcargo Maritim is receiving now PCCs of up to 6,000 car capacity.

[104] U.N. Ro-Ro was established by Turkish trucking companies in 1994, when wars and unstable political situation in the Balkans made journeys through Central Europe as long as risky and an alternative route had to be found. Today U.N.Ro-Ro is one of the world leading companies in Ro-Ro transport, running services from a number of Marmara and Turkish Aegean and Mediterranean Sea ports to Italy (Trieste) and France (Toulon). They offer a full package of service to the international trucking industry, beyond pure sea-carriage, negotiating and fixing the conditions of port operations and handling tariffs, arranging flights for truck drivers to/from Ljubljana (for Trieste) and Marseilles (for Toulon) to/from Istanbul avoiding them to lose time during the sea-passage and ensuring an optimal use of driving windows in Europe.

They also take an active part in the negotiations between competent Turkish and foreign Authorities on the number of truck permits and related issues, and, where possible, in the arrangement of Ro-La operations through transit countries in Europe (Austria and Romania for instance), practically erasing the problem of obtaining transit permits.

U.N. Ro-Ro have demonstrated to the trucking industry that, notwithstanding an increased security of cargo, truck and driver and reduced traffic accidents and fatalities, a significant advantage of Ro-Ro transport versus overland driving is to lower the depreciation costs of trucks. According to their calculations, a truck that operates round-trip between Turkey and Germany will make app. 550,000 km in six years whereas the same truck will only make 200,000 km using the shipping service.

[105] U.N. Ro-Ro selected this more costly type of vessel to enjoy the transit priority given to the passenger vessels crossing the Strait of Bosphorus.

Trucks loaded with fruits and vegetables from Southern Turkey for Romania represented the main potential from October to April until Romania picks its own products. The service aimed at attracting a significant part of the hundreds of trucks which daily drive through Bulgaria and Romania to deliver textile, shoes, vegetables and fruits, chemical products and other commodities to other Central and Northern Europe countries.

Figure 34: U.N. Ro-Ro Vessel 'AUDACIA' in Service between Pendik and Constanza

U.N. Ro-Ro however suspended the line in September 2012 without notice Insiders' views are that such a service could never be successful for the following reasons:

- cargo from Turkey is chiefly meant for Bucharest region and beyond which Turkish truckers, who reportedly do not respect any time-break regulation, perform in some 14 hours at a cost of about EUR 900;
- the road network in Bulgaria greatly improved whereby crossing this country is less time-consuming as it used to be and Bulgarian authorities seem to display a more flexible attitude towards trucks transiting their country;
- the ferry was covering the 200 nm from Istanbul in 12 hours. Adding the customs, other formalities and delays at both port of origin and Constanza the driver needed a total 24 hours to reach his final destination. Besides, the total cost was higher the ferry passage costing EUR 1,000 and the drive from Constanza to Bucharest another 150;
- the 'plus' UN Ro-Ro wanted to offer was free-of-charge road permits for the drivers using their service. They made a request (with the support of the Turkish Government) but failed for 2 reasons: the Romanian MoT first argued – rightly - it was unlawful to offer such a competitive advantage to one single operator, and secondly they realized the deal would have been detrimental to their own trucking industry since there are only some 300 Romanian trucks moving to Turkey while they are well over 3,000 Turkish trucks moving to Romania yearly;
- the obstacles created by the Romanian Customs (not on purpose) were the final killer of this short-lived Motorways of the Sea venture.

There are no objective reasons to believe the two CFR Marfa laid up and poorly-maintained rail-ferries (and last two liner vessels under Romanian flag) could ever be put again in a Black Sea service (or any other service for that purpose) as the cost of their overhaul and adaptation to today's trade requirements (estimated anywhere between 3.5 and 13 M USD) would exceed their scrap value.

As already mentioned there are plans by UkrFerry and NaviBulgar to set up a regular Ro-Ro service between Constanza and Georgian ports.

While the container (-50%), bulk coal and coke (-50%), ferrous and non-ferrous ore (-60%), cement (-58%) and crude oil and oil product (-31%) traffics decreased significantly since 2008, the volume of grain (and other raw food products such as seeds and vegetable oils) remains unabated and now represents – by very far – the first commodity handled at Constanza in front of crude oil and general cargo.

Table 16: Constanza Port Grain Traffic (in Mt)

Year		Year	
2000	1.0124		
2001	2.7842	2007	4.2589
2002	4.6589	2008	6.6704
2003	3.7442	2009	10.4187
2004	3.8838	2010	12.062
2005	6.01	2011	9.5346
2006	7.1716	2012	12.6283

Table 17: Constanza Port Container Traffic (in TEU)

Year	
2000	105,981
2001	118,645
2002	136,272
2003	206,449
2004	386,282
2005	776,594
2006	1,037,068
2007	1,411,414
2008	1,380,935
2009	594,303
2010	556,694
2011	662,796
2012	684,059

The considerable decrease in the volume between 2008 and 2009 needs to be further explained for better understanding: Ports consider transshipment of a container as a double operation. Accordingly such containers are counted twice in the port statistics, once upon discharging and once upon loading. Any decrease in the volume of such traffic therefore reflects more heavily on the overall port statistics.

The container trade severe drop is the result, partly of the considerable shrinking of the Romanian economy and, partly, of the opening of new container terminals in other Black Sea ports (Odessa, Iliychevsk, Novorossiysk). A number of container shipping lines have accordingly redirected their deep sea or feeder services to these destinations and no longer need to tranship their boxes at Constanza.

Also, Constanza lost its leadership as a container hub in the Black Sea when Ukrainian container terminal operators, faced with comparable losses in the volumes of containers handled and willing to mitigate it, worked very hard to containerise any possible export cargo.

This policy proved successful as now apart from grain, such commodities as wood, ferro-alloys and even pig iron are shipped from Odessa and Iliychevsk in containers. Having very much improved the trade balance has enhanced the commercial attractiveness of Ukrainian ports for the shipping lines.

An outstanding feature of the container traffic in Constanza (which also holds for Bulgarian and Ukrainian ports) is its limited geographical scope. The overwhelming majority of the import containerized trade – from whichever origin - is meant for Romania. Containers to Serbia and Hungary from the Far-East for instance are delivered through Adriatic ports (Rijeka, Trieste and above all Koper) by direct deep-sea services. This high reliance on its domestic market evidently represents a major weakness of the port.

The situation maybe slightly better[106] with exports as Romania's neighbors ship via the Danube significant volumes of bulk commodities (mainly cereals) which are partly stuffed in containers in Constanza.

It also plays a role in the small trade exchanges between Central and Eastern European countries and Caucasus through the Black Sea. However it is – as well as any other west Black Sea ports – out of the game for any cargo movement from/to Georgian ports to/from Western and Central Europe: goods – whether in containers or breakbulk – are shipped on vessels sailing directly or via Mediterranean or Turkish hubs to and from north or south EU ports[107].

The international transit function of the port is therefore extremely reduced, still light years from the declared objective to turn Constanza in the Rotterdam on the Black Sea.

This lack of attractiveness and competitiveness has obviously much more to do with poor hinterland connections than with the port infrastructure and facilities. Nonetheless there is room for improvement as far as procedures are concerned: there is neither a SWS nor a PCS in place in Constanza.

The container trade on the Danube from/to Constanza hovered around 10,000 TEU per year until recently[108]. This encouraging figure, however small compared to the total number of containers handled yearly in Constanza, tended to show the potential attractiveness of inland water way transport versus road and rail modes faced with other/new regulatory, environmental and financial challenges.

Unfortunately the repeatedly bad conditions of navigation on the middle stretch of the Danube (upstream Cernavoda) in the second half of 2011 than in 2012 and again during the first half of 2013 have exhausted the patience of the shipping lines: after a record volume of 14,160 TEU carried in 2011, the figure dropped to 6,361 in 2012 and barely reaches 515 TEU for the first eight months of 2013.

It must be underlined in all fairness that in 2012 a sizeable volume of boxes were moving along the Danube between the Moldovan port of Giurgiulesti and Constanza. The difficult conditions of navigation on the Lower Danube (however not comparable with those observed in the Middle and Upper Danube) and, above all, the repeated obstacles the Romanian Customs put in their way finally spurred the GIFP to leave the River and resort to direct, quicker, sea-transport via the Sulina Canal and then the Black Sea to Constanza.

This does not represent any modal shift, the cargo is still carried on the water. It does however represent the lost opportunity of integrating other Romanian Danube ports on the way, and especially the main industrial hubs of Galatz and Braila, into a supply chain scheme which would help them break their geographical isolation.

[106] There are no statistics available

[107] A comparative study carried out by DHL Georgia in April 2013 for a 10,000 freightons project from Poti to the Czech Republic proved for instance door-to-door costs were much cheaper shipping via Rotterdam than through any west Black Sea port.

[108] 2007: 9,927, 2008: 11,555, 2009: 11,721, 2010: 10,012

Figure 35: BRP Pusher with 2 x 40 TEU Barges en Route from Constanza to Belgrade

Source: BRP

Constanza lacks a fully-fledged logistics centre in or near the port. There is a Free Economic Zone which, reportedly, is not doing very well due to the fact the Romanian law on FEZ has been changed many times over the past few years and each time with reduced benefits for the operators. The port community recognises the need for a real logistics centre especially in light of the Port ambition to become the Eastern gate of Europe for its trade with Asia. The feeling is that things will start changing and Bucharest will lose its monopoly over logistics activities in Romania now the motorway between the capital and Constanza is completed (the last 4-lane section between Cernavoda and Medgidia was opened in November 2012).

Involving the private sector (including port and terminal operators) in a logistics venture and attracting its financial participation however remains a major issue in Romania. The Intermodal Transport Strategy to 2020 published in May 2011 by the Ministry of Transport and Infrastructure primarily rests on public planning, public funding (originating for the most part from the EU), regulations and policy incentives and subsidies, public management and monitoring by the MoTI. The Strategy – which has been only very partially implemented since it was published[109] – is now deemed to be part of the Romanian Transport Master Plan which should be issued some time in spring 2014 while its contents are still (September 2013) under discussion. In the meantime the political context seems to be a key driver in the definition of this Master Plan. The impression is that the economic background – and feasibility – of projects seems of less relevance than two main priorities: first the privatization of CFR Marfa[110] – a condition set by the IMF for maintaining its support to the country, a hot political and very sensitive socio-economic issue and therefore a delicate and difficult process[111], then the necessity to rally local and regional political support to an overall policy encompassing much more than logistics and/or transport topics only. Such mix, however understandable under the circumstances, cannot produce the most efficient results and does not leave much room for a sustainable involvement of the private sector. PPPs are contemplated but, seemingly, as the final phase of an operation already decided and undertaken (unilaterally) by the Government

[109] The main achievement seems to be the transfer from CFR Marfa (the freight division of the national railway company) to CFR Infrastructure of some of its terminals, the proclaimed target being to have them modernized and to change the present concession system to ensure a more open competition between users. Viewed from another angle it amounted to delete EUR 28 M debt from the books of to-be-privatized CFR Marfa to make it more attractive to investors.

[110] EUR 22 M losses in 2011 for a turnover of EUR 261 M.

[111] Grup Feroviar Roman is the main competitor of CFR Marfa. The joint company would control 70% of the Romanian rail freight market which logically gives rise to concerns over competition.

through State-owned companies (first and foremost CFR Marfa). Still, the MoTI was aware of the need to develop a market-oriented approach and sought to establish closer links with and receive advices from the transport industry private operators. To that effect, it therefore created in December, 2006, the Romanian Intermodal Association (RIA) which, used to act as an advisory body for the Ministry.

The RIA included public organisations/agencies such as the Maritime Ports Administration (providing its staff and management to the Association), the Administration of Navigable Canals, the Romanian Naval Authority, the Romanian Maritime Training Centre (Ceronav), few private companies (DP World, Nord Marine Shipping), all of them located, as the RIA, in Constanza, and the Administration of Giurgiu Free Zone.

Efforts made to attract members from the private sector did not prove very successful, maybe because the emphasis had not been laid enough on bringing in logistics providers and carriers (including shipping companies) to build a more representative panel.

3.4 Turkey

3.4.1 Ports and Seaborne Trade

Bordering three seas, the Black Sea, the Aegean Sea and the Mediterranean Sea, and enclosing the Marmara Sea, Turkey, at 8,140 km, has the longest coastal line among TRACECA countries. It also has the most developed port and shipping systems

All ports in Turkey were previously run partly by TCDD, the Turkish state railway company (for those (major) ports, which were linked by rail to the national network), and by TDI, the Turkish Maritime Administration for other ports.

Privatisation was however placed on Turkey's economic policy agenda as early as in the mid-1980s. At the time, policymakers, influenced by Margaret Thatcher's policies, presented privatisation as a way to liberalise the economy and increase its overall efficiency, reduce public expenditures and state's indebtedness, transform a vast array of monopolistic SEEs (State Economic Enterprises), which were seen as inefficient loss-making public companies and curtail the state's economic role and also develop domestic capital markets and widen share ownership by the general public.

In 1997, TDI's Tekirdag in the Marmara Sea, Hopa, Giresun, Ordu, Sinop and Rize on the Black Sea, in 1998 Antalya, in 2000 neighbouring Alanya and Marmaris on the Mediterranean coast, and in 2003 Cesme, Kusadasi, and Dikili ports in the region of Izmir and Trabzon in the Black Sea were privatised under the 'landlord port' scheme by transfer of the operation rights to the private sector for a period of 30 years, while ownership of the registered inventories such as machinery and equipments, vehicles and others was transferred by sale. Among these ports, Trabzon, Antalya and Tekirdag are the largest ones while Alanya, Marmaris, Cesme and Sinop do not have container cargo handling facilities[112]. Some play today important roles in the tourism sector.

On the 30th of December 2004 the Privatization Higher Council decided to include 6 (out of 7)[113] of the railway-connected TCDD ports into the privatisation process (Izmir in the Aegean Sea, Mersin and Iskenderun in the Mediterranean, Derince and Bandirma in the Maramara Sea and Samsun on the Black Sea).

[112] Cesme is however one of the major Ro-Ro ports of Turkey.

[113] Haydarpasa Port (in Istanbul, on the Asian bank) is not included in the portfolio since it will be part of a tourism complex project.

Figure 36: The Sea of Marmara

Under the current law the ownership of the ports and port assets and land remain public property and only operational rights are transferred to the private sector for variable periods (Mersin International Port Management (MIP), the joint-venture created by PSA/Singapore and AKFEN Group/Istanbul, acquired the rights for Mersin in May 2007, Cey Group/Istanbul for Samsun in April 2010 and Limak Group/Ankara for Iskenderun in January 2012 all for 36 years. At Izmir it is planned to transfer them for 49 years).

The privatization process has however attracted the recent criticism of the OECD (Appendix X).

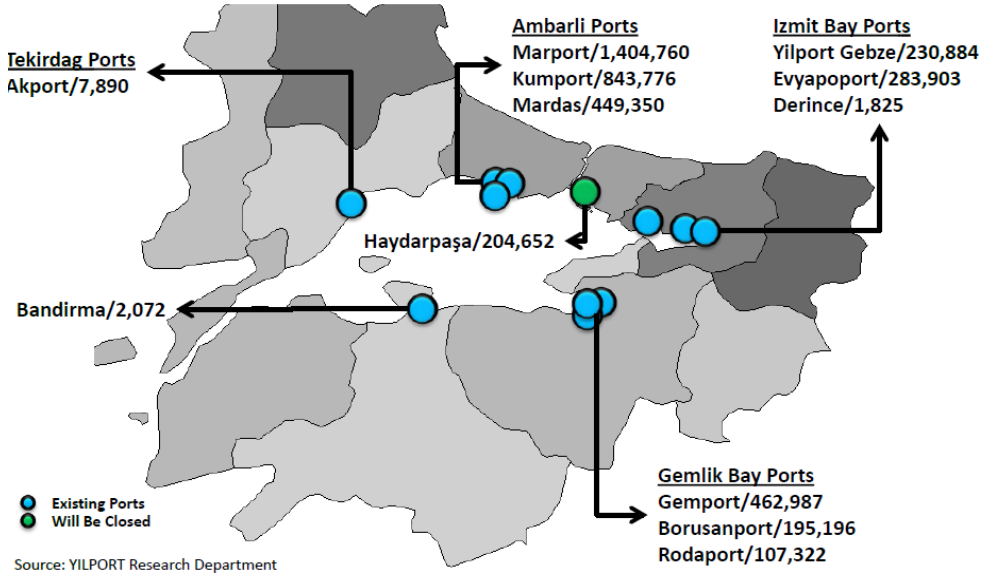
Meanwhile, owing to a drastic increase in the trade and limited facilities at the existing harbours, private investors started in the early 90s to develop own ports and particularly container terminals at various sites in the vicinity of Istanbul around the Marmara Sea (Tekirdag: Akport - Ambarli: Marport, Kumport, Akcansa, Mardaş - Izmit Bay: Gebze, Evyap, Derince - Gemlik Bay: Gemport, Borusanport, Rodaport - Bandirma).

In 2011 the above-mentioned private ports accounted for 63% of the total volume of containers handled at all Turkish ports (4.195 M TEU out of 6.613 M[114] [115]).

[114] In comparison Turkish ports on the Black Sea coast handled 44,000 TEU (less than 1% of the total).

[115] Compare and contrast: all Black Sea ports in Bulgaria, Romania, Ukraine, Russia and Georgia handled together 2.338 M TEU that same year and 2.411 M in 2012 excluding transshipments (versus 2.55 M in 2008). Analysts forecast a modest growth of the Black Sea container market in the 1-2 coming years due to a bleak economic outlook in Romania and Bulgaria which both remain affected by the European crisis and highly uncertain economic environment in Ukraine. Large infrastructure projects in Russia for the Olympic Winter Games in Sochi in 2014, and the 2018 Football World Cup in 11 host cities should not affect dramatically the container trade in this country.

Figure 37: Container Traffic at Marmara Sea Ports in 2011 in TEU



No less than four new terminals with a total capacity of 1,4 M TEU are planned or under construction by private companies in this region, at Tekirdag, Izmit and Gemlik Bays.

Table 18: Turkish Ports Container Traffic (in TEU)

Year	
2005	3,301,140
2006	3,822,727
2007	4,708,160
2008	5,191,747
2009	4,153,846
2010	5,865,785
2011	6,613,035[116]

Today Turkish ports have a total capacity of 12.3 M TEU (7 M in the Sea of Marmara, 3.2 M in the Mediterranean, 1.6 M on the Aegean coast, and 0.5 M in the Black Sea). However they handled 7.2 M TEU in 2012, meaning that less than 60% of their capacity was actually used.

If all current plans and projects to build new container terminals and expand existing ones would be realized the total capacity of Turkish public ports would jump to 19.6 M TEU and that of private ports to 10.2 M TEU. The economic feasibility of a number of such plans remains

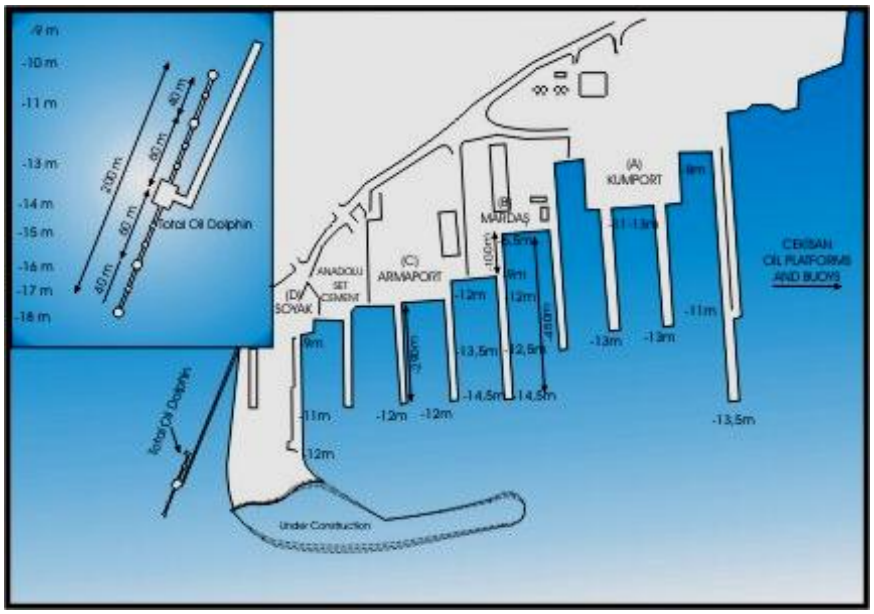
[116] Out of which 231,164 TEU transhipped to and from Black Sea TRACECA countries split as follows:

Bulgaria	45,240 TEU
Romania	67,034 TEU
Ukraine	59,342 TEU
Georgia	59,548 TEU

however highly questionable. Nonetheless, according to banks' estimates, there are already USD 7 bn in the pipeline for port projects in Turkey.

In total there are 161 private ports, wharves and jetties in Turkey today that are able to berth vessels of over 500 GRT serving for international cargo transport and cabotage out of a total of 181.

Figure 38: General Layout of Ambarli, the Biggest Container Port in Turkey



Source: Cerrahogullari T.A.S.

3.4.2 Transport Links with other TRACECA Countries

Turkey is a major trading partner for all other TRACECA countries and has therefore developed a dense network of sea and overland transport links with all of them.

Table 19: Turkey Foreign Trade with TRACECA Countries in Billions USD in 2012

	Exports to	Imports from	Total
Azerbaijan	2.584	0.34	2.924
Bulgaria	1.684	2.754	4.438
Georgia	1.253	0.18	1.433
Kazakhstan	1.068	2.056	3.124
Kyrgyzstan	0.257	0.045	0.302
Moldova	0.224	0.135	0.359
Romania	2.495	3.236	5.731
Tajikistan	0.235	0.345	0.58
Turkmenistan	1.48	0.304	1.784
Ukraine	1.829	4.394	6.223
Uzbekistan	0.45	0.813	1.263
Total	13.559	14.602	28.161

3.4.2.1 Black Sea

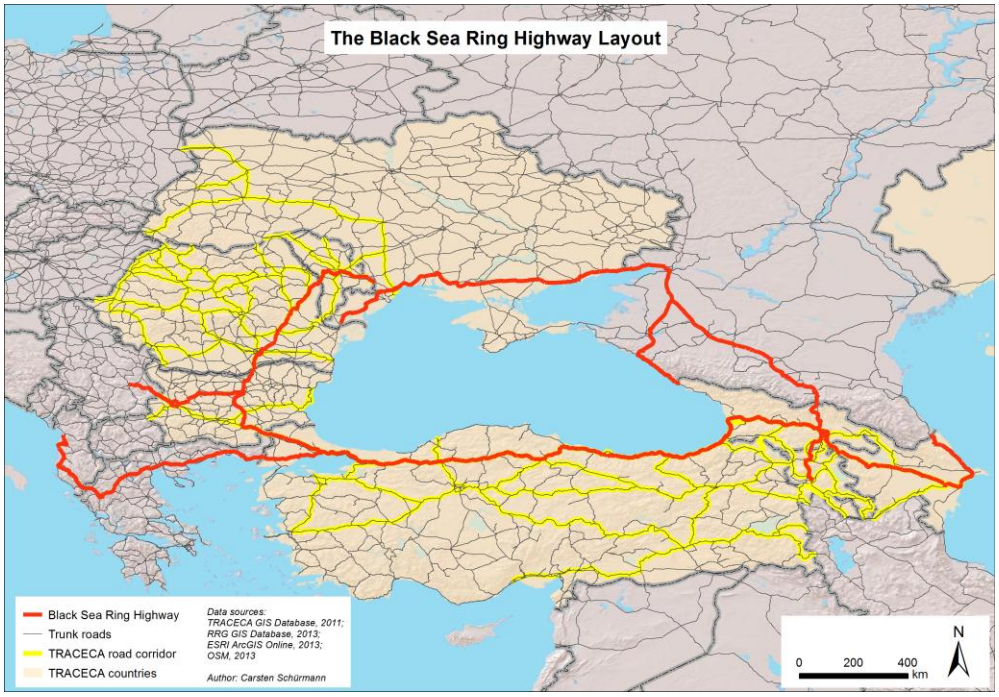
All riparian countries are accessible and served by road from Turkey. This should be enhanced when the ongoing 7,140 km Black Sea Ring Highway Project[117] is completed.

Overland rail freight transport from Turkey is non-existent to the East due to the absence of a modern railway connection and practically non-existent to the West due to the difference in rail gauge, which compels to tranship cargo at Ungheni on the Romanian-Moldovan border. Furthermore rail consignment notes have to be changed from CIM to SMGS as will be seen more in detail in the following Caspian Sea section.

Meantime, sea-transport, which avoids crossing a lot of borders and therefore reduces transit-time and costs, has gained momentum in the recent years.

Foreign Ocean Carriers Maersk and MSC and Turkish shipping companies Arkas Group and Admiral Container Lines have long-established weekly container feeder and liner[118] services between Marmara and Turkish Black Sea (Trabzon, Samsun, Bartin) ports and all Black Sea TRACECA ports.

Figure 39: The Black Sea Ring Highway Layout



Turkish operators Karadeniz Ro-Ro, Cenk Group, Birlik Ro-Ro Isletmeleri and others have been plying Ro-Ro lines between Zonguldak and Sebastopol and Yevpatoria in Ukraine for the past 20 years. Since 2001 there also exists a rail-ferry link between Iliychevsk and Derince operated by UkrFerry.

In 2011 a new, thrice-a-week Ro-Ro service was launched between Istanbul (Haydarpasa) and Iliychevsk by Finnish/Swedish Stena SeaLine. The company attempted at expanding and

[117] Agreed upon by the Ministries of Foreign Affairs of the BSEC member States in April 2007.

[118] "Feeder" refers to containers transhipped from/to Deep Sea services (e.g. Far-East) at a hub port while "liner" relates to containers originating from/destined to the local market (in this case, Turkey).

extending the service by adding a second vessel and calls at Derince in January 2013 but apparently failed.

Figure 40: Stena SeaLine M/S 'Sea Partner'[119] in Bosphorus Strait

Source: Stena SeaLine

The already mentioned U.N. Ro-Ro Pendik-Constanza service was also launched in 2011 and stopped in 2012.

In 2012, the rapidly-growing Russian company AnRussTrans[120] opened an additional Ro-Ro service between Zonguldak and Skadovsk and in March 2013, another between Zonguldak and Sebastopol.

That same year Ukrainian river shipping company Ukrrechflot experimented a direct liner service between Istanbul and Dnepropetrovsk on the Dnepr River but had to stop due to strong administrative problems at the Ukrainian border-crossing point at Kherson.

In the meantime Ukrferry opened a fortnightly rail-ferry service from Derince to Poti.

Lastly, following the signature of relevant agreements between Ukraine and Turkey in 2011, Black Sea rail-ferry operators are considering the possibility to establish a regular rail-ferry service between Iliychevsk and the port of Samsun on the Black Sea coast, which, as Derince, is equipped with a rail bridge and rail track allowing the discharge of 1,520 m/m gauge wagons ashore.

Since 2005, Turkey has had a similar agreement with Russia for the operation of a rail-ferry service between Samsun and Port Kavkaz, which has been run on an experimental basis since December 2010. With the completion of the much-needed wheel-change station built with the participation of Russian Railways, the line was officially inaugurated on the 19th of February, 2013.

[119] 130 TIR-trucks/166 drivers/Pax capacity, full Pax amenities, 16.5 kn service speed.

[120] AnRussTrans owns and operates a fleet of rail-ferries and Ro-Pax vessels in the Baltic, Black, Mediterranean and Red Sea. Its fleet also includes 2 LNG carriers deployed in the Caspian Sea, a 6,500 DWT sea-river vessel and 5 tugboats deployed in the Kerch Strait/Azov and Black Sea Russian ports.

Figure 41: Ukrrechflot M/S 'Mekhanik Cherevko'[121] Passing the New 30-m Deep DnieproGES Lock in Zaporozhye

3.4.2.2 Caspian Sea

Rail links from Turkey into Central Asia go via Iran. A first obstacle is the absence of railroad around the Lake Van in eastern Anatolia. When the line to Van and Iran was built, it was deemed easier and cheaper to cross the 120-km long[122], 80-km wide lake by a ferry rather than build a line around the lake, through a mountainous terrain (average altitude is 1,690 m) without a convenient pass.

Wagons have to be loaded onto two specially designed but small and dilapidated 16-wagon ferryboats. Reportedly, delays are routine and can be lengthy. New ferryboats, able to carry 50 wagons at 14 kn are currently being built and expected to enter into service in 2013.

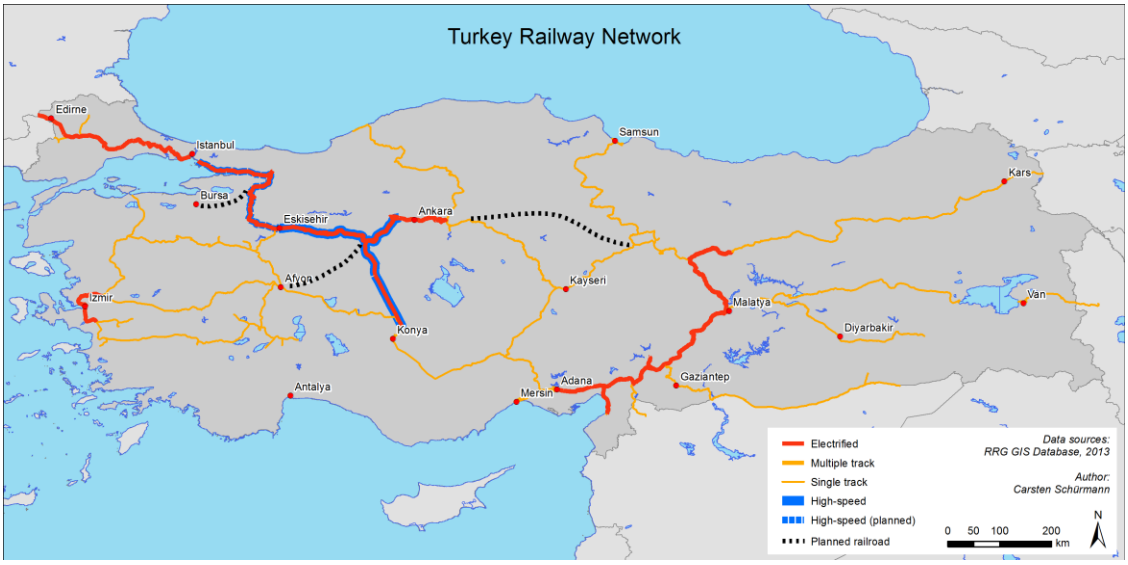
However, even if the new vessels prove more reliable, and without minimising the huge efforts launched by TCDD to modernise and expand its network and operations, the rest of eastern Turkey's rail infrastructure is so underdeveloped[123] that there appears little prospect of freight trains across Anatolia becoming an attractive option before another 10 years (interestingly, the same observation also applies to the ongoing Baku-Tbilisi-Kars Project).

[121] "Desna" class sea-river vessel of 190 TEU nominal capacity.

[122] The actual crossing distance between the western pier at Tatvan and the eastern one at Van is 96 km. The crossing time is about 5 hours.

[123] The 560-km railroad from Elâzığ to Van and the Iranian border is single-track, non-electrified and non-signalled. The 495 km rail stretch between Erzincan and Kars which is in the same condition is due for rehabilitation between 2016 and 2023.

Figure 42: Turkey Railway Network



Furthermore, again due to the difference in rail gauge, goods have to be transhipped or the bogies changed at Sarakhs on the Iranian-Turkmen border. Allegedly freight to and from Kazakhstan, Uzbekistan and farther has to be transshipped again at the border-crossing points with Turkmenistan as, in spite of existing interchange agreements, none of these OSJD countries is keen on having its rolling stock (especially container platforms which are in great demand) used by its neighbours.

Last but not least, being an OTIF-member only, Turkish Customs recognise only the CIM rail consignment note (also used in Iran[124]) while Turkmenistan (as well as other Central Asian countries and Azerbaijan) only work with the OSJD SMGS form whereby it is needed to arrange a cost- and time-consuming change of these documents on the Iranian-Turkmen border.

This may explain why the block container train operations from Haydarpasa to Almaty and other Central Asian destinations launched in 2002 met no success so far and why road transport remains the preferred mode on this route which in fact consists of three corridors.

Table 20: Number of Turkish Truck Export Voyages beyond the Caspian Sea

								Change
Countries/Years	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2011/2005**
Kazakhstan	4,789	6,548	9,490	5,814	3,936	5,161	5,371	12.15%
Uzbekistan	3,028	2,899	4,381	4,537	3,973	4,013	4,769	57.50%
Kyrgyzstan	1,045	1,100	1,639	1,973	1,637	1,089	1,496	43.16%
Tajikistan	811	991	2,017	2,749	2,325	2,278	2,110	160.17%
Turkmenistan	4,884	5,690	7,002	11,752	21,542	24,947	27,995	473.20%
Afghanistan	2,264	1,364	1,762	1,580	2,715	3,175	3,484	53.89%
Pakistan	100	306	47	7	163	436	259	159.00%
Total	**16,921**	**18,898**	**26,338**	**28,412**	**36,291**	**41,099**	**45,484**	**168.80%**

Source: UND

[124] Iran is both OTIF and OSJD member.

Turkish trucks may reach Central Asia:

- By Ro-Ro from Zonguldak to Port Kavkaz or from Samsun to Novorossiysk and from there driving through Russia until the Russian-Kazakh border;
- Via the TRACECA Corridor through Georgia and Azerbaijan, then by ferry from Baku to Aktau or Turkmenbashi; and
- By driving through Iran into Turkmenistan.

Although considered better alternatives, driving the Russian or Iranian way is no easy task.

The Russian gate via Novorossiysk:

- Customs procedures at Novorossiysk include a systematic x-ray scan. Still, trucks – though in transit to destinations beyond Russia - may be/are searched (year-long – still ongoing - disputes between Russia and Turkey over permits - and issues of drug-smuggling from the Middle-East in Turkish trucks seemingly make them a preferred inspection target),
- Once the check is over, and if everything is found in good order, the Customs deliver a certificate of inspection but the officers having meantime stolen cargo from the truck during their search, the shortages result in cargo claims (whereby trucking companies routinely invite the insurance company to attend the unloading of the truck at final destination),
- Alternatively the unsearched truck goes and parks in a designated Customs' area near a one-stop-shop clearing place and Customs-organized gangs strip the truck while the driver is busy completing paper formalities,
- The painful implementation of the Customs Union (CU)[125] rules leads to requirements for additional documents which sometimes can't possibly be supplied (e.g. phyto-sanitary certificates for plastic pipes not meant for the transport of edible liquids or liquids of live consumption),
- (extra) bribing may help avoiding such inconveniences and reducing the resulting port transit delays which can amount up to seven days,
- Trucking companies have no other way than to make illegal payments to bypass unharmonized payload regulations between Russia and Central Asian countries,
- The good news is that, thanks to the CU, customs controls have been removed from the Russian-Kazakh border crossing points. This entails reduced facilitation payments and no waiting time on either side at the border posts of Troitsk-Kaïrak and Zahna-Zhol (Appendix IV).

In the past, Russia has repeatedly tried to limit the number of Turkish trucks so that Russian trucking companies could break in and become more involved in the land transportation segment of the logistics industry (in the 90s there were some 30,000 travels of Turkish trucks carrying goods to Central Asian countries via Russia[126], which represented a share of about 97%).

[125] Between Belarus, Russia and Kazakhstan, to be joined by Kyrgyzstan and Tajikistan.

[126] According to UND this figure was down to 9,000 in 2011.

In the early 2000s Russia attempted to change this situation by asking Turkish exporters to use their truck fleet and offering four passes for Turkish trucks in exchange for every Russian truck used, thus forcing Turkish transporters to find partner firms in Russia. This system was called a 'bonus system'.

In 2009 Russia decided to lift the bonus system and reduce the share of Turkish trucks to 75%. The percentage of Turkish trucks was further reduced to 70 in 2011 and 65 in 2012, while the share of Russian trucks increased to 35%.

Russia recently took a much tougher stance on the subject: Turkish trucks have been de facto prevented to transit to Kazakhstan over nearly 3 months in the spring/summer of 2012 on the grounds of slow bureaucratic processes. It seems this situation is repeating itself in 2013.

UND reported that, in order to avoid this problem, Turks have been using routes via Georgia and Azerbaijan to reach Central Asia, but this increases costs by an average of USD 3,000 per trip.

The 1.800 km Iranian road from Turkey to Turkmenistan

- In normal times there is a permanent queue at the Gurbulak/Bazargan Turkish-Iranian border post spanning over 10 - 15 km, or more, where trucks are stuck for a minimum of 3 days (increasing to 5 during snowy winters in this 1,625 m elevated place). However, the collapse of the Iranian Ryal currently prevents Iranian business placing orders in Turkey[127] and there is no queue anymore;
- The border is closed on Iranian celebration days;
- Truckers driving through Iran have to report to 5 designated police stations along the way;
- Roads in Iran are good (speeds of 110-120 km/h can be achieved) with a weight limitation of 40 t per truck + trailer. The official allowance of 23-24 t payload can be exceeded up to 25 t against some EUR 25 bribe. There is no axle weighing in Iran;
- The compulsory Carnet de Passage en Douane (passavant) and corresponding insurance delivered in Bazargan costs about EUR 700 per truck per trip for trucks in transit through Iran;
- Black money payments in Iran range from EUR 130 to 150 per truck per trip;
- Hazardous cargoes in transit are prohibited in Iran;
- There is a minimum 3-4 day waiting time at the Turkmen border; and

[127] Iron and steel products used by the construction industry ranked first in Turkish exports to Iran in 2011 (USD 481 M out of USD 3.590 M total exports).

Figure 43: Turkish Trucks Having Formed a 20-km Long Line as They Wait to Enter Iran from the Gurbulak Border Gate in this File Photo Taken on Sep. 26, 2011

Source: Today's Zaman

- Iran levies a fuel tax on Turkish (and other foreign) trucks calculated on the minimum amount of fuel the truck is likely to use and representing.

In addition the sanctions imposed on Iran make it now impossible to carry a number of cargoes (especially those proceeding from US and EU origins) through this country.

Summing up, it is clear that **TRACECA (particularly a MoS connection across the Caspian Sea) is becoming an always more attractive alternative**.

Yet, UND and Turkish users cite a number of priority issues to be addressed, e.g.:

- The insufficient number of transit permits granted by Azerbaijan (5,000 in 2010)[128];
- The quality of the ferry service through the Caspian; and
- The bad condition of the roads in the Atyrau-Aktau-Mangyshlak Oblasts entailing a lot of repairs to the trucks and trailers (especially in winter time)[129].

Cost, interestingly, is not considered as a major barrier. As a matter of fact trucking companies reckon that crossing the Caspian Sea (instead of driving through the Iranian or Russian corridors) they can save a 1,400 km drive and USD 600[130] fuel per trip from Turkey to Almaty and back. The main concern is rather the unpredictability of indirect costs and mostly:

- The amount of illegal payments to be made in the various transit countries (except Georgia where such practices have been eradicated); and
- The number of idle days in ports waiting for space on board of the ferries and departure.

Meanwhile such expenses can more or less be 'budgeted' for the Russian and Iranian corridors.

[128] This matter has been meantime solved and Azerbaijan now grants up to 25,000 transit permits for Turkish trucks.

[129] Meantime addressed through the ongoing road rehabilitation projects launched by the GoK

[130] Based on 2010 fuel prices

All the same, statistics reflect the increasing difficulties Turkish (and other) truckers face when driving and their growing interest for the TRACECA corridor:

It is now the duty of the involved stakeholders in Azerbaijan, Kazakhstan and Turkmenistan to work out all necessary conditions in order to turn this attractiveness 'by default' into a positively keen interest of trucking companies in using TRACECA. Comparing the figures contained in tables 17 and 18 show there is a considerable, as yet untapped, potential.

Table 21: Number of Turkish Trucks Having Used the CASPAR Ferry Service to Cross the Caspian Sea

Years	2009	2010	2011	2012
				(10 months)
To:				
Aktau			382	981
Turkmenbashi			283	1,971
Total	**917**	**728**	**665**	**2,952**

Source: UND

3.8 Ukraine

3.8.1 Historical Context and Legislative Developments

Ukraine has the most developed port system but faces probably the most difficult challenges of all TRACECA maritime countries.

All 18 Ukrainian sea commercial ports are state-owned and perform a number of cargo-handling and other business operations.

However, the quick development of container trade and need for large investments in equipment and berths during the pre-crisis period, spurred some port administrations to conclude agreements with private operators and shipping lines enabling them to take port land on lease, invest in container terminals and run them, e.g. Hamburg Port Consulting Ukraine (HPC/Odessa), CMA-CGM (Brooklyn-Kiev/Odessa), Trans Invest Service (TIS) in Yuzhniy port region, NCC (National Container Company/Moscow) through Ukrtranscontainer (UTK) at the port of Iliychevsk.

Figure 44: Sea Ports of Ukraine

Nevertheless, in the absence of a clear legal framework for the privatisation of port operations and property rights of infra-/super-structure built by private investors, most of these agreements, at one time or another, brought about serious claims, legal proceedings and lawsuits.

Eventually, on the 17th of May 2012, the Verkhovna Rada (the Parliament of Ukraine) adopted the law 'On Sea Ports of Ukraine', which introduced deep changes to the laws pertaining to legal status, land and property relations in Ukrainian sea ports. It was officially published on the 13th of June 2012 and became effective 12 months later.

The main, and most interesting, provisions can be summed up as follows:

(1) the Law divides between administrative functions (e.g. procurement of and control over seafaring safety, levying of port charges, etc.) and business activity in sea ports. Administrative functions will be vested with the Administration and the sea port's captain office while business activity will be carried by commercial state companies and/or private investors;

(2) it provides for the exhaustive list of specialised services that will be rendered exclusively by state companies and agencies (e.g. search-and-rescue, maintenance of port water area, navigation and cartographical support, safeguarding of vessels, etc.);

(3) more importantly, the Law recognises the right of private investors to lease port infrastructure facilities, including berths, which to this point remained officially prohibited;

(4) a legal regime is established for lands of sea ports split between sea transport, industry and water fund lands. Any artificially made grounds on the sea port territories are attributed to the water fund lands and the Law, as a rule, cancels ban for their lease;

(5) the Law guarantees private property rights to berths built by private investors before the implementation date further enabling private investors to build new private berths onwards;

(6) state-owned berths can be leased or granted as a concession for a term of up to 49 years, and given their status as strategic objects of port's infrastructure, they cannot be privatised;

(7) from the implementation date, any newly constructed berths where the construction is financed by private sources will be considered to be privately owned[131];

(8) the Law provides for the possibility to privatise port infrastructure and defines the corresponding applicable procedure. So-called strategic port infrastructure facilities (i.e. water area, hydrotechnical structures, common use infrastructure such as rail and motor driveways, communication lines, heat, gas, water and power supply facilities, navigation equipment and data and traffic control systems) are banned from this process;

(11) compensation is guaranteed to private investors for any investments made in strategic port infrastructure facilities;

(12) it is stipulated that berthing dues shall be payable to the berth's owner or lessee, as applicable;

(13) the termination before the stated maturity date of any agreements with private investors in respect of any port infrastructure made before the implementation date is strictly prohibited.

Another crucial step forward has been made: following their addition to The List of Concession Objects by the Cabinet of Ministers in the Resolution 1055 of the 24th of November 2012, operations for all the 18 state-owned sea ports are now theoretically available for concession, which was impossible before this Resolution was adopted.

The MOI is authorised to adopt decisions on transfer of the Ports through a concession. In order to ensure the inclusion of specific obligations for concessionaires in the tender conditions the CMU stipulated that relevant concession tenders as well as concession agreements be jointly developed by the MOI together with the Ministry of Economic Development and Trade and the Ministry of Finance. Among other things, the Resolution envisages that the pre-existing liabilities of the Ports relating to the assets which are subject to the concession (including liabilities arising from loans) shall be transferred to the concessionaire. The procedure for the transfer of such liabilities has to be specified in the concession tender documentation.

While it remains to be seen how all this will work out in practice in a country that has not, so far, set a brilliant record of transparency and effectiveness in implementing reforms, it must be noted that the long-awaited law 'On Sea Ports of Ukraine' contains most of the ingredients necessary for moving the Ukrainian port industry into modernity[132].

Indeed the port and shipping sector in Ukraine remains largely plagued by concepts, features, and even rules inherited from the Soviet times.

A – Centralisation

Until now key decisions regarding ports are made exclusively by the MOI in Kiev, port managements being given only a consulting role in the process. One reason for this may be that ports, as well as many other branches of the economic activity which fall under the total control of the State, such as the Customs and Ukrzaliznytsia, are regarded as net contributors to the State budget rather than economic tools for the sustainable development of the country.

Another reason is the mistrust of the central administration for port employees (whether from the public or private sectors and whatever their rank) deemed hard to control and always ready and keen to strike unclear/under-the-table deals. This is no Ukrainian idiosyncrasy: the same can be

[131] The 19.3-ha extension of HPC Odessa Terminal at the Quarantine Mole (now near completion) will serve as a test for the application of this provision as well as those reported under (4) and (5) above.

[132] It also gives the industry better tools and means to cope with the increasing competition of its near (Russia, Romania) and not-so-near (Poland, Italian Adriatic) neighbours as will be analysed further down in this report.

observed in other such administrations around the world, including in Western Europe. In the case of Ukraine however, this attitude may have hardened with the innumerable scandals for corruption, tax-evasion, embezzlement of hundreds of millions of dollars of public funds and assets and resounding lawsuits involving both prominent and rank-and-file figures from the Ukrainian shipping spheres ever since the country became independent.

B – Planning

Port managements are required to fulfil a yearly plan in terms of tonnage handled and revenue collected. In principle drawing such plans at a national level seems reasonable and is a common practice elsewhere in the world.

It has become patent during the present economic crisis that the pure Soviet-style tendency to impose year-on-year better/increased figures to the port managements are not supported by sound macro-economic analysis, do not match the reality and therefore cannot possibly be achieved.

As noted already by the WB in 2010[133]: 'The current planning system applied in Ministry of Transport and Communications (MoTC) deals with sub-optimization and individual projects rather than overall system efficiency…. As a result, the governance structure in the transport sector is characterized by micromanagement of … ports, and other state entities … subordinated to the MoTC. This approach does not allow market-driven potential to develop, regardless of the form of ownership'.

Several other causes contribute to this poor outcome.

C – Port Tariffs

The pricing system for fees payable by shipowners for the maritime services provided to their vessels by the personnel and technical means and equipment[134] of the ports[135] and other, specialised state-owned companies (anchorage, towage, pilotage, wharfage, tonnage, quay, lighthouse, sanitary dues, VTMS, etc.), summing up what shipping lines use to call a vessel disbursement account (D/A), is still the one set during the Soviet era, based on the volume of the vessel[136] calculated in cubic meters.

Although not the simplest, and a rather antiquated method[137], it would not be questionable if corresponding applicable rates per cubic meter were not unilaterally set by the MOI[138], regardless of any other (and especially commercial) consideration, at levels, supposedly

[133] Ukraine Trade and Transit Facilitation Study

[134] In the EU these services have been much liberalised. Today such services as pilotage are still monitored by public authorities (in Hamburg for instance by the Municipality) whose main task is to ensure the service rendered meets all possible requirements (safety and security, environment, qualification and training of staff, technological means employed) and is to the satisfaction of the users and to regulate tariff levels. However the actual suppliers very often are private companies.

[135] Excluding therefore services provided by the ports or terminal operators for loading or discharging cargo on board of the vessel, forming the "stevedoring expenses".

[136] Length overall x Breadth x Minimum Depth (calculated from the weather / upper deck to the keel).

[137] Most ports now work on the basis of GRT/NRT.

[138] Merchant Shipping Code of Ukraine, Section IV, Chapter 1, Clause 84 "Port dues in the sea port shall be levied by the following classification: vessels, channel, anchorage, berth, lighthouse, cargo, sanitary, administrative. The other forms of port dues may be introduced by the legislative acts of Ukraine. The amount of port dues shall be determined by the Government of Ukraine".

appropriate, to fill in the State budget, as per plan[139]. A number of so-called ecological, radiological and other fees (or rather taxes, since they correspond to zero service) and overtime surcharges must also be added on. As a result Ukrainian ports are reportedly the most expensive in the Black Sea and among the most expensive in the world in terms of D/As[140] (Appendix V).

As far as container trade is concerned, this is a very serious problem: container vessels, which call at one port/terminal only in all other Black Sea ports, have, for reasons which will be explained later on in this report, to make a double call in Ukraine, one at Odessa and one at Iliychevsk (to discharge and load at both ports, on average, about the same total volume of containers as at other single foreign ports). This means shipowners have to settle 2 D/As (instead of one only) and also that vessels are spending in actual fact double the time in Ukrainian ports than in other Black Sea ports. On the basis of the figures presented in Appendix IV and of the average daily cost for the type of vessel considered, the overall cost of the Ukrainian part of the voyage is 135 - 140% higher than, for instance, the Romanian part.

The decision of MSC, number 2 container shipping line in the world, to suspend its direct service from the Far-East and send only feeder vessels from Istanbul to Ukrainian resulted directly from the sharp drop in the cargo volumes at the beginning of the GFC combined with this over-pricing situation.

While Iliychevsk had been developed in Soviet times as the main container port in Ukraine, by the turn of the century Odessa was on a par with Iliychevsk as a container port[141] and has taken the leading position during these recent crisis years.

This means that as of today, the most active container terminals of Ukraine are those situated in the heart of the congested city of Odessa with no other possibility for expansion than reclaiming land from sea (as HPC Ukraine is carrying out at the moment), and very limited road accesses (the main one being a 2-lane 6.4 km road constructed between 1996 and 2009 at a cost of USD 109 M and including a 516 m long, 54 m high flyover from the port to the Euroterminal dry port as shown on the map in the figure 38).

The worst, already noted, outcome, is the obligation made to container ships to call at both Odessa and Iliychevsk: over the course of time, there has been some kind of division of the market between the ‘clean’ trade supposed to move via Odessa with a, reportedly, rather transparent Customs process and the ‘grey’ or ‘black’ one handled at Iliychevsk where the reading of the Customs rules and Code is said to be significantly different. The Iliychevsk import container flow mainly feeds the huge[142], notorious outdoor ‘Seventh-Kilometre’ market.

[139] More simply rates, since 1991, have been increased more or less whenever “necessary”.

[140] Although enjoying some discounts, regular shipping lines stated in 2010 that, worldwide, only Japanese ports are more expensive.

[141] And called in 2001 on world reknown specialist HHLA to form a company (HPC Ukraine) to manage the container terminal.

[142] The 7-km market, nearly entirely made of shipping containers stacked two high in rows, is thought to be the biggest of its kind in Europe with pre-crisis sales deemed in excess of USD 20 M a day.

Table 22: Container Traffic at Odessa and Iliychevsk[143]

Year	TEU	
	Odessa	Iliychevsk
1996	64,611	
1997	51,520	
1998	47,321	
1999	49,780	
2000	69,487	
2001	75,606	79,000
2002	111,175	103,000
2003	158,870	152,000
2004	201,428	197,000
2005	288,349	291,000
2006	395,564	324,000
2007	523,881	523,766
2008	572,142	670,556
2009	255,461	256,825
2010	351,568	301,508
2011	455,552	298,750
2012	463,088	257,544*

*Including Fishing Port

It may prove extremely difficult to reverse a situation deriving from the strategic vacuum mentioned above and the consequent absence of definition of a Master Plan for the development of the Ukrainian port system.

This historical blank has had further negative consequences:

a) The Soviet system did not favour port specialisation and Ukrainian ports so far retain this 'old' multi-function pattern which has been dropped long ago in other countries, especially in the EU, to tackle environmental and human safety problems as well as to streamline certain industrial operations or logistics processes, reduce their costs and improve their efficiency (Odessa for instance, apart from containers, handles as well crude and refined oil and oil products as well as liquefied gas, a variety of solid and liquid bulk commodities and also steel and other break-bulk products[144])[145].

[143] Container volumes handled at Odessa and Iliychevsk in 2012 represented 94.66% of the total volume handled at all Ukrainian ports. The only two other ports with a significant container traffic are TIS Yuzhniy (also located in the Odessa Region) having hamndled 30,66- TEU in 2012 and Mariupol, the main port of the Donbass Region in the Azov Sea, which handled 10,006 .

[144] Vegetable oil, fats, iron and manganese ore, pig iron, grain and other cereals, raw sugar, temperature-controlled perishable products including fish and seafood, technical oil, etc.

[145] The same applies to practically all other ports in the ex-Socialist republics of TRACECA, including Romania and Bulgaria.

This long-pending issue has finally been addressed. On the basis of a draft strategy for the development of Ukrainian sea ports prepared by the MOI in March this year, the CMU took the Decree number 548 dated 11 July 2013 which stipulates the following:

- Odessa and Feodosya (in Crimea) are appointed as ports specialized in crude oil and oil product handling,
- Yuzhniy is selected for handling chemicals in bulk,
- Industrial commodities (iron ore, coal, ferrous metals) will be handled at Odessa, Mariupol, Iliychevsk, Kerch and Yuzhniy,
- grain and other cereals as well as containerized cargoes will be handled at Odessa and Iliychevsk,
- passenger traffic, tourism and service to cruise ships will be in Odessa, Sevastopol and Yalta.

Even though the criteria retained to determine the speciality of each port and the distribution of traffics may be disputable, this altogether modest attempt is again a first step in the right direction. It should in particular help to avoid the mushrooming of similar facilities located close to each other on the Ukrainian shores, fiercely competing for the very same cargo-flows. It also has the further merit to empower the 'Ukrainian Sea Ports Authority', the new state enterprise created in the wake of the law 'On Sea Ports' with one of its main duties, i.e. strategic planning and assessment of investment projects.

b) In the pre-crisis years the Ukrainian economy experienced a rapid growth and foreign and national private investors, anticipating a further increase in sea borne trade, were willing to invest into port infrastructures. A number of new container terminal projects were designed. Some came to fruition such as the 200,000 TEU CMA-CGM Brooklyn-Kiev Terminal at Odessa, launched in October 2008 or the 430,000 TEU TIS Yuzhniy which started operating in November 2011 while others were slowed down such as the 1,000,000 TEU terminal at the Iliychevsk Fishing Port or put on hold due to the GFC.

Regretfully, the Ukrainian authorities neither involved themselves strongly nor sought to coordinate or monitor these plans.

It was clear, however, that certain assumptions supporting these projects were altogether wrong: most of the plans relied partly on a steady growth of the Ukrainian market and partly (and sometimes mainly) also on the development of transit container flows via Ukraine into neighbouring countries (first and foremost Russia) and to other Black Sea ports in transshipment via Ukrainian ports.

Leaving alone the many administrative barriers and high port-transit costs[146], which today still prevent cargo moving smoothly via the ports and the territory of Ukraine from or towards third countries, a closer reading of Russian politics proved that after the Orange Revolution in 2004, a plan was developed to repatriate Russian cargo flows moving via foreign ports (especially Ukrainian but also Baltic ones[147]) into Russian ports.

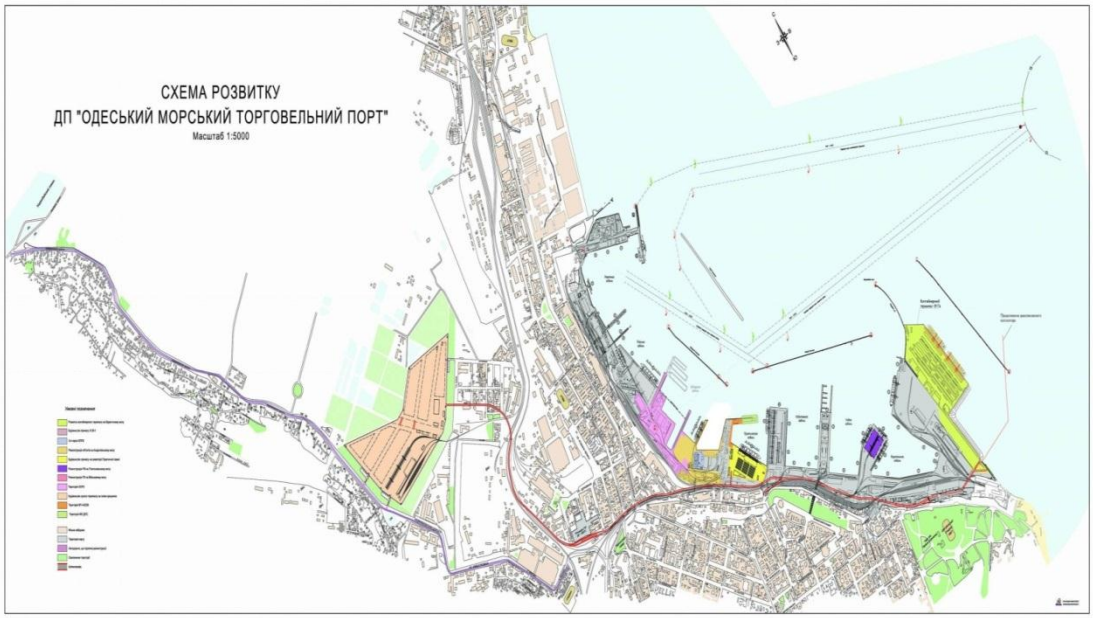
This started to be implemented with the revamping of the port of Kavkaz on the Russian bank of the Kerch Strait and the opening, early 2009, of a direct rail-ferry line to Bulgaria first, then to

[146] For instance, at the beginning of 2013, the transshipment of coal, a major transit cargo, is reportedly USD 5/t more expensive in Yuzhniy than in Baltic ports.

[147] Baltic (EU) ports account for about 15% of Russian exports in tonnage (100 Mt out of 600 Mt).

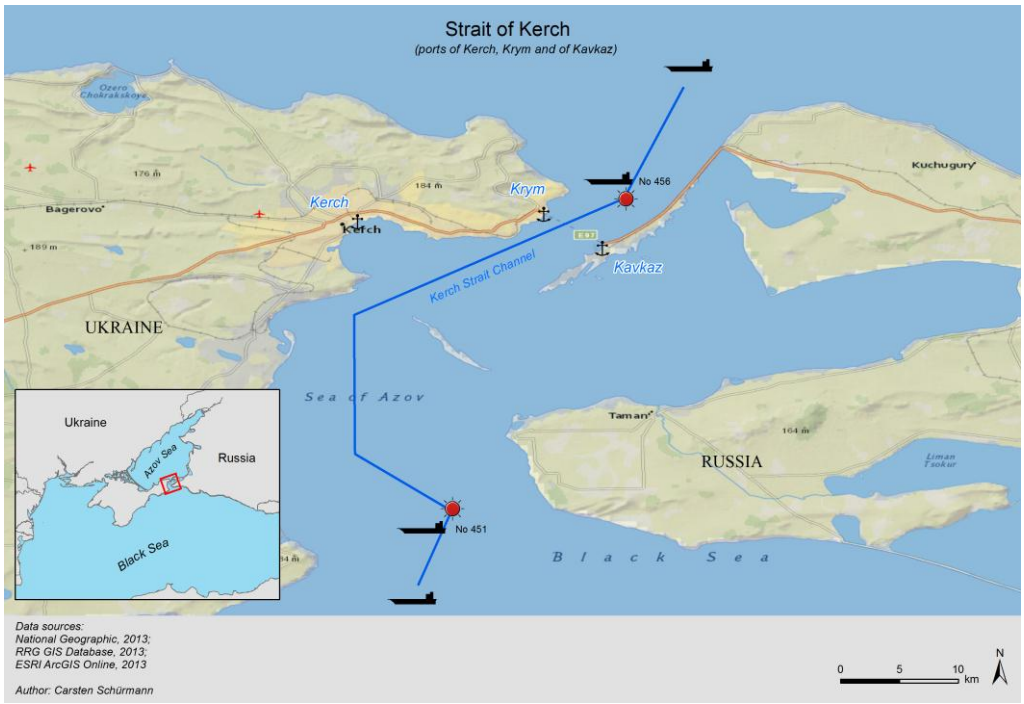
Georgia (and via Georgia to Russia's closest ally in the Caucasus, Armenia) in order to bypass Ukraine and the rail-ferry service provided by UkrFerry.

Figure 45: Odessa Port Development Plan



Source: Port of Odessa

Figure 46: The Strait of Kerch and Location of Port-Kavkaz



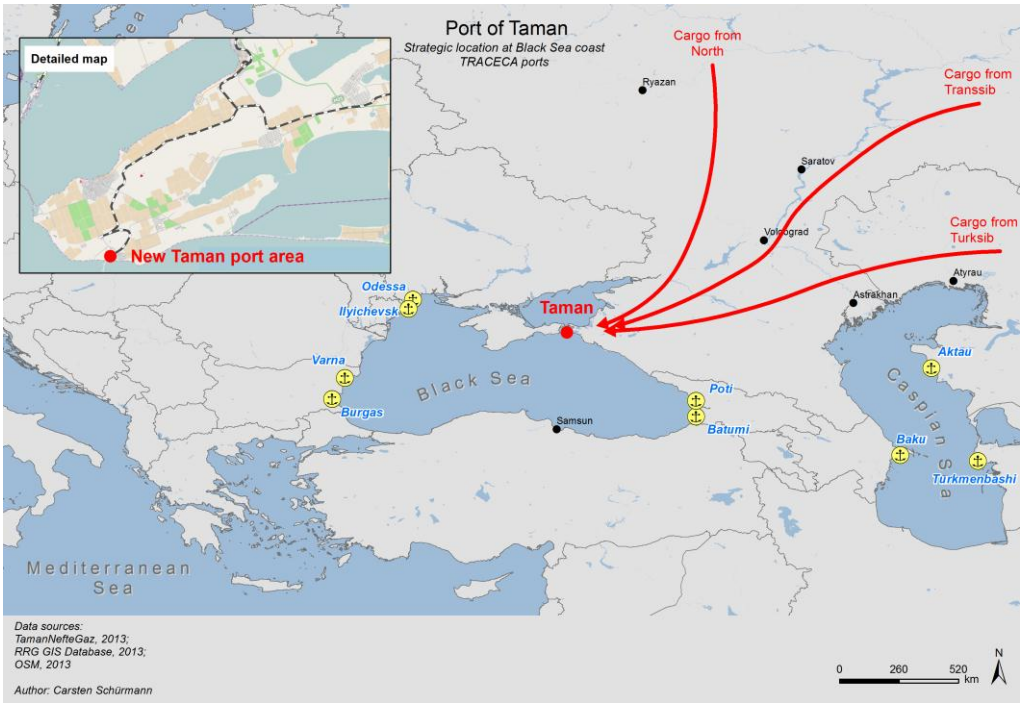
In August 2008, a further decision was made to build a major international cargo port in the same region, at Taman. The first phase is due for completion in 2015.

The plan of development of this new facility includes 10 terminals for various types of cargoes among them containers.

It seems reasonable to assume that cargoes from the Caspian Region and Central Asia (especially from Kazakhstan which is in a Customs Union with Russia) which move today via Ukrainian ports will also be attracted in the future to Taman. Indeed a separate plan, the government already allowed an unnamed private investor to build a smaller port near Taman to handle coal, primarily from Kazakhstan, and oil. In the port the EUR 1,125 bn oil terminal has already been completed.

Meantime RZD is taking steps to expand its rail network in the area in a bid to remove bottlenecks for the anticipated increase in the volume of cargoes.

Figure 47: Location of the Port of Taman



- The legal (Customs) framework of Ukraine, until very recently (2012), did not enable shipping lines to tranship containers easily via Ukrainian ports.
- Furthermore, the momentum had already been lost during the last pre-crisis years: the tremendous growth of the container trade into the Black Sea ports, mainly from the Far-East, had already led major container shipping lines to open direct services and avoid transshipment whenever possible (the greatest loser being the port of Constanza). From the double point of view of the quality of service to the client (shorter transit-time) and easier handling and stowage of containers on board it also seems more logical today to tranship at one of the Turkish ports in the Marmara Sea (where all these direct services anyway call en route before entering into the Black Sea) than in a Black Sea port (moreover Ukrainian ports are not always the first ports of call in the Black Sea).
- Failing to carry out a timely analysis and streamline plans and projects of investments into new infrastructure has led to hundreds of millions of dollars being spent in building terminals which, in the present economic crisis, remain empty.
- One appalling consequence of this situation is to exacerbate an unhealthy fight between Ukrainian ports and terminals (as well as between Ukrainian and foreign neighbouring ports) to try and snatch clients/traffics from each other.

c) In the absence of a clear political direction, of a Master Plan and of financial means, there is a marked lack of public interest and support for secondary sea and river ports which survive

with varying success or slowly die drafting, in a last attempt to attract investors, totally unrealistic plans of development. Ukraine has inherited from USSR a port system which is already proving over-sized (on the Danube for instance) and may increasingly prove so (from what has been said of Russian port policy above). Faltering cargo flows and mounting financial difficulties already triggered serious social problems at Reni and Iliychevsk. Addressing such issues will probably compel the Government to decide where to concentrate its efforts and resources and therefore to determine priorities. At any rate making clear choices represents an essential prerequisite for the definition of a sustainable plan of development of the port system of Ukraine. It must be remembered that EU countries with long coastal lines (UK, France, Spain, Italy) went through this difficult process a few decades ago and, in the course of time, rather successfully mitigated the usually painful social consequences attached to these policies by a greater specialisation of their ports and by fostering the development of new activities through tax and other incentives.

In conclusion to this subject, it is only fair to mention that the political strife which has torn the country apart for the past ten years and the fact the economic actors and public organisations (the port managements, the Customs Service, the MOI) have (among many others) been constantly regarded as trumps or stakes by the various political parties in their fight for power, have not represented a satisfactory environment for the development of a consistent and stable port and shipping national policy. The new law on sea ports may, if implemented fully and fairly with the accompanying political will, represent a first step and a chance to bring this sector back on track and contemplate a global reform of the roles, duties and responsibilities of each key player, including the private sector.

3.8.2 Waterborne Traffic and Trends

Traffic through Ukrainian river and sea ports evolved as follows over the past 5 years:

2008 182.4 Mt

2009 162.0 Mt

2010 154.4 Mt

2011 161.6 Mt

2012 160.64 Mt

The total volume handled seems to be stabilising albeit well below pre-crisis tonnages.

In 2012 the trade split of the 153.967 Mt handled at the 18 public and at the private seaports and 6.674 Mt at river ports was as follows:

98.257 Mt export – 16.849 Mt import – 38.783 Mt transit – 6.752 Mt cabotage[148].

Bulk commodities (coal, coke, iron and other ores, chemical and mineral fertilizers, sugar, grain and other cereals) represent the core traffic (60% – 96.901 Mt in 2011).

China (15.7 Mt in 2011) and Turkey (11.3 Mt) are the first export destinations, while transit cargoes proceed mainly from Russia and Kazakhstan.

An important trend is the downturn in transit cargo flows (from 69,764 Mt in 2007 to an historic low of below 39 Mt in 2012), which in actual fact started well before the GFC as shown in Table 24 and can be mainly attributed to the regular losses in the volume of Russian goods in transit as shown in Table 23.

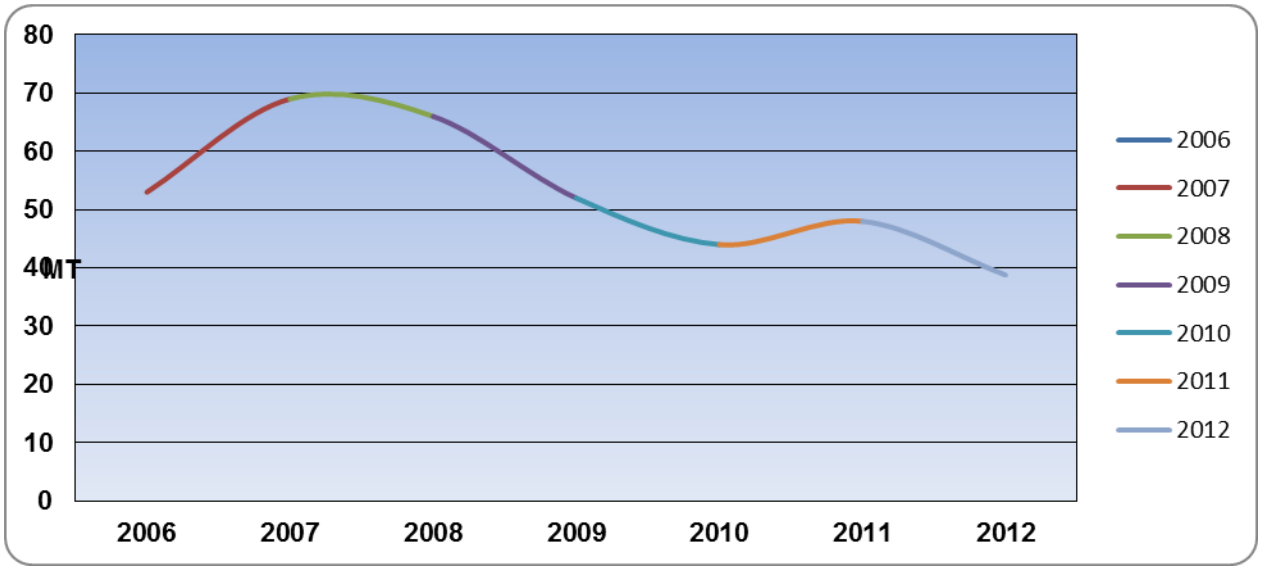
[148] Out of which 4.908 Mt (72.7%) via inland water ways/between river ports.

Table 23: Russian Cargo Traffic in Million Tonnes

Via	2007	2008	2009	2010	2011
Baltic ports	64,4	71,9	63,6	62,3	69,6
Ukrainian ports	**52,4**	**44,6**	**37,2**	**28,1**	**28,6**
Russian ports	449,7	454,6	496,4	489,6	503,8
Total	**566,5**	**571,1**	**597,2**	**580,0**	**602,1**

The figures in Table 23 further show that the traffic via Russian ports increased by over 50 Mt between 2007 and 2011, while Russian cargoes in transit via the Baltic State ports, after a drop in 2009-2010, practically recovered to pre-crisis levels (about 70 Mt) in 2011. This once again demonstrates that Russia pursues a long-term policy aiming at bypassing Ukrainian ports which, in all probability, will result in a further decrease in the overall transit tonnage handled by Ukrainian ports.

Table 24: Transit Cargo-Flows via Ukrainian Ports



As already noted this trend is gradually expanding to countries which are in the Customs Union beside Russia, first and foremost Kazakhstan. Simplified customs procedures have been introduced to attract Customs Union export cargo-flows to Russian ports while a uniform tariff has been introduced in 2013 for the carriage of goods by rail within the Customs Union.

Provisional figures for the period January to July 2013 show for instance that the cargo turnover of Odessa, in spite of the significant increase in container trade (+23 %) and other traffics, decreased altogether by 19.4% compared with the first 7 months of 2012. The sharpest drop was in the liquid bulk segment (2.328 Mt handled in 2013 versus 4.907 in 2012) owing to the diversion of Kazakh oil exports to Russian Black Sea ports.

The MOI is convening round-tables and setting up working groups regularly to address this crucial issue but has obviously no leverage on a situation which chiefly depends on political factors.

With a tonnage in excess of 88 Mt (exports: 44.990 Mt - imports 12.396 Mt - transit 30.464 Mt - cabotage 0.159 Mt) the multi-port-system of Odessa Region (Iliychevsk, Odessa, Yuzhniy) accounted for a large majority of the total trade volumes by sea in 2011.

However, since there was no port specialisation, the three above-mentioned ports, located within a total distance of less than 80 km along the Black Sea coast, competed with each other for market shares.

Apart from the above-named ports and river ports described in other specific LOGMOS reports, the other seaports relevant to LOGMOS, at present, are:

- The comparatively small and shallow ports of Skadovsk and Yevpatoria in Crimea where Turkish and Russian shipping companies ply regular Ro-Ro services to the 316-mile distant Turkish Black Sea port of Zonguldak[149];
- The already-mentioned, much under-used, Yuzhniy TIS Container Terminal[150] where Maersk started calling at in November 2011 with its ECUMED WCSA service for discharging reefer (fruit) cargoes[151] and where TIS plans the building of a logistics/cold storage centre; and
- Kherson, which enjoys a favourable geographical location at 15 km from the mouth of the river Dnepr. The port has a 5 Mt design capacity and handles on average about 3 Mt per year of bulk commodities and break-bulk cargoes. No regular lines call so far at Kherson. However 40% of the (mostly export) port traffic consists in cereals and another 40% in mineral fertilizers and chemicals, which are delivered in bulk by rail and packed/bagged in the port. Both these types of cargoes could be easily containerised in the future. Various competing, and seemingly oversized, projects aim at turning the port in a major hub for container trade along the Dnepr.

3.8.3 Container Traffic

As already seen the container trade has been almost monopolised by Iliychevsk and Odessa.

Ukrainian global container flows grew steadily up to 1,253,928 TEU in 2008 then collapsed in 2009 (the volumes dropped by over 50%) and although globally recovering since then were still 39% lower in 2012 (761,298 TEU) than in 2008[152].

While containerised traffic represents barely over 20% of the volume handled at Iliychevsk and Odessa, its share in the country sea-borne trade remains modest at less than 5%.

The same applies with Ro-Ro (rolling cargo, cars, TIR trucks) and rail-ferry traffics. However, the quick growth of the Ro-Ro traffic, boosted by the adoption and implementation by governmental agencies (the Customs House in particular) of procedures adapted to the peculiarities of this type of transport, deserves to be highlighted (Appendix VI).

It must also be taken into consideration that until very recently both container and rail-ferry traffics have been heavily impacted by external factors completely out of port authorities' and shipping operators' reach and control.

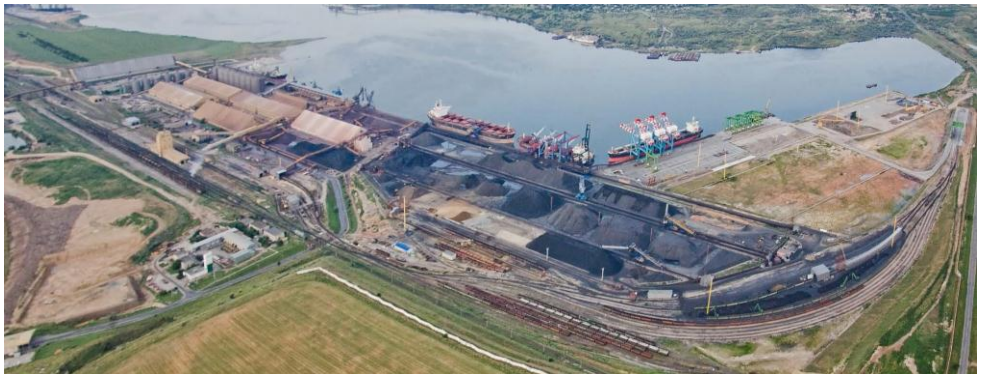
[149] Skadovsk can handle about 7,200 TIR trucks per year while Yevpatoria can process 10,000.

[150] Contrary to the rest of the port of Yuzhniy which is state-controlled, the TIS Yuzhniy facility is an entirely private venture. TIS throughput reached 30,660 TEU in 2012 and achieved (through empty repositioning) an export/import full ratio of 1.05.

[151] Since mid-2012 MSC is buying slots on this service.

[152] In actual facts container traffic decreased by 1,43% I 2012 compared with 2011.

Figure 48: TIS Yuzhniy Aerial View



Source: TIS

Specific Features of the Ukrainian Container Market

Until the new Customs Code was enacted mid-2012 frequent changes in the reading and application of the Customs Code and rules by the Customs under financially-motivated political pressure reportedly caused the diversion of significant container volumes to other ports outside of Ukraine (roughly estimated at some 120,000 TEU or 30% of the total Ukrainian import volume in 2011. More refined studies presented in September 2013 by consulting and private equity firm. Informally BG show that Ukrainian ports lost 51,370 TEU in 2012 (both full containers carried directly by trucks between Ukraine and foreign ports and goods unstuffed from containers and then carried by trucks from foreign ports to Ukraine or vice-versa), i.e. 9.73 % of the total volume of laden containers they handled (12.6 % of laden import and 3.7 % of laden export). The forecast for 2013 is a total loss of 71,700 laden TEU).

Some users hold that the Government has been trying to limit imports with a view to reduce the country trade deficit and the Customs has accordingly been instructed to delay import clearance procedures. Others mention that when the Customs performed its monthly planned contribution to the State-budget ahead of schedule, and in order to keep some financial 'airbag' for the next month, it uses any possible excuse to delay the 'excess' container import clearances till the next month. For many years huge and sudden increases in import customs duties and taxes (not to mention, acts of intimidation) have also been used as leverage on imports or to fill in the State-budget in emergency[153].

Whilst acknowledging that the new Customs Code is bringing a lot of improvements, the transport industry points out that it contains a number of controversial provisions and some of the approaches to customs procedures have an explicit adverse effect on business. A detailed analysis of the pros and cons of the Code is not the subject of the present report. It is worth noting however that the customs procedure established by the Code for the treatment of abandoned cargo (goods which remain unclaimed 90 days after the date of discharge) is far from being satisfactory and will certainly need to be reviewed. This is a matter which, in the past, has periodically entailed huge operational problems for the terminal operators and shipping lines at Ukrainian ports[154].

[153] In 2010 for instance the duties on iron nails and screws from China were doubled overnight and consignees which had (dozens of) containers "on the water" at the time the decision was made, simply abandoned the cargo upon its arrival at Odessa.

[154] Containers remain stored on areas for which the terminal operators – whether through concession or otherwise - pay a rent to the port without collecting any storage fees and shipping lines have boxes which they own or lease unavailable, sometimes for years.

The key issue rests not so much with the provisions of the new law but, as usual, with the way it will be implemented.

Obviously the string of unpredictable and damageable actions described above carried out over many years gravely tarnished the reputation and image of the ports with Ukrainian and foreign traders who have been looking for alternatives.

This has resulted in the definite loss of some containerised traffic, which have been re-routed while the corresponding supply chain has been totally changed[155].

Seemingly Ukrainian central Authorities have made the same error of judgment as many others have made before (including a few EU countries in the 80's) by taking it for granted that cargo for the country (Ukraine) shipped by sea would always necessarily be handled at the country's (Ukrainian) ports. While this assumption is to a very large extent correct as far as Ukrainian export cargo-flows are concerned, due to the nature of the goods and trade (large shipments of heavy commodities and semi-finished products of comparatively low merchant value), it proves totally wrong for the import containerised trade which usually consists of light medium or high-value consumer goods.

It would therefore be in the interest of Ukrainian ports and the MoI (and therefore of the Ukrainian economy) to benchmark their competitiveness (as private operators actually do) against ports, which are (or could become) their actual competitors on the main Ukrainian import trade routes[156].

To keep things as simple as possible, this comparative economic analysis should cover the port-to-door transit-times (which include the sea-voyage from the port of origin, the stay in the port of discharge and the overland trip from the port of discharge to the final inland destination), the transport cost and other direct and indirect cost factors.

Today's situation can be roughly summed up as follows:

- The main import sea route for Ukraine (as well as for all other European countries) is from East (China in the first place) to West;
- The biggest markets are located in the north of Europe so there is a much greater number of weekly liner services from the Far-East to northern European and Baltic ports than to Mediterranean or Black Sea ones and the vessels deployed are bigger and faster: for instance, the AE10 Maersk service Far-East to Europe connects Shanghai to Gdansk (12,994 nm) in exactly the same time (32 days) as their AE3[157] service to Black Sea from Shanghai to Odessa (9,674 nm) (see maps of routes and transit-times description in Appendix VII). Furthermore the vessels deployed on the

[155] As an example, SportMaster, a leading Russian sport dress and sport accessory retailer, which used Odessa as a logistics platform for the Ukrainian, Belorussian and Russian markets, left it after having had containers unreasonably held there by the Customs for up to 3 months. Boxes from the Far-East are now directed to Hamburg which has become their new distribution center.

[156] E.g. the MoI could gather on a regular basis the relevant information supplied by the various public and private industry players (port authorities, terminal operators, trucking companies, railways, shipping agents and freight forwarders, etc.), elaborate and disseminate the results back to the operators and convene round-tables/organise working groups to address issues of common interest while advising upper Governmental levels on measures deemed useful/necessary to keep Ukrainian ports performant.

[157] Jointly run with CMA-CGM.

AE10 have a capacity ranging between 13,000 and 15,500 TEU[158] while the vessels plying the AE3 service have only 6,500 on average[159];

- The difference in the freight from Far-East to Northern Europe and from Far-East to the Mediterranean/Black Sea hovers around only 300 USD/TEU;
- THC and port-transit costs in Gdansk[160], the Baltic port closest to the Ukrainian border, amount to about EUR 200 per container whereas they cost about the double (or more) at Ukrainian ports (2012 figures); and
- There is always a greater number of block container train operations across Europe improving the accessibility and shortening the travel times from various ports to central European locations via a number of rail hubs. This means traders and transport operators are less and less constrained to use specific routes and can choose the routings they deem most efficient and cost-effective for their operation regardless of any geographical logic.

One of the main hubs in Eastern Europe is the EuroTerminal in Slawków (28 km away from Katowice). It is connected to both the European gauge network and to the Russian gauge one through the single-track 'Broad Gauge Metallurgy Line' (better known by its Polish acronym 'LHS' for the 'Metallurgical-Sulphur Line') which runs over 400 km up to the Polish-Ukrainian border and allows via Yagodin and Kovel to reach Kiev (LISKI railway terminal), the biggest import and consumption area in Ukraine, at a distance of 893 km.

The Adriatic Train from Koper via Vienna calls at EuroTerminal once a week.

The transit-time is 38 hours. The Baltic Train runs to the Deepwater Container Terminal (DCT) Gdansk three times per week in 20 hours. Both these trains are operated by the European subsidiaries of Rail World Inc., Chicago.

- Obviously railing containers to Kiev from Koper (at 1,701 km) or Gdansk via Katowice (at 1,500 km) is probably three to four times more expensive than trucking them from Odessa (at 479 km). Likewise devanning 40' containers in Klaipeda to restuff the cargo in 100 cbm megatrailers or 120 cbm roadtrains driving to Kiev is certainly more expensive than trucking the same container from Odessa directly to the capital city of Ukraine.
- Travel-times are also definitely longer in both cases. The main issues, however, are neither the transport cost nor the travel-time (which from Koper, Gdansk and Klaipeda are fixed).

Real problems at Ukrainian ports stem from the unpredictability of the customs' clearance process in terms of:

- Illegal payments, which depend upon Customs' 'needs' and political factors as described above in this report; and
- Delays, which result in accrued container demurrage and port storage expenses and, more importantly, in considerable additional inventory costs.

[158] The AE10 was launched in 2010 with 8,000 TEU vessels.

[159] The Maersk 15,000 TEU "E-class" vessels could anyway not be deployed in the Black Sea due to the air draft limitation at 58 m under the bridges crossing the Bosphorus in Istanbul. It could also neither enter Ukrainian ports due to their 14.5 m draft nor be accomodated at any container terminal due to their 397 m length.

[160] All what is said about Gdansk applies also fully to the Lithuanian port of Klaipeda.

Figure 49: Adriatic and Baltic Trains Routes and Ongoing/Future Extensions

Major logistics service providers in Ukraine explain that their choice of the port of discharge and routing for import cargoes, especially for consumer goods which are the core of containerised trade, entirely depends upon this customs clearance issue: it is for instance much cheaper (legally and unofficially) to clear a high-volume truck (from Klaipeda as mentioned above) than 2 x 40' containers via any Ukrainian land or sea border-crossing point.

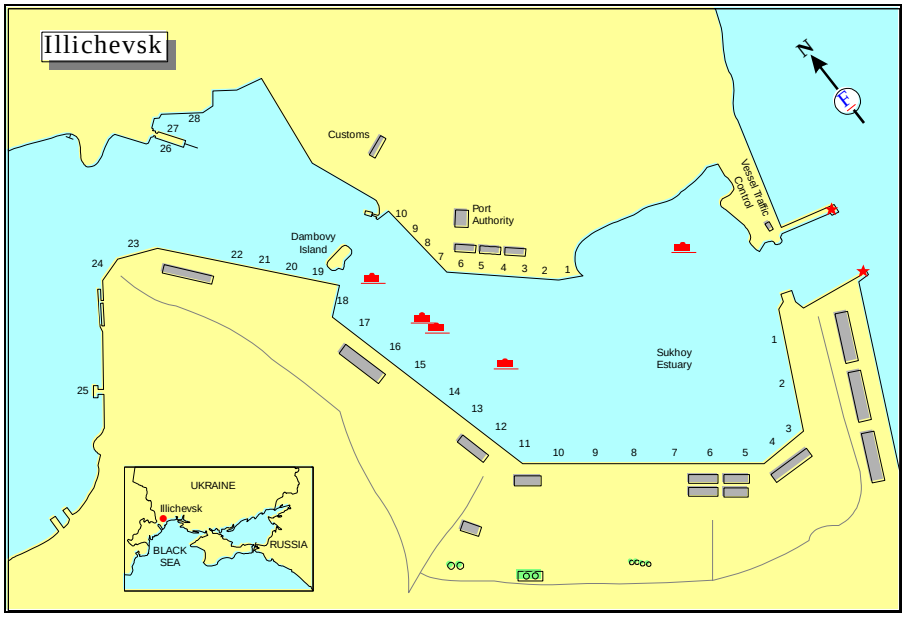
The new Customs Code of Ukraine implemented on the 1st of June 2012 addresses these issues as now customs clearance may be carried out across the customs territory of Ukraine, irrespective of the place of state registration of the party declaring goods (except as otherwise provided in the Code). This, and the fact that the focus on the regulation and supervision is globally shifted from the border points to Customs' post-audits, should (and is meant to) introduce a sort of competition between border posts and therefore contribute to a levelling/harmonisation of practices. In principle importing goods via foreign ports and a land border-crossing point should no longer be more profitable than importing them via a Ukrainian port. Much will depend on how the Customs Authorities actually implement the Code.

3.8.4 Main TRACECA Sea Ports

3.8.4.1 Iliychevsk

Iliychevsk Commercial Sea Port (IMTP) has a total combined rail-ferry and Ro-Ro yearly capacity of 4.5 Mt in wagons, 10,000 trucks and 250,000 passenger cars.

Figure 50: Port of Iliychevsk



The Ro-Ro traffic is steadily growing: in 2012 IMTP handled nearly 122,000 vehicles (12.65% more than in 2011) including 19,267 TIR trucks (66.57% more than in 2011[161]).

The current handling capacity of IMTP is 1,150,000 TEU; the storage capacity is 18,000 full TEU, 8,000 empty TEU and 606 reefer units.

Iliychevsk Sea Fishing Port (IMRP, a privately owned terminal on 40 ha) is carrying out up-grading/lengthening/dredging of its berths n.2, 3 and 4 at respectively 296,4 / 290 / 390 m long and 15 m draft. IMRP was planning a 1,000,000 TEU capacity terminal but may have put this project on hold due to the market situation. The present storage capacity at IMRP is 7,000 TEU and 300 reefer units.

With a total quay line of 6,000 m, 575,000 sqm of open storage area and 28,000 sqm of warehouses and thanks to its location in a rural, sparsely populated region the port of Iliychevsk has all possible and logical advantages to become one day the largest sea port in Ukraine.

IMTP is certified to the requirements of the ISO 14001:2004 Environmental management system, OHSAS 18001 for occupational health and safety management system, ISO 9001-2001 Quality management system and is compliant with the requirements of the ISPS Code.

[161] This promising result is largely attributable to the opening of the Stena Sea Line service from Haydarpasa.

Figure 51: Iliychevsk Berth n°28 and the Two Ro-Ro Cargo Storage Areas

Source: Port of Iliychevsk

Table 25: Berth Data

Terminal 1		Berth Length (m)	Max Draft (m)	Capacity TEU/year
Berth	**Vessel types**			
1	Containers (up to 6,000TEU)	306	13.0	300,000
3	Containers (up to 5,000TEU)	200	13.5	
4	Containers (up to 5,000TEU)	120	13.5	850,000
5	Containers (Feeder vessels)	155	13.0	
6	Containers (Feeder vessels)	181	13.0	
Terminal 3				
Berth				
26	Rail Combi ferry (Russian gauge)	210	9.6	
27	Rail Combi ferry (Russian gauge)	210	9.6	
28	Ro-Ro	270	9.6	
Fishing Port				
1	Containers	154	11	
2-3	Containers	240	11	

Maritime Services

Regular services calling at Iliychevsk include the following:

Rail-ferry

- UkrFerry-NaviBulgar joint service to/from Turkey, Bulgaria and Georgia (a)[162]

Ro-Ro and Car-Carriers

- Stena Sea Lines to Haydarpasa (pure TIR truck service) (a)
- Neptune to Turkey, Med (PCC, PCTC) (a)
- Cenk Group to Turkey (PCC) (a)

Containers

- CMA-Maersk Vessel Sharing Agreement (VSA) to/from Far-East[163] (b)
- COSCO, Wan-Hai, PIL, K-Line, Yang-Ming, CSCL VSA to/from Far-East (b)
- CMA feeder to other Black Sea ports, Mediterranean (a)
- Maersk feeder to Bulgaria, Mediterranean (a)
- MSC feeder to Turkey (a)

Figure 52: Iliychevsk Rail-Ferry Complex

Source: Port of Iliychevsk

Additionally, irregular/voyage-chartered vessels of different types (sea-river, general cargo, heavylift, etc.) load and discharge oversized/heavylift/project cargoes/construction material and other break-bulk cargoes which are carried from origin/to final destinations in Ukraine using the same hinterland connections as the regular lines.

[162] The service carries also trucks and containers.

[163] As from November 2012 Maersk deploys 8,000 TEU vessels in this service (instead of 6,500).

Intermodal Facilities

The port is served by two railway stations (Iliychevsk port station and Iliychevsk ferry station) and has six approach tracks.

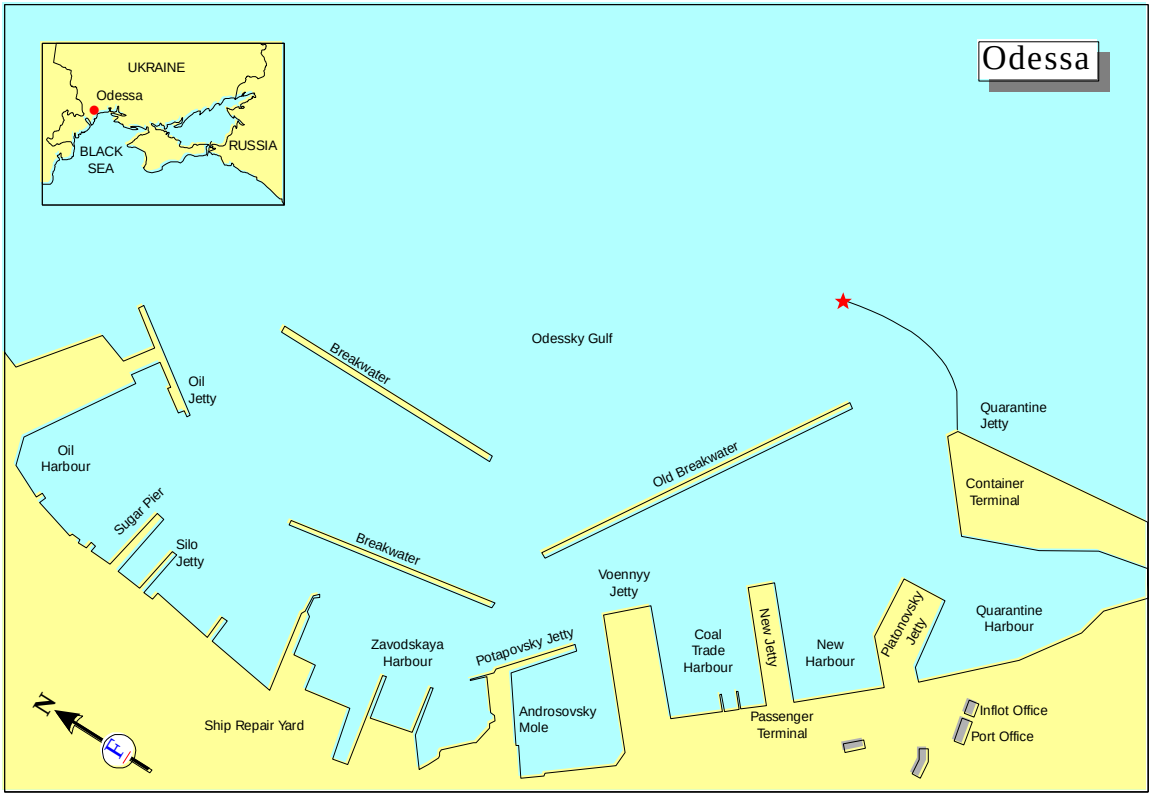
The overall handling capacity of the two rail stations equals 1,960 rail cars per day. It is considered to be well enough for the existing and prospective traffic.

As for road access, the sea port has 5 road entries, but their carrying capacity is restricted by existing access road infrastructure of Iliychevsk. In 2008 EBRD approved the funding for its rehabilitation. However, further works are needed to better connect the port and, in particular, the Ro-Ro terminal to the public road network.

3.8.4.2 Odessa

The port of Odessa is located in the heart of the 5th urban metropolis in Ukraine, which also stands as one of the country's main industrial and trade hub as well as one of the most popular touristic destination (Odessa has the largest Passenger Ship Terminal in Ukraine (and one of the largest in the Black Sea) with an annual capacity of 4 M Pax).

Figure 53: Port of Odessa



The 141-hectar port area is therefore landlocked. However a 50 hast land plot is available in the vicinity at the Dry Port EuroTerminal for shore activities and further development (Figure 38).

There is no rail-ferry bridge at Odessa and no regular Ro-Ro service although a Ro-Ro berth was set into operations at the end of 2009.

Following the independence of Ukraine in 1991, the ensuing economic crash and the collapse of the Ukrainian shipping sector the port management has developed an approach based on successful Western business models and has tried to implement it in Odessa to the best of their ability, with very scarce resources and often against the will and views of central Ukrainian authorities.

The efforts have focussed on the development of a close cooperation with the private sector in order to attract the investments of national and foreign operators into the port activities. One major beneficial achievement has been the transfer from American operator Ceres Terminal in July 2001 of the operation of the 14.5 ha container terminal at berth number 2 on the Quarantine Mole to German operator HPC under concession till 2044.

Odessa port is certified as per the requirements of the ISO 9001:2008 Quality management systems, ISO 14001:2004 Environmental protection management system and is compliant with the requirements of the ISPS Code.

Container Handling

The container terminals and yards are developing progressively. Several recent and future plans include:

- The Brooklyn-Kiev/CMA-CGM terminal launched in October 2008; and
- The extension of the Quarantine Mole facility by HPC

This is a very big infrastructure project with a budget in excess of USD 300 M partly financed by the International Finance Corporation (USD 34 M) and partly with a long-term loan USD 14 M granted in 2011 by HHLA long-time partner DEG[164].

Civil engineering work includes:

- the dredging of a 65 ha water area;
- the reclaiming of a territory of 19.3 ha[165;]
- the construction of a breakwater of 900 m length;
- the construction of a 450 m access road; and
- the building of 2 berths of a total length of 650 m at 15.0 m depth equipped with 6 container cranes. In April this year HPC already ordered three ship-to-shore cranes with an outreach of 54.5 m, a safe working load of 65 t under twin lift spreader and a lift height over rail of 41.5 metres capable of servicing vessels with up to 20 rows of containers.

[164] Deutsche Investitions und Entwicklungsgesellschaft mbH, a subsidiary of the German development bank KfW (Kreditanstalt für Wiederaufbau) belonging to the Federal Republic (80%) and States of Germany (20%).

[165] As noted earlier the question of the ownership of this land is under scrutiny by the several interested parties (HPC, Port of Odessa, Municipality, MoI, etc.)

Figure 54: Artist's View of the Quarantine Mole after the Completion of the Extension

Source: HPC Ukraine

The design capacity of this new terminal is 600,000 TEU and it will be able to accommodate vessels of up to 323 m LOA, 42.8 m width and 14 m laden draft. The construction should be completed by 2014 allowing HPC to expand its container handling capacities up to 1,300,000 TEU (four times more than the volume handled in 2011, 308,000 TEU).

In the near future, however, HPC sees this extension primarily as a way to alleviate congestion problems especially during the winter season when the Bosphorus Strait closes for days due to fog, several vessels cross together and then queue up for berthing. Further plans of development have been put on hold due to the current GFC.

Last but not least the HPC Quarantine Mole Terminal will provide 405 new jobs.

Figure 55: HPC Terminal at Odessa

Table 26: Berth Data

Container Terminal	Vessel types	Storage capacity	Berth Length (m)	Max Draft (m)	Capacity TEU/year
HPC terminal					
Berth					
2	Containers (up to 5,000 TEU)	13,500 TEU plus 400 reefer plugs	310	13.0	650,000
3	Containers (1,500-2,000 TEU)		230	11.8	
4	Containers (1,500-2,000 TEU)		270	11.5	
Brooklyn-Kiev terminal					
42	n/a	4,823 TEU plus 328 reefer plugs	225	13.5	200,000
43			255	13.5	

Ro-Ro Traffic

A small ferry terminal was used for a Ro-Pax line operated by UkrFerry to Istanbul. The service was suspended in 2010.

That same year the port planned to develop its Ro-Ro activities and a car-carrier called for the first time on February 2010 to discharge 630 Hyundai passenger cars from Turkey.

The first phase of a new Ro-Ro terminal has been completed in September 2010 and test calls have been performed. However few technical Customs issues remain to be solved allowing the vessel's call at Odessa not to exceed 6-8 hours and a regular service to Istanbul to start. The private operator of the Dry Port EuroTerminal (which can provide all necessary storage, parking, customs check areas at his BCP facilities few kilometres from the Ro-Ro ramp) is/was[166] a leading member of this project.

Maritime Services

Regular services calling at Odessa include the following:

Containers

- CMA-Maersk VSA to/from Far-East (b)
- G6 Alliance (American President Lines, Hapag-Lloyd, Hyundai Merchant Marine., Mitsui O.S.K. Lines, Nippon Yusen Kaisha, Orient Overseas Container Line) to/from Far-east (b)

[166] Reportedly Dry port EuroTerminal rejected being integrated in a single customs area with the port which would have made operations between the port and the Terminal easier and quicker for trucks as well as for containers. As a result of this unexpected "divorce" the port reportedly asked the city of Odessa to provide them with another 100 has of waste land presently used for dumping/filtering used waters to develop their own dry port facility.

- Evergeen to/from Far-east other Black Sea ports and Greece (b)
- CMA feeder to other Black Sea ports, Med (a)
- Maersk feeder to Bulgaria, Med (a)
- MSC feeder to Turkey (a)
- ZIM liner service to/from Far-East (b)
- Arkas liner+feeder services to Turkey and Med (a)
- Admiral Container Lines liner service to Russia, Turkey and Med (a)

Transshipment operations are picking up, thanks to the amendments brought to the legislative framework. Since March 2012 IMO cargoes[167] are also authorised for transshipment (operations with excise remain uneasy). CMA-CGM is thus far the only shipping line having performed transshipments at Odessa (about 10,000 TEU in 2012, mainly empty containers).

The prospects of development of this activity on a large scale remain however dubious.

Intermodal Facilities and Hinterland Connections

The port has one rail entry (720 rail cars per day), which is connected with the marshalling yard. Its railway station has almost exhausted its capacity (it is capable of handling 12 pairs of trains per day and now handles 10). At present, there is no option to expand the railway infrastructure or operations due to the lack of free space in or near the port.

Customers object to using the LISKI terminal at the Usatovo-1 railway station, which they find too far away from the port. This highlights the point that the services provided are of poor quality and the tariffs are not competitive.

Rail transport is further hampered by a number of heavy deficiencies:

- It is slow and definitely too slow for containerised trade in view of the comparatively short distances to be covered within Ukraine (it takes 24 hours to rail a container over the 479 km between Odessa and Kiev);
- Ukrzaliznytsia (UZ), the Ukrainian national railway company, does not have a good record as far as thefts of cargo from freight trains are concerned. Furthermore its liability is reportedly unclear and getting compensated is an issue. As a result, customers resort to rail carriage almost only when they have heavy containers and/or low-value goods;
- The often unpredictable length of customs clearance prevents customers ordering railway platforms in advance or in a timely manner. Conversely, it also prevents the operation of block trains by UZ;
- UZ (and its affiliate LISKI) are regarded as monopolists who do not take into account the requirements and requests of the port operators. Although terminals provide daily plans to the Port and the Odessa Port Railway Station, the supply of platforms is made somewhat at random, which generates additional moves of unneeded platforms and creates congestion on the Terminal rail tracks;
- This has been aggravated further since the so-called ‘privatisation’ of UZ rolling stock in 2011/2012. There are now 2 types of platforms circulating, i.e. the UZ

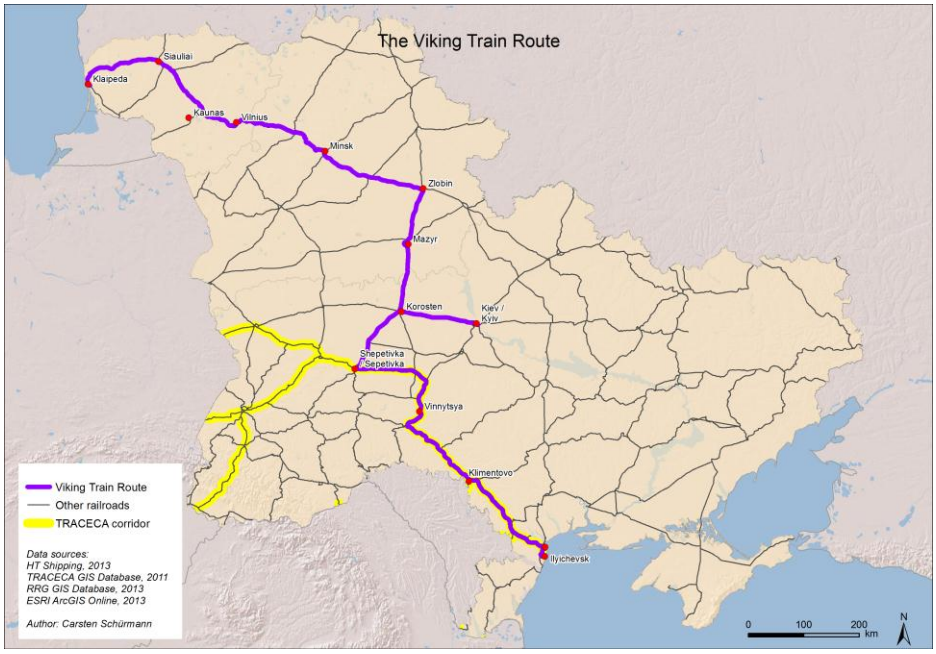
[167] “IMO cargo” means goods classified by the International Maritime Organization as hazardous or requiring special precautions.

common stock ones (rather old) and the 'private' LISKIs (newer/with a higher payload – 71.2 Mt) whose lease fees are about 20% more expensive than UZ'. For this reason it is not possible to load any container on LISKI platforms but only those for which an agreement exists between LISKI and the freight forwarder.

Containers in transit represent 5 - 8% of the total container traffic of Odessa. The main countries of origin/destination are Belarus, Moldova and Russia, volumes from/to the EU being completely insignificant.

Belarus has a great deal of potential but although the Viking Train operation[168] improved, after introducing a fixed schedule operation in 2012, there has not been a major breakthrough yet as there is no pro-active marketing and the train operators do not show much flexibility. It often proves cheaper/quicker to deliver the exports from Belarus in break bulk and stuff in Odessa.

Figure 56: The Viking Train Route



Also due to the lack of available container equipment in Belarus the cargo is often moved in containers belonging to the Belarus Railways, which have to be unstuffed at the port[169].

[168] The piggyback/container Viking Train is a joint project launched in 2003 by the Lithuanian, Belarus and Ukrainian Railways. The operators in Ukraine are UZ subsidiary LISKI, RZD subsidiary Transcontainer Ukraine and PLASKE. The Viking runs according to a regular schedule on 1,734 km between Klaipeda and Odessa/Iliychevsk through Vilnius, Minsk and Kiev. Public, discounted tariffs, jointly agreed between the railway companies, and a fixed regular schedule are applied. It is a technological success using all state-of-the art innovations (e-seal, e-declaration, GPS-GSM navigation). It is also one of the best example in the region of what good results intelligent and open multilateral cooperation can produce (thanks to the transnational teamwork carried out by and between Customs, rail operators and ports, it takes only 30' altogether to cross both the Ukrainian-Belarus plus the Belarus-Lithuanian borders). The commercial targets set by the founders have, however, never been achieved inasmuch as cargo moves between Klaipeda and Minsk on the one hand and between Iliychevsk and Minsk on the other hand but not all the way between Iliychevsk and Klaipeda.

[169] Famous Belarus tractors and tractor parts produced by the Minsk Tractor Plant (MTZ) are one of the main commodities. 80% move via Klaipeda, Odessa is a second option only. This traffic, amongst others, may well come under threat after Belarus President A.Lukashenko, facing harsh EU sanctions on one side and in desperate financial straits over a number of oil-related issues with Russia on the other side, announced in November 2012 that all Belarus exports would be re-routed via Russian ports. Political analysts deem President Lukashenko may, this time,

Still, the decision made by the train operators at the beginning of 2012 to schedule 3 regular weekly departures and concentrate on the Viking all containerised traffic (and not only cargo in transit) from Ukraine to Belarus and Lithuania and vice-versa has proven a winning strategy. Overall liftings have obviously increased but, more interestingly, the volume of containers in transit on the train has grown dramatically.

Table 27: Containers Carried on the Viking Train in Ukraine (in TEU)

	2008	2009	2010	2011	2012
Total carried	6,070	6,012	4,083	3,585	13,885
Total number of full only	3,619	3,759	3,091	2,384	9,167
Total number of full from/to Odessa only	610	170	232	450	3,944

As for the road access, the port has one main entrance (125 cars per day) and five additional (technological) entries. A 6.4 km road including a 516-m long fly over at 54 m height linking the port to the dry port Euro Terminal was built between 1996 and 2009 at a cost of USD 109 M to relieve the streets of heavy truck traffic, mainly container trucks, improve the ecological situation in the Peresyp district and connect the container terminal with Odessa ring road.

The road is designed for a 3,000 truck/day traffic equivalent to 2.5 M TEU/year. An alternative has yet to be found in case the road becomes temporarily unavailable whereby the need to develop hinterland traffic by rail (and therefore a rail dry port) is acute.

The 'Dry port Euroterminal' LLC was created in 2005 to implement the project of a large logistics centre/ dry port on a 50.2 ha land plot 5 km north-west from the sea port to which it is connected by the fly-over and road described just above. This was made possible thanks to close cooperation between governmental agencies, Odessa municipal and port authorities, private investors and the EBRD.

The complex is still under development and expected to be fully commissioned by 2015. It was selected as one of the two locations for an International Logistics centre in Ukraine by the EU - funded project 'International Logistics Centres for Western NIS and the Caucasus'.

Euroterminal has been first designed to be the buffer zone of the port, supporting the activity of the various terminals by mitigating the effects of the lack of space for storage and handling and the heavy road traffic within the port. In the first phase efforts have therefore been concentrated on the building of a 5-ha 400-slot TIR-truck parking equipped with all service facilities for trucks and drivers heading to and from the port and an empty container open storage area. This area is currently being extended.

In the first half of 2012, a process spanning over several years ended and a Customs checkpoint was opened, allowing the storage of full containers in the terminal, as well[170].

This major breakthrough in turn enabled HPC to transfer all customs formalities from its congested port facility to Euroterminal. Having further gathered other governmental agencies in the same place, Euroterminal actually functions today as a 'one-stop-shop' for transport operators and traders. De facto Euroterminal became a border-crossing point. This status is still yet to be officially confirmed by the competent authorities. The situation today may look not so

be left no other choice than to to hold a promise he already made in 2004 to Russian President V.V.Putin. Since then the already tortuous Russian-Belarussian relations took a new turn with the ongoing "potash" then "milk" wars whereby predicting which way the Belarus exports will go in the future is a wild guess.

[170] The plan of the company is to be able process 1 M TEU per year when the terminal will be fully operational.

bright. The rumour has it that there is an ongoing strife between Euroterminal shareholders as the company would be facing financial difficulties to reimburse the loan formerly granted by EBRD.

The second part of the project is the laying out of the area dedicated to logistics-related services and activities. This phase, which includes the draining and filling of a large swamp area, the former city filtration land, is only at a planning stage with no final decisions yet made.

Still, it must be underlined that one of the key questions for a successful development of the overall project is the connections of the plot with the Ukrainian road and rail networks. The present road access is congested (it also serves neighbouring residential areas) and therefore it is deemed insufficient for the forecasted traffic. There is no rail track reaching the terminal, although a functioning railway line is just a few hundred meters away.

Funding of these new links, for which the State-budget support can hardly be expected - is the next issue as the most recent (2012) estimate only for a new 3.6 / 4km 2-lane road running in parallel to the existing one amounts to USD 12 M.

Single Window and Port Community System (PCS)

Among the ports of the TRACECA beneficiary countries, Odessa is certainly the most advanced in the field of implementing the Single Window and PCS concepts.

A Working Group has been set up by the Port to establish a single window system, with representatives from Ministry of Infrastructure, Customs Service and Phytosanitary, Veterinary and Ecological Services.

The PCS Project was initiated in 2011 at local level to gain information and experience from foreign ports (Marseille, Klaipeda, Constanza). Support received from the UNECE Electronic Trade and Facilitation Centre on e-documentation, and from their general partner, the Association of Port Electronic Information Society resulted in the establishment in 2012 of the company PPL 33-35[171], a PPP between the port and Ukrainian private company PLASKE, to develop the Odessa PCS. PPL 33-35 became the same year one of the only two non-EU members of the European Port Community Systems Association (EPCSA).

Given the stipulations of the new Customs Code, it has also become possible to bring into play several measures that are based and aimed at aligning as closely as possible with, among other, the EU, the UN Network of Experts for Paperless Trade in Asia and the Pacific (UNNExT), the UN Commission on International Trade Law (UNCITRAL), and the WCO's best practices, rules, guidelines and recommendations. Furthermore these measures complement each other:

- A number of prerogatives and responsibilities have been transferred from the Regional Customs to the Odessa Customs;
- The Customs Service is now acting on behalf of all border control agencies as far as cargo is concerned (IT works are still going on to give the other agencies an access to the common database)[172];

[171] PP stands for планирование портовой логистики (meaning planning of port logistics) and 33 and 35 as a reference to the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) recommendations with same numbers.

[172] For vessel's clearance, the other agencies still form part of the commission and board the vessels.

- The only required document for cargoes in transshipment is the B/L. More generally transport documents (such as Bill of Lading, CIM or SMGS railway bills) are now considered as cargo customs declaration;
- Free practice: since electronic cargo data interchange prior to the arrival of the vessel is in place, paperwork has been reduced and, more importantly, stevedoring operations start right upon berthing, saving each time about an hour of vessel stay in port. The Commission can board the vessel later at any time. In practice this is already working for containerships and tankers;
- In order to better regulate the road traffic, reduce waiting times and avoid congestion in the port, multi-design electronic entrance cards are issued to registered freight forwarders who can also use it to notify the port database and receive back a time-window allocation for their trucks to enter into the port;
- Cargoes can now be cleared before arrival and after departure from the port by 'entitled' or 'economic' operators. They can also be stored without clearance: 3 types of warehousing are considered depending on the storage period: simple (1 month), customs (3 months) and temporary (over 3 months);
- Thanks to the new Customs Code which explicitly introduces the notions of 'compromise/peaceful agreement/humanization of relations', mistakes in declarations are now accepted as such and not systematically treated as law-breaking offences; and
- The pilot-project of introducing electronic delivery orders (наряд) launched on October 8, 2012 has been a landmark decision in the overall process: in broad outline, forwarders, according to this new procedure, inform the shipping line agents of their intention to take delivery of import containers from the port through a port dedicated IT platform. As the agent confirms his agreement via the database, the customs officer makes a risk analysis and states his own requirements (physical inspection, weighing and/or scanning of the box) enabling the forwarder to carry out the necessary formalities without any loss of time, obtain an electronic delivery order and pick the container up from the terminal. EIPS (single port community information), as the procedure has been coded, was first implemented with container terminal operators then extended to shipping line agents and freight forwarders. On November 30, 2012, the Port and Customs announced that they would stop accepting paper documents as from February the 1st, 2013[173].

This rush process however calls for a few remarks:

- Terminal operators, shipping agents and forwarders have underlined that the whole process has been discussed and decided between the Port Authorities, the respective State agencies and Ministries and PLASKE without their involvement/participation; this rather Soviet-type way of imposing drastic changes resolved at the top contradicts European practice where long negotiations took place between users and ports to implement new tools and procedures which were not only efficient but also accepted and, in the end, wanted by the users who had had the time and opportunity to understand the benefits they would reap out of their

[173] The implementation of the EIPS system in paperless EDI version only actually started on the 2nd of September 2013.

operation[174]. It is to be hoped that port users will be associated more closely and play a greater role in the further developments of the Odessa PCS project;

- The PCS programme is very ambitious and the deadlines imposed by the port for amending the users' internal working procedures have raised further concerns. It seems the port management and project developers did not take into account that users had to adjust their own IT architecture and processes at such short notice not only to become compatible with the port's ones. Again, collaborative dialogue and joint planning would have avoided useless tensions;
- EIPS is meant to be used by all (reportedly about 500) companies that have regular deals in/with the port. However, a working place has been organised in the port premises where forwarders (or other users) who are not in time or are not able to connect can come with paper documents to enter their information into the system. This is obviously meant for smaller operators/transport SMEs with no sophisticated IT systems. There is, however, no indication yet on how long this facility will remain in place and what the cost of usage will be. No satisfactory solution has either been found elsewhere (in the EU in the first place) to avoid SMEs getting discriminated through PCS;
- It is not yet clear if and how UZ (and LISKI) will be integrated into the PCS, which would certainly help improve the organisation of rail operations in the port and possibly increase the number of containers carried by rail; and
- More worryingly yet, the choice of the partner selected by the Port for developing, implementing and up-grading further the whole system remains highly debatable. One shared principle in the EU, and a basic guideline set both by the UNECE and the EPCSA, is that a PCS must be set up and operated by an objective and neutral service provider trusted by the community. PLASKE is no doubt a professional company and could competently perform the required tasks as it has a long record of carrying out similar projects. Still, it is also a freight forwarder and shipping agent with its own interests, which may (and sometimes actually do) conflict openly (as will be seen further down this report) with the interests of other users.

Whatever, the implementation of the EIPS system once again highlights the dynamism of Odessa's port management and the leadership of Odessa among Ukrainian ports in introducing state-of-the-art working methods and technologies in the organisation of the port workflow.

The political and administrative support received from the Prime Minister of Ukraine as from the start certainly represents the best proof of success of the EIPS Project. So much so, that the CMU decided to implement the same system in Iliychevsk and issued accordingly its resolution number 553 on 3 July 2013. It is worth underlining that the resolution makes the use of the system mandatory for all stakeholders involved in the transport process and delegates the functions of administration and coordination to the USPA.

[174] For instance, the port of Klaipeda IT Dpt management reported to the Project experts in 2011 that, by the time they went through the same process, they spent nearly 80% of their working time (over several months) in discussions, explanations, negotiations and arranging compromises with and between stakeholders and only 20% in designing and implementing the IT part of the PCS itself.

4 RAIL-FERRY TRAFFIC AND SHIPPING COMPANIES – CASPIAN SEA

In international practice, rail-ferries are usually deployed to shorten travel distances crossing short stretches of inland waters. These involve large rivers, expansive estuaries, lakes or open sea through straits from mainland to islands when bridges or tunnels are not yet or cannot be built (as between Calabria and Sicily for instance). Rail-ferry connections may be efficiently operated when it comes to the door-to-door journey (of passengers or goods) including a much longer voyage by rail overland than on water. Such solutions are generally applied on both sides of a body of water. They may be as well used to reach an enclave having a coastal line without crossing the territory of foreign countries. For instance, such a rail-ferry link is in place in Russia between Ust Luga and Baltjisk in Kaliningrad region. A rail-ferry operation is also applied when it comes to link with other nearby countries by-passing unsafe regions or agitated neighbours, for instance from Port-Kavkaz to Poti, thus avoiding the restless area of Abkhazia.

In TRACECA, on the contrary, the rail-ferries are deployed to cover significant distances at sea and operate both across the Caspian and Black Seas.

4.1 Azerbaijan

In the Caspian Basin the rail-ferry services in the 60s were making up for:

- The absence of a well-equipped port in Krasnovodsk (179 nm from Baku, today's Turkmenbashi) which, on the other hand, was the railhead of all the Central Asian railway network; and
- The impossibility to otherwise export the uranium and oil from Shevchenko (296 nm from Baku, today's Aktau) and deliver there over the course of time all the equipment needed for building a city, industrial centre and a big nuclear power station.

Baku was the only fully-fledged port with a Marine College (today's Azerbaijan State Marine Academy) and a shipping company (CASPAR, today the Azerbaijan Caspian Shipping Company, which was actually established in its present form in 1953) and both Krasnovodsk and Shevchenko were under its authority. CASPAR was logically nominated to perform the liner services.

The fall of the USSR made all newly independent Central Asian countries landlocked. The Caspian Sea acquired strategic importance as an alternative transport route to the Russian pipelines for the Central Asian export of oil and gas products via Aktau, Turkmenbashi and Baku.

In the first post-independence years, economic policy in Azerbaijan was focused on increasing oil exports and developing new offshore oil and gas fields in the Caspian Sea (Karabakh, Azeri–Chirag–Guneshli, Shah Deniz). Maritime investments were therefore aimed at expanding first the fleet of tankers and ships and crafts supporting oil and gas operations at sea[175].

[175] KaspMornrNeftFlot, the subdivision of the State Oil Company of the Azerbaijan, SOCAR, which specialises in marine oil transportation, maintenance, oil and gas exploration, construction and maintenance and transportation of offshore drilling rigs, underwater pipelines and other communications, as well as fire and rescue service, manages a fleet of no less than 259 vessels barges, supplies, tugs and other boats of all types.

Between 2004 and 2009 CASPAR received 7 new sea-river sister tankers (President–Heydar-Aliyev type) built at the renowned Krasnoye Sormovo shipyard in Nizhny Novgorod, to the maximum possible design for Caspian Sea trading (13,500 DWT - 7 m laden draft)[176].

Because of priority investments into tanker fleet, the CASPAR rail-ferries[177] and Ro-Ros[178] were only able to sail between Baku, Aktau and Turkmenbashi. This continued, with limited carrying capacities, unchanged for well over 15 years[179].

Figure 57: M/S 'Mercury 1' (Dagestan Type) Berthing at Aktau, March 2012

Source: Maritime Traffic Webpage

A reappraisal of the situation became necessary given the combination of several internal and external factors:

- Both the ferries and Ro-Ros had been built at the time when (Soviet) shipping companies were getting bunkers nearly free of charge and there was no objective reason to care about either fuel consumption or fuel grade;
- The maintenance, repair and operation of this ageing fleet became increasingly expensive and difficult and they could not be run any longer at design speed;
- New economic patterns and diversification of the trade in terms of goods transported and trading partners endowed Turkmenbashi, and Aktau to a larger extent, with a greater role. As an example, where the USSR had suffered from chronic deficit in grain, especially after 1970 (importing up to 28 Mt wheat in 1984), many post-Soviet independent States soon became grain exporters, some of them

[176] CASPAR tanker fleet thus increased to 43 units (out of a total of 84 ships as of December 2012).

[177] 7 "Dagestan" class 28-wagon/200 Pax (if no IMO cargoes/oil products on board) built between 1984 and 1986.

[178] 2 1984-85 built "Ro-8" class ¾ stern ramp 33 trailers.

[179] Only 2 "Volga" type sea-river vessels were added (in 1994 and 2002) to the existing dry-cargo fleet which now numbers 26. They were also built at the already named Krasnoye Sormovo factory.

very big ones[180]. Such drastic changes brought about logistic challenges of an unprecedented dimension; and

– Kazakhstan has been, and still is, facing a shortage of hopper cars, lack of grain terminals[181] but also needs more vessels for shipping.

Still, CASPAR ferries (which have always represented a minor part of CASPAR fleet) had been designed, capacity wise, for Soviet domestic use and not to meet the new needs of Azerbaijan's trans-Caspian close and distant neighbours in terms of international trade.

Figure 58: M/S 'Bestekar Gara Garayev' (Ro-8 class) Alongside at Aktau, December 2012

Azerbaijani Authorities therefore launched a modernisation programme for the rail-ferry fleet.

First, four modern 52-wagon rail-ferries[182] built in 2005-2006 at the 'Ulyanik' shipyard in Pula, Croatia, were purchased from Russian Makhachkala Shipping Co. between 2009 and 2011.

[180] For the July 2011-July 2012 campaign, Russia (with 10 Mt), Kazakhstan (with 7 Mt) and Ukraine (with 6 Mt) are ranking respectively 5th, 6th and 8th top wheat-exporters in the world.

[181] As of September 2012 there are plans to construct a railway grain terminal on the Chinese border and another one on the border between Turkmenistan and Iran. The Food Contracting Corporation (the GoK grain operator) also contemplates extending the transshipment capacity of the Aktau grain terminal and building an ad-hoc facility at Kuryk.

[182] Alternatively 58 x 16 m trailers.

Figure 59: M/S 'Karabakh' (52-wagon) Entering Aktau, February 2012

Then 2 x 54-wagon, 14.5 kn vessels (with an option for 3 more) were ordered at a unit price of EUR 22 M from 'Ulyanik' in 2011 and both delivered in 2012. This brought the CASPAR rail-ferry fleet to 13 units and made the company the number-one rail-ferry shipping company the world over.

Figure 60: M/S 'Barda' (54-wagon) under Completion at Pula, Croatia in 2012

The results of this policy, through and in spite of the GFC, are impressive.

Table 28: CASPAR Rail-Ferry Traffic

Number of full wagons carried and corresponding cargo tonnage in thousand tonnes							
		2008	**2009**	**2010**	**2011**	**2012**	**2012/2008**
Baku - Aktau	Wagons	2,161	1,486	5,008	7,847	9,903	**358%**
	Tonnage	96.7	105.4	348.6	426.9	472.3	**388%**
Aktau - Baku	Wagons	1,625	1,422	4,637	11,158	11,453	**605%**
	Tonnage	123.7	108.2	346	925.2	934	**655%**
Baku - Turkmenbashi	Wagons	15,799	18,518	18,692	19,67	20,658	**31%**
	Tonnage	1,213.8	1,303.6	1,481.8	1,587.4	1,693.1	**39%**

Turkmenbashi - Baku	Wagons	13,141	16,493	18,32	19,511	20,958	**59%**
	Tonnage	654.7	779.2	768.6	893.4	773.3	**18%**
Total number of wagons		32,726	37,919	46,657	58,186	62,972	**92%**
Total Tonnage		2,088.9	2,296.4	2,945	3,832.9	3,872.7	**85%**
out of which to / from Aktau		10.55%	9.30%	23.59%	35.28%	36.31%	

The growing share of the traffic with Kazakhstan is also remarkable.

Provided optimal operational conditions can be met i.e.:

- The 5 Caspian port rail-bridges and ramps (1 in Aktau, 2 in Turkmenbashi, 2 in Baku) are in full working condition (today one of the ramps in Turkmenbashi needs to be rehabilitated);
- They are fully and exclusively dedicated to rail-ferry traffic and there are therefore no waiting times at roads for berthing (except for in bad weather conditions), which will allow CASPAR to run the vessels according to a fixed schedule (the sole ramp in Aktau is at times occupied by small tankers and today vessels may wait from 3 to 5 days, sometimes even longer at both Aktau and Turkmenbashi),
- Marshalling yards should be large enough, equipped with a sufficient number of locos and should be available in each port to ensure a timely sorting of wagons and a seamless traffic of rolling stock to and from the berths and to and from the main national railway networks (a small marshalling yard is the reason for one of the major bottlenecks in Aktau); and
- Adequate/swift border-crossing and port procedures (including shorter vessel's clearance proceedings by the boarding commission and quicker issuing of cargo documentation. This is required so that export trains can be ready for loading in all respects before the vessel's arrival and procedures for import trains performed after vessel's departure (procedures are rather time-consuming in the 3 Caspian ports especially in Aktau and Turkmenbashi).

The present CASPAR rail-ferry fleet can carry over 92,000 wagons and 5.5 Mt cargo per year between the three Caspian ports, versus 63,559 wagons and 3.795 Mt[183] transported in 2012, which totals 45% more.

Applying the norms which were in force during Soviet times at Iliychevsk Paromnaya and the Varna Ferry Complex volumes could be nearly doubled (details of calculations can be found in Appendix VIII).

This means also that all Turkish trucks driving today between Turkey and Central Asia mostly via Iran and Russia (Table 21) could be accommodated on the trans-Caspian shipping services. Nowadays owing to the irregularity of the services and obligation to give priority to the rail traffic, trucks are loaded on the rail-ferries at random, depending upon the remaining space available on board.

Infrastructure investments are undoubtedly needed to upgrade the second rail ramp in Turkmenbashi and extend and modernise the marshalling yards in Aktau and Turkmenbashi and provide them with sufficient traction means.

[183] Figures, i.e. number of wagons and tonnage of cargo carried, slightly differ depending on sources (BISTP and CASPAR).

The key issue, however, is the implementation of appropriate procedures at all ports, which aims to disconnect cargo administrative procedures and vessel handling thus shortening the vessels' stay in port down to strictly the time necessary for performing the pure technical operations, i.e. berthing/unberthing and discharge and loading.

4.2 Kazakhstan

Kazmortransflot (KMTF) is a young shipping company (it was created in 1998) that was granted the status of National Maritime Carrier of Kazakhstan in 1999. It is a subsidiary company of KazMunayGas, the State oil and gas company, which, in turn, is an affiliated company of the (State-owned) National Welfare Fund 'Samruk-Kazyna'.

KMTF developed its fleet step-by-step by investing over USD 240 M between 2003 and 2011. Today it operates two chartered dry-cargo 'Volga' type sea-river vessels and 21 own vessels: 8 barges-platforms of a freight -carrying capacity of 3,600 t, 5 tugboats, 3 oil tankers of 12,000 DWT and 3 of 13,000 DWT and 2 Aframax (oil tankers of less than 120,000 DWT usually deployed for short to medium haul crude oil transportation from/to ports which cannot accommodate VLCCs and ULCCS) of 115,000 DWT (deployed in the Black and Mediterranean Sea).

Concomitantly with the plan to rebuild a port at Kuryk, KMTF intends to purchase 2 rail-ferries of the same type as the ones CASPAR ordered from Ulyanik Brodogradiliste. Being LNG propelled they would be more expensive and cost EURO 30 M each. A tender should have been issued to shipyards in July 2013 for a delivery of the vessels scheduled for 2015. To-date the tendering process has however not been launched yet.

The emergence in the Caspian Sea of a second rail-ferry company may be regarded as a normal and positive development resulting from the growth and diversification of the Kazakh economy.

Still, rail-ferry transport is a complex and delicate operation involving a lot of outside players which, even more than other maritime shipping processes, need a military-like organisation and coordination to be and remain sustainable. KMTF evidently lacks the necessary experience in that field.

Besides, the existing infrastructure constraints will not be lifted by the time KMTF receives its new ships as the construction of Kuryk will take many more years; Alyat may not be yet (fully) operational and Aktau remains a question mark.

The lines must therefore cooperate closely to avoid operational clashes and unreasonable competition, especially considering the Caspian is a rather small and closed market. In such cases nationalist demeanours focused on a narrow-minded reading of existing intergovernmental agreements usually result in big losses not only for the shipping companies but for trade partners and other stakeholders as well.

Finally, there are more urgent tasks than computing how cargo volumes or freight earnings should be split between the respective flags; shipping partners should together devote their efforts to working out soft measures aimed at streamlining and simplifying procedures and improving the overall efficiency of the existing rail-ferry service between Baku and Aktau. Taking the appropriate steps now to make it a regular, scheduled one will also make it easier to introduce the newbuildings into the service when they are delivered.

The set-up of a permanent bilateral rail-ferry or shipping working group seems the most recommendable option[184]. Apart from addressing the above-mentioned issues this body may, in the future, also take care of day-to-day matters such as implementing a centralised/advance booking system[185] (to optimise the vessels' load factor), fixing joint tariffs and schedules, keeping records of operational, commercial and financial performance, measuring KPIs, harmonising port and shipping procedures and documentation, regimes of liability and corresponding insurance coverage, etc.

At this stage it is worth underlining that in the closed Caspian Sea companies performing operations related at some stage with sea-transport (railways, shipping lines and ports) are all state-owned and sea-transport is regulated by ad hoc inter-governmental agreements[186].

Furthermore, the local sea-transport market still overwhelmingly consists of the carriage of goods and commodities in wagons on rail-ferries. This feature in itself is unique, worldwide. The surge of the Ro-Ro (mostly TIR truck) traffic is very recent and is more driven by political factors than based on considerations of costs or transit-times. Additionally, sea-borne commercial traffic in container is still to be seen.

Also the corresponding, very specific, port infrastructure (rail/Ro-Ro ramps/bridges) is limited or non-existent.

It is therefore a necessity for the shipping companies to run their services in close cooperation, coordinating their sailings, harmonising their offers and optimising the utilisation of their carrying capacities (e.g. cargo/trucks/wagons left behind by one vessel must be accommodated in priority on the next vessel regardless of who is the shipowner/operator). Evidently, public (railways) as well as private (truckers) users who always want to load on the first available departure look to have a single tariff applicable.

This does not mean an absence of competition: wagons can be railed as well as trucks driven around the Caspian if the sea-passage is deemed too expensive and/or the quality of service insufficient.

Nonetheless, competition at sea will develop only if and when pure Ro-Ro trade picks up to a larger extent when adequate port infrastructure becomes available[187].

When the intention of the Turkmen government to launch its own Ro-Pax services between Turkmenbashi and, among other ports[188], Baku, materialises, the experience gained in the

[184] In practice shipping companies operating in joint service, vessel sharing, pool agreement or anything of the sort, each appoint one (or few) employee(s) as focal point(s) in charge of all (or specific) matters of cooperation. The so-composed "working group" meets at regular intervals (generally every 6 or 12 months) or on an ad-hoc basis in the case of an emergency.

[185] Also accessible by the other categories of users of the rail-ferry service i.e.: passengers (both pedestrians and pax with means of transportation); trucking companies (whereby the pure Ro-Ro voyages scheduled by CASPAR should also be included in the system).

[186] Maritime agreements also exist, for example between some maritime countries in the EU and countries abroad. Signatories always underline their common will to facilitate the trade without discrimination towards third parties and the document mostly addresses a range of administrative topics related to the flag and the status of the crew and vessel while in the territorial waters/on the shore of the other party. In the Caspian Sea however such agreements also include a precise, bilateral cargo-sharing clause.

[187] For the record, the very few rail-ferry services that still exist in the EU are operated by single companies without any competition (Danish private DFDS in the Baltic Sea – due to cease some time before the end of 2013, state-owned Bluvia in Italy, for instance).

implementation of a joint organisation with KMTF could usefully be transferred and a similarly flexible structure could be devised to smoothly coordinate the operation of this new line and CASPAR's.

In a broader perspective it must be hoped that ferry (rail and Ro-Ro) services in the Caspian Sea will be one day integrated in a commonly shared information platform on the example of what is done for instance in Western Europe. A Caspian ferry portal would be an efficient tool to attract more users to both the TRACECA and the (maritime) North-South Corridors and a first step towards conferring a real Motorway of the Sea status on the regional ferry lines.

[188] According to the latest available press-releases from Turkmenistan (October 2012), the Government would now rather consider a strengthening of the country maritime links with Russia through the ports of Makachkala in Dagestan and Olya near Astrakhan in the mouth of the Volga River.

5 RAIL-FERRY TRAFFIC AND SHIPPING COMPANIES – BLACK SEA

Rail-ferry operations are performed at the Varna Ferry Complex and commercial sea ports of Iliychevsk and Kerch in Crimea (this latter port being otherwise specialized in handling almost exclusively the bulk and breakbulk cargoes to/from the nearby heavily industrialised Donbass region), Derince in the Gulf of Izmit, Samsun on the Turkish Black Sea Coast[189], and Poti and Batumi in Georgia.

In addition, while adopting the new tariff policy for 2011, Ukrainian Railways (Ukrzaliznytsia) expanded the list of railway stations for direct rail-ferry connection. Now, besides Iliychevsk and Kerch commercial sea ports, the port of Krym[190] and Iliychevsk Fishing Port are open for direct rail-ferry transport.

The rail-ferry operations were launched in November 1978 to facilitate the then important trade between the USSR and its closest East European ally, Bulgaria. At the time the 4 (still in operation today) sister-ships of 108-wagon capacity each, 2 rail-ferries of (Bulgarian) NaviBulgar and 2 of (Soviet) BLASCO, operating in joint-service, were entirely dedicated to this service (later supplemented with a full container service). Political and economic changes as well as changes in trade and consumption patterns have brought this trade next to nil.

In 1996, the successors to the above-mentioned shipping companies, now privatised NaviBulgar and 1995-founded UkrFerry, both national carriers in their respective countries, started re-deploying their fleet mainly to Georgian ports. At the time there was no rail bridge and ramp in Poti and wagons had to be discharged and loaded by a floating crane. The bridge and ramp were finally built in 1999 thanks to an EU TACIS investment programme. The traffic, at the beginning, consisted almost exclusively in oil products imported by Ukraine from Azerbaijan and Central Asia. The implementation of this new maritime link however boosted the trade relationship between Ukraine and Georgia: from 10,000 t in 1996 the volume carried surged to over 1 Mt in 2007.

Given the growing market demand for truck and container transport (in particular for the carriage of consumer goods), the lines also started accepting rolling cargo and trucks and containers (on mafi-trailers) on their ships.

In May 2001, calls at Derince in Turkey[191] were added while Kerch was included in the line schedule in March 2009 after UkrFerry and the port of Kerch financed the construction of a rail-ferry bridge/ramp[192].

[189] The project of a rail-ferry link between Turkey and Russia was initiated in 2005 to support the export trade of Turkey to Central Asia and Russia and facilitate the flow of goods between Russia and the Middle-East by rail. Ever since, various attempts were made to develop a regular service between Samsun and Port Kavkaz which more or less failed in the absence of a boogie exchange station and sufficient marshalling railway tracks in Samsun. These facilities have now been built and have been put into operation in February 2013. The renewed service should be run by Russian company BFI, a subsidiary of RZD, as an extension of their present service between Port Kavkaz and Poti. Further plans include calls at the Varna Ferry Complex. Ukrainian company PLASKE supports BFI's intention to also add a call at Iliychevsk to link with the Viking Train.

[190] This port is situated a few kilometres north of Kerch. Russian shipping company Anrusstrans operates a rail-ferry service several times per day between Krym and Port-Kavkaz, 5 nautical miles away across the Kerch Strait on the Russian bank, carrying mostly cistern-wagons containing oil products exported from Russia to Ukraine.

[191] This ongoing operation aims to attract Turkish breakbulk/heavy and voluminous cargoes exported to Central Asia in wagons (as they cannot be containerised or carried in trucks) via Ukraine (the traffic remains totally imbalanced with 95% of the cargo flowing northwards). UkrFerry built at its own expense a special 1,520 m/m Russian gauge rail facility in Derince to allow the handling and stuffing/unstuffing of Ukrainian wagons in the port.

UkrFerry added a fifth vessel to the joint fleet in the early 2000s, the 1988 German-built, 1,570 lm/150 Pax versatile Ro-Pax-Rail-ferry 'Greifswald', classified at the time as the world biggest vessel of its type in the Guinness Book of World Records.

In 2007, UkrFerry purchased the 558 TEU Ro-Ro/Lo-Lo 'Thor Admiral'. A regular container line was launched between Iliychevsk and Poti. This was, however, a short-lived experiment: Ukrferry was heavily reliant on transshipments from the Far-East to other Black Sea ports via Odessa (70% of the expected volume), which never materialised due to the absence of legal/easy frame plus prohibitive handling tariffs for transshipment operations at Ukrainian ports. Also, containerising export goods generated a direct competition with the rail-ferry services.

In recent years the structural problems of UZ weighed more and more heavily on the quality and quantity of the wagon supply, which in turn brought stagnation in the volumes of cargo carried in rail wagons while traffics in container and truck were steadily gaining momentum (see Appendix IX).

Figure 61: NaviBulgar M/S 'Geroite na Sevastopol' (One of the 4 x 108-wagon Sisterships)

In 2010, the engine of the Ro-Ro 'Sredretz' plying a regular service between Burgas, Poti and Novorossiysk experienced a major failure and the vessel was eventually scrapped. This was the only vessel of UkrFerry/NaviBulgar's main competitor on the West-East route across the Black Sea, the Bulgarian company SOMAT, a subsidiary of leading German trucking company Willy Betz. It drove a number of clients from the trucking industry to the joint-service as the 'Sredretz' was never replaced.

The lines did not, however, take advantage of the situation as much as they could have.

As in the Caspian, the rail-ferry lines are committed to give a top priority to trade in wagons whereby trucks are loaded if and only when space is available. Given the much bigger size of the vessels this is less of a problem as in the Caspian Sea.

[192] Given the loss of the Russian cargo-flows via Iliychevsk (which until 2008 had represented up to 30% of the lines' traffic), UkrFerry decided to add Kerch to, at least, secure the Donbass trade-flows which could otherwise be diverted to the rail-ferry service just launched by RZD' subsidiary BFI between Port Kavkaz and Poti.

Problems stem from the poor management of railway operations:

- The non-closure of the loading list of wagons for re-export from Georgian ports to Ukraine: GR keeps the vessels at berth as long as possible, waiting to load back wagons (often empty) that have not yet arrived at the port station[193];
- The antiquated paper procedures of exchange of information between GR and UZ dating back from Soviet times, generating discrepancies and further delays for documents checking;
- The absence of procedure between GR and UZ to deal with the matter of wagon cleanliness and technical condition (inherited again from the Soviet era when Ukraine and Georgia as UZ and GR were parts of a single country and system): UZ claims from the shipping lines the cleaning and repair expenses of wagons proceeding back from Georgia if they are found dirty and/or not in perfect technical order upon discharging at Ukrainian ports; while
- GR, on its part, claims UZ supplies clients in Ukraine with wagons that are already dirty and in bad condition and therefore remain so after unstuffing in Georgia (or Armenia). The lines, logically, refuse to endorse any responsibility but vessels can de facto not sail from Georgian ports without loading all the wagons delivered at the port stations. These stories end with long bargains between the vessels' command and port station masters and, again, vessels' delays.

The fluctuating duration of calls at Georgian ports results in disruptions of the schedule and deterioration of the frequency, which obviously prevent the shipping lines from developing truck trade to a full extent.

The badly-planned, erratic and opaque process of privatisation of its rolling stock by UZ created a major blow to the rail-ferry trade bringing it to a nearly complete standstill in the last months of 2011 and beginning of 2012[194]. Above all, it contributed to speed up the modal shift from wagons and railcars to containers and trucks. Apart from greater safety, higher commercial flexibility and shorter transit-times usually associated with trucking and container transport, this trend also develops because an increasing number of container lines (CMA-CGM, Arkas, MSC[195]) offer now direct services between Black Sea ports (Odessa-Varna, Odessa-Poti, etc.) at relatively competitive sea freight rates.

The competitiveness of transport in railcars has also been negatively impacted by the much higher wagon leasing costs and transport tariffs applied in Ukraine as a result of the 'privatisation'. As often happens in such matters, Ukraine has been imitating with some delay the example of Russia. However, where the rolling stock of RZD has ended in the hands of semi- or totally private entities organised and managed in a business-like manner and profit-oriented and where the rules of use (and tariffs) have become transparent for users, UZ rolling stock, as a matter of fact, has been transferred from a public monopoly to other entirely State-owned enterprises supplying the users through 'intermediaries'. New rail tariffs applied by these

[193] Since GR pays UZ a leasing fee for UZ wagons while they are on Georgian territory GR wants to get rid of them as quick as possible after they have been unstuffed.

[194] In order to alleviate operational difficulties and enable the trade to go on GR and SCR proposed UZ in December 2011 to allot part of their own equipment to the Ukrainian-Caucasian traffic. UZ fixed conditions for the use of foreign rolling stock on its territory which clearly amounted to an outright refusal.

[195] MSC link between Poti and Odessa was launched during the spring of 2012 and has already succeeded in diverting some significant traffic from the rail-ferries such as the Borjomi exports of bottled mineral water from Georgia to Belarus.

'LLCs' reflect a 30% increase to compensate the wagon empty re-positioning expenses, must, as previously, be 'negotiated' on a case-to-case basis and are subject to additional 'brokerage' fees.

Figure 62: M/S 'Greifswald'

Source: UkrFerry

A complete dependence on political issues, critical lack of structural reforms and subsequent financial weaknesses[196], absence of public accountability do not bode well for UZ and the Ukrainian railway sector in general.

Still, the consequence of its policies on the rail-ferry operation was understandably not a cause for concern for UZ, given the minute and decreasing part of its turnover it represents.

At this point it is necessary to highlight some distinctive features of this East-West trade in this part of TRACECA.

First as already mentioned, Russian cargo to Poti in transit via Iliychevsk used to represent about 30% of the volume loaded on the rail-ferries. As a result of its loss, today, on average:

- 90% of the cargo volume carried by the ferries moves between Ukraine and Georgia and the remainder are exports from Bulgaria to Georgia (there is no import from Georgia into Bulgaria in rail wagons);
- 70% of these 90% are exports from Ukraine (84%) and cargoes in transit via Ukraine to Caucasus (16%);
- Out of the remaining 30%, 78% are imports into Ukraine and the rest transit cargo through Ukraine to other European countries;

[196] The cross-subsidising of passenger transport by freight operations only cost UZ over about EUR 2.9 bn in 5 years.

- Transit cargo proceeds and originates mainly from/to Ukraine's immediate neighbours (first and foremost Belarus, followed by Russia, the Baltic States, Slovakia, Hungary and Poland).

In other words the rail-ferry trade has now a very limited, regional, geographical scope, rests principally on the Ukrainian-Georgian trade relation and to a large extent depends for its survival on the export-flow from Ukraine to Georgia which represents over 50% of the total cargo volume.

While a sizeable amount of bulk commodities are shipped in wagons, there is also a significant traffic of consumer goods still sent in railcars which, technically, could be containerized or trucked. The numerous difficulties and barriers the rail-ferry operation is facing on one hand – some of them to all appearances insuperable – the harsh competition from other transport modes and the development of the supply chain concept in the TRACECA region on another hand pose a real threat.

Even the bulk traffic is at risk: shippers experiencing difficulties in securing on time enough rolling stock from UZ for direct shipments to Caucasus may find it easier to send their cargo in several lots to port only, store it there and then load it in bulk carriers. This did happen already few times in 2012.

Last, the question arises of the added value of the TRACECA rail-ferry services in the Black Sea compared with alternative routes, type of shipping services or modes of transport.

- As already mentioned the Iliychevsk-Varna line was launched to support and facilitate the comparatively huge trade between Bulgaria and USSR[197] (or, rather, the Russian SSR). Nowadays the commercial exchanges are even bigger[198] but the corresponding sea-borne cargo-flow is passing through Port Kavkaz instead of Iliychevsk.

  On another hand, cargo movements between Ukraine and Bulgaria can be arranged overland by rail and road and, in case of bulk commodities and depending on points of origin, respectively destination, by sea-river vessels sailing from the Ukrainian sea or river ports on the Dnepr directly to Bulgarian seaports or Danube river ports.

- Rail-ferry lines are usually viewed as the shortest, easiest and cheapest way to connect two railway networks which, at the time of the implementation of the ferry service, could not be linked otherwise for political, geographical, technological or economic reasons.

  It is therefore assumed that the distance the wagons travel on land is by far exceeding the length of the sea-passage.

  The UkrFerry/NaviBulgar service meant for carrying Turkish export cargoes in wagons to Kazakhstan and other Central Asia countries can serve as an illustrative example: the vessels sail 376 nm (about 700 km) between Derince and Iliychevsk while for instance the wagons run 4,700 km from the Ukrainian port to Almaty.

  On the East-West service linking Poti/Batumi and Iliychevsk/Varna the situation is not the same: the average pre- (or post-) carriage distance by rail from the ports can be estimated at about 350 km for Georgia, 600 km for Armenia and 650 km for Ukraine while the distance by sea between Georgian ports and Iliychevsk is 562 nm (about 1,040 km).

[197] At the time over 60% of the Bulgarian foreign trade was with Soviet Union.

[198] In 2012 Russia was Bulgaria's main trade partner.

Therefore a wagon proceeding from Armenia to Ukraine is, on average, running 1,250 km on land (55% of the total door-to-door distance) and from Georgia 1,000 km (49%) only.

This has two consequences:

- Firstly, the travel distances being much shorter on each overland leg, rail transport loses a good deal of its competitive advantage against road transport or alternative schemes. Likely, this loss is amplified by the increase in rail usage costs following the steps taken by UZ described previously;
- Secondly, the sea-freight weighs much heavier in the door-to-door cost which logically entices shippers to compare rail-ferry rates with those offered by alternative shipping modes such as bulk or container.

Albeit not new, these fundamental flaws in the design of the operation acquire an ominous dimension with the decrease and very unclear perspectives of the rail-ferry traffic – mainly stemming out of the decisions made unilaterally by UZ (Appendix IX). In the near future this may well compel the rail-ferry operators to revise the terms of their agreement and the scope of their obligations with the railway companies.

Meantime UkrFerry and NaviBulgar took measures to adapt to this changing environment:

- the Derince-Iliychevsk service is being phased out and replaced by a Derince-Poti fortnightly sailing. Rolling stock for Turkish export cargo to Central Asia is now supplied by GR instead of UZ;
- a much greater focus is placed on the increasing trans-Black Sea TIR-truck traffic;
- an additional rail-ferry/Ro-Ro vessel, the 'Vilnius Seaways', has been chartered by UkrFerry to increase the frequency while new ports of call are contemplated: a weekly service linking Constanza to Poti is due to start on the 14th of October 2013. Further plans have been made to include Novorossiysk in the loop as there is a big both-way truck traffic between this port and Armenia via Poti.

Figure 63: M/S 'Vilnius Seaways'

In a mid-term perspective this should logically lead the shipping lines to rationalize their services and split their Ro-Ro and rail-ferry operations.

This would enable them to offer the trucking industry an improved and more flexible service relying on fixed-day departures and a better frequency.

More importantly both companies will diversify their cargo base, widen their geographical scope and therefore improve the sustainability of their operation while operating smoothly the same transition from rail-ferry to Ro-Ro than other shipowners elsewhere in the world.

6 APPENDIXES

6.1 Appendix I: Armenia Trade Pre and On-Carries to/from Georgia Port by Rail

Number of Full Wagons and Tonnage Carried in Metric Tonnes

		2010	2011	2012
From Poti	**Total**	**11,646**	**12,229**	**13,718**
	Tonnage	703,066	736,160	839,834
To Poti	**Total**	**2,485**	**2,652**	**2,573**
	Tonnage	153,581	163,859	160,737
From Batumi	**Total**	**7,697**	**5,456**	**3,835**
	Tonnage	443,401	317,948	216,886
To Batumi	**Total**	**2**	**26**	**12**
	Tonnage	90	1,580	595
From Ukraine and Bulgaria to Armenia	**Total**	**5,568**	**4,050**	**3,924**
via Poti and Batumi	Tonnage	323,051	236,438	230,226
From Armenia to Ukraine and Bulgaria	**Total**	**107**	**419**	**1,182**
via Poti and Batumi	Tonnage	6,785	28,125	79,728

NB: cargo in wagons to and from Ukraine and Bulgaria are shipped on the joint rail-ferry service of UkrFerry/NaviBulgar. Other wagons move to and from the Russian port of Port Kavkaz.

Number of Full Containers and Tonnage in metric tonnes

		2010	2011	2012
From Poti	**Total**	**8,159**	**8,425**	**8,582**
	Tonnage	210,029	205,204	212,800
To Poti	**Total**	**2,638**	**6,862**	**7,113**
	Tonnage	132,008	174,019	186,246
From Batumi	**Total**	**18**	**63**	**336**
	Tonnage	469	1,442	8,860
To Batumi	**Total**			**6**
	Tonnage			111
From Ukraine and Bulgaria to Armenia	**Total**	**49**	**51**	**267**
via Poti and Batumi	Tonnage	1,233	1,206	7,535
From Armenia to Ukraine and Bulgaria	**Total**	**1**	**1**	**44**
via Poti and Batumi	Tonnage	24	6	1,159

6.2 Appendix II: Container Handling Procedure at the Port of Aktau

(Source: Port of Aktau - www.portaktau.kz/ru - Центр Обслуживания Клиентов)

Пошаговое действие клиента

при вывозе контейнеров и ввозе порожних возвратных контейнеров с/на площадок грузового склада РГП «АММТП»

Вывоз груженого контейнера

1-шаг Клиент для оформления заявки (Приложение № 4) на вывоз груженого контейнера, предоставляет инженеру ТЭГ данные автотранспортного средства и водителя, оригинал коносамента, удостоверение личности, РНН, доверенность, при необходимости нотариально заверенную копию доверенности на вывоз контейнера.

2-шаг Инженер ТЭГ оформляет заявку (приложение №4) на вывоз груженого контейнера, клиент получает разрешающие визы у администрации порта.

3-шаг Клиент получает расчет на предоплату у инженера ТЭГ и на основании расчета производит 100% оплату за выгрузку груженого контейнера, и за возврат порожнего контейнера в порт назначения.

4-шаг Клиент производит оформление заявки на вывоз груженого контейнера на таможенном посту «Морпорт», в отделе пограничного контроля «Актау – морпорт» и при необходимости в санитарно-карантинном контроле, фитосанитарном контроле, ветеринарном контроле.

5-шаг Клиент предоставляет оформленную заявку, оригинал коносамента, копию удостоверения личности, копию РНН, оригинал доверенности или копию доверенности, нотариально заверенную на вывоз груженого контейнера, на грузовой склад.

6-шаг Сменный помощник начальника грузового склада принимает документы у клиента и выдает груженый контейнер. Клиент производит вывоз груженого контейнера с территории порта.

Ввоз порожнего возвратного контейнера

7-шаг При указании в коносаменте о необходимости возврата порожнего контейнера в порт назначения, клиент оформляет у инженера ТЭГ заявку на ввоз порожнего, возвратного контейнера (Приложение № 5) с приложением письма (Приложение № 6) от судовладельческой компании «Khazar Sea Shipping Lines» Актауское Представительство о согласовании отправки порожнего контейнера с указанием названия судна.

8-шаг Клиент производит оформление заявки на ввоз порожнего контейнера на таможенном посту «Морпорт», в отделе пограничного контроля «Актау – морпорт» и при необходимости в санитарно-карантинном контроле, фитосанитарном контроле, ветеринарном контроле.

9-шаг Клиент предоставляет оформленную заявку с приложением письма (Приложение № 6) от судовладельческой компании «Khazar Sea Shipping Lines» Актауское Представительство о согласовании погрузки порожнего контейнера с указанием названия судна, на грузовой склад.

10- шаг По приходу судна указанного в письме «Khazar Sea Shipping Lines» Актауское Представительство под обработку в порт, Клиент оформляет у инженера ТЭГ погрузочное поручение которое согласовывает на таможенном посту «Морпорт», в отделе пограничного контроля «Актау – морпорт» и предъявляет на грузовой склад.

Free Translation - Additions by the translator for better understanding are in cursive mode

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Step by Step Course of Action to be Followed by the Client for Retrieving (*import full*) **Container and Returning Empty Container from / to Cargo Storage Areas of Republican State Enterprise 'AISCP'.**

(Example based on the semi-regular container service plied by Iranian company 'Khazar Sea Shipping Lines' between Aktau and Bandar-Anzali)

Removal of the Full Container

1st step: The client[199], in order to process the application form (form № 4[200]) for removing the full container from the port, provides the TEG engineer[201] with the data of the vehicle and driver, the original bill of lading, ID card, Taxpayer Registration Number, power of attorney, if necessary a copy of the power of attorney authorising him to deliver/remove the container from the port, certified by a notary.

2nd step: The TEG engineer completes the application form (form № 4) for the withdrawal of the full container and the client receives an exit visa from the port administration.

3rd step: The TEG engineer provides the client with the calculation *(of expenses)* for pre-payment and, on the basis of such calculation makes a 100% payment for the discharge of the full container from the vessel and for the return of the empty container to the port of destination *(i.e. the reloading expenses on board of the vessel of the empty box)*.

4th step: The client submits the filled application for the withdrawal of the full container to the customs post 'Seaport' in the border-crossing control department of 'Aktau – Seaport', and, if necessary, to the sanitary-quarantine, phytosanitary, veterinary control departments.

5th step: The Client presents himself with the filled application, original bill of lading, copy of ID, copy of Taxpayer Registration Number, original power of attorney or notarised copy of the power of attorney to deliver/remove the container from the port to the storage area.

6th step: The assistant of the chief of the storage area receives the documents from the client and delivers the full container. The client takes the full container out of the port.

Return of the Empty Container

7th step: If it is stipulated in the bill of lading that the empty container must be returned to the port of destination *(origin)*, the client fills the application for the TEG engineer for the entrance

[199] Client in this case means either the Consignee of the goods, as stipulated in the original Bill of Lading or his duly authorised agent (in general a freight forwarder).

[200] Form 4 is the request made by the client to the port asking for the authorisation for his truck to enter the port territory and pick up the import full container. It contains the truck and driver data.

[201] Инженер транспортно-экспедиторской группы, (ТЭГ): the engineer from the transport-forwarding department (of the port).

(on the port territory) of the empty returnable container (form № 5[202]) together with the letter (form № 6[203]) of the Representative in Aktau of the shipping company 'Khazar Sea Shipping Lines' confirming his agreement for the dispatch of the empty container and indicating the name of the *(export)* vessel.

8th step: The client submits the filled application for the entry of the empty container *(on the port territory)* at the customs post 'Seaport' in the border-crossing control department of 'Aktau – Seaport', and, if necessary, to the sanitary-quarantine, phytosanitary, veterinary control departments.

9th step: The client presents himself to the storage area with the filled application and the letter (form № 6) of the Representative in Aktau of the shipping company 'Khazar Sea Shipping Lines' confirming his agreement for the dispatch of the empty container and indicating the name of the *(export)* vessel.

10th step: Upon arrival of the vessel specified in the letter of 'Khazar Sea Shipping Lines' Aktau Office for handling at the port, the client prepares with the TEG engineer the loading order which is approved by the customs post 'Seaport' in the border-crossing control department of 'Aktau – seaport' and passed on to the storage area.

Short Comparison with Procedures Applied in Modern Container Ports

The fundamental difference is in the distribution of roles and tasks between the port, the shipping line and the client.
In most ports of the world, stevedoring operations, as far as container is concerned, are performed by private specialised operators and no longer by ports;
However, where ports remain in charge they do not deal directly with the Shippers or Consignees. Rather, contracts are made between the container terminal operator and the shipping lines.

This has many advantages:

For the terminal operators:

- First the payment of all the stevedoring operations (discharge from the vessel, trucking and stacking on the container yard, lift-on truck for delivery, lift-off truck for reception, re-stacking on yard if/when needed, destacking and trucking from the container yard, loading on the vessel (all these being amalgamated into a Terminal Handing Charge)THC and storage of full and empty containers) is made (sometimes on a prepayment basis as soon as the cargo manifest, which contains amongst other information the number and type of containers to be discharged, is sent from the port of loading[204]) for all containers by one party only: the shipping line, either directly or through his shipping agent. This eliminates the risk of non-payment linked

[202] Form 5 is the request made by the client to the port asking for the authorisation for his truck to enter the port territory to lift off the export empty container. It contains truck and driver data as well as the name of the vessel scheduled for export.

[203] Form 6 is a standard model letter sent by Khazar Sea Shipping Lines Aktau representation to the Director General of AISCP asking him to accept the return of the listed container(s) for loading on the vessel, scheduled at such date in Aktau, and giving the name/details of the party (client) guaranteeing the payment of expenses to the port.

[204] Alternatively the terminal operator may, for instance, ask the shipping line to provide him with a long-term bank guarantee.

to abandoned containers, reduces the burden of having to chase hundreds of customers to obtain payments and simplifies book and account keeping;

- Secondly, the delivery becomes a pure technical matter, which eliminates a lot of paper work since the legal and administrative part of the procedure is transferred from the port/terminal operator to the shipping line (via its shipping agent): the Shipper or Consignee does not apply to the port but to the shipping agent (with all the documents mentioned above in step number 1 of Aktau port procedure), pays all expenses and receives a delivery (or shipping) order. The agent copies electronically the port/terminal operator when issuing this order while the truck/driver data for pick-up or delivery are transmitted by the customer to the terminal via, again, the shipping agent.

For the Clients:

- All delivery/redelivery or shipping operations and payments, except customs formalities, are centralised and performed at one place only, the shipping agent office.

For the Shipping Line:

- It makes it possible to monitor and track the equipment (containers) at all times;
- It ensures payments are duly received. This includes in particular:

– Freights as the case may be: in the case of Aktau it is assumed the freight for import containers has been paid (since the port apparently does not ask for any corresponding proof). However, should the freight that is 'said to be prepaid' not actually be collected (say the Shipper, responsible for payment of freight charges at the port of loading, for one reason or another, did not pay them in time) then the Shipping Line can decide to stop the container upon discharge at the port of destination. There is a potential 'hole' in Aktau port procedure that may well allow the Consignee to escape the ban and pick-up the container from the port;

– Container demurrage at terminal between discharging and pick-up dates, respectively delivery and loading dates. This important part of the financial process is completely ignored in Aktau port procedure;

– Container deposit covering the value of the equipment in case of merchant haulage: in Aktau port procedure the customer can pick up a container without the shipping agent being informed and does not provide any guarantee for its return;

– Container demurrage between exit import full and return empty from/to the port (respectively exit export empty and return full) in case of merchant haulage[205]. Again, this is not taken into account in Aktau port procedure;

– THCs as per the Line's tariff (which may well differ from what is actually paid to the terminal operator[206]); and

– Storages (collected directly by the shipping agent and paid back to the port).

[205] Merchant haulage means the inland carriage of the container to/from the port is performed by the shipper, respectively the consignee, as opposed to Carrier's haulage when inland transport is performed by the shipping line.

[206] In Poti, for many years considering the huge imbalance between export and import flows, shipping lines used to invoice an import THC which included the real import full THC plus the export empty THC plus some empty container storage expenses.

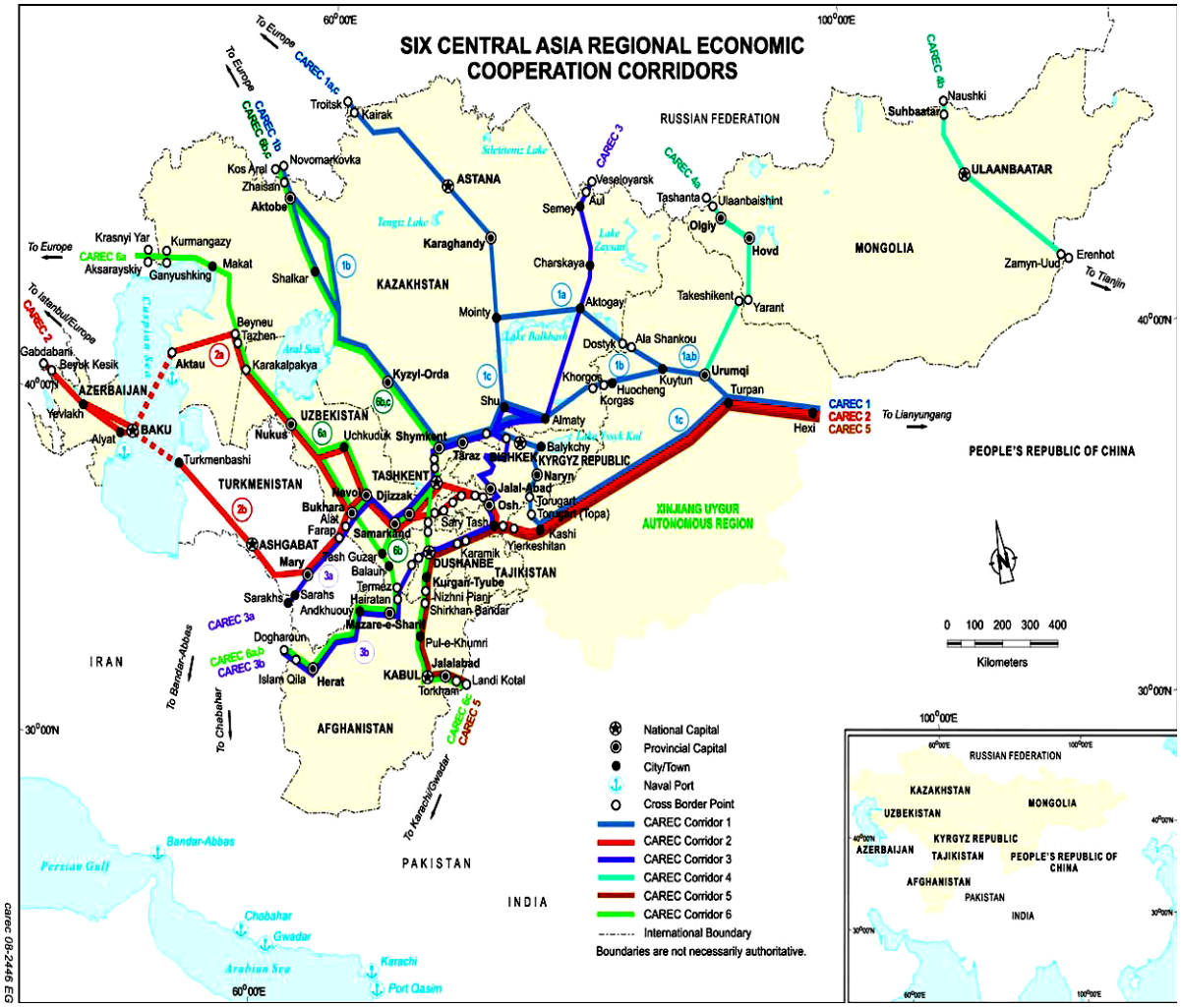
– It matches legal maritime requirements: the original Bill of Lading delivered upon shipment by the Shipping Line, duly endorsed by the Consignee or his empowered representative at the port of discharge, is handed back to the Shipping Line and not to the port as in Aktau. This endorsed B/L legally proves the maritime voyage has been duly and fully accomplished.

6.3 Appendix III: Bulgarian Container Market Statistics

Container Turnover via Varna and Burgas, Full Containers Only

		Import			Export			Total	turnover	Growth
Year	Port	20'	40'	Total	20'	40'	Total	per port	country	
	Varna	5,591	6,416	12,007	8,843	11,194	20,037	32,044		
2001	Burgas	1,727	1,28	3,007	2,64	3,21	5,85	8,857	40,901	
	Varna	7,596	9,158	16,754	10,21	13,76	23,97	40,724		
2002	Burgas	1,695	1,148	2,843	2,356	4,038	6,394	9,237	49,961	22.15%
	Varna	9,466	10,886	20,352	10,665	15,168	25,833	46,185		
2003	Burgas	2,012	1,658	3,67	2,585	7,13	9,715	13,385	59,57	19.23%
	Varna	12,423	15,446	27,869	13,399	17,218	30,617	58,486		
2004	Burgas			5,47			12,254	17,724	76,21	27.93%
	Varna	14,2	19,768	33,968	12,206	15,502	27,708	61,676		
2005	Burgas			6,422			11,416	17,838	79,514	4.34%
	Varna	17,534	23,574	41,108	12,639	17,258	29,897	71,005		
2006	Burgas			8,018			10,643	18,661	89,666	12.77%
	Varna	20,94	23,608	44548	16,905	16,526	33,431	77,979		
2007	Burgas			13,144			10,466	23,61	101,589	13.30%
	Varna	27,929	46,09	74,019	20,828	19,306	40,134	114,153		
2008	Burgas			19,622			10,655	30,277	144,43	42.17%
	Varna	19,153	30,294	49,447	16,997	19,976	36,973	86,42		
2009	Burgas			10,646			6,831	17,477	103,897	-28.06%
	Varna	17,962	29,28	47,242	23,972	24,016	47,988	95,23		
2010	Burgas			10,001			8,374	18,375	113,605	9.34%
	Varna	20,703	30,006	50,709	24,671	24,628	49,299	100,008		
2011	Burgas			12885			11,235	24,12	124,128	9.26%
	Varna	19,630	28,025	47,655	28,237	28,169	56,496	104,151		
2012	Burgas			16,546			16,926	33,472	137,623	10.87%

6.4 Appendix IV: CAREC Corridors



6.5 Appendix V: Comparison of Disbursement Accounts for Mother Container Vessel

WESTERN BLACK SEA PORTS

Vessel type: LOA 294.13 m / Beam 32.2 m / Depth moulded 17.45 m / Draft 13.5 m

GRT 53,000

Volume 165,628.71 cbm - Nominal container capacity: 5,300 TEU

Port	Ambarli	Constanza	Iliychevsk	Odessa
Currency	USD	Euro	USD	USD
Date	Sept.2011	Sept.2011	Sept.2011	Sept.2011
Notice of arrival		8		
Channel Dues			7,128.64	
Light House Signalisation		1,581.78		
Light Dues	6,415		5,123.71	5,123.71
Supervision of vessel		4,218		
VTMS			3,983.14	3,983.14
Port Access Tariff		4,113		
Tonnage Dues (In & Out)			19,381	19,381
Quay Tariff	4,218	2,793		
Wharfage			3,898.48	3,898.48
Anchorage fees	299			
Watchman Service			175.33	272.04
Basin Tariff		63		
Outer Roads Supervision		20		
Harbour Master Office dues	50	5,272.6	233.33	375.9
Port Authority fees			838.25	
Administrative Dues				2,450.47
Mooring / Unmooring	755	970	766.8	681.6
Sanitary Dues	10,734		2,450.47	2,450.47
Sealing of Valves			83.33	128.09
Environment and garbage fees	750			
ITF Fee		80		
Tugs In		5,280	6,816.77	
Pilotage In		2,584.01		

Tugs Out		5,280	9,089.02	
Pilotage Out		2,584.01		
Pilotage In / Out	5,970		5,291.67	2,694.63
Tugs In / Out	4,694			16,440.43
Tugs / Overtime		1,600		
Hatches handling			451.2	
Hatch cover discharging				2,880
Contribution to Chamber of Shipping	216			
Maritime Chamber of Shipping	600			
Contribution to Ship Agents' Association	40			
Customs' overtime	330			
TOTAL	35,071	36,447.4	65,711.14	60,759.96
TOTAL IN EUROS PER PORT	**25,187.45**	**36,447.4**	**47,192.72**	**43,636.86**
(Basis yearly average exchange rate 2011 1 EUR=1,3924 USD)				

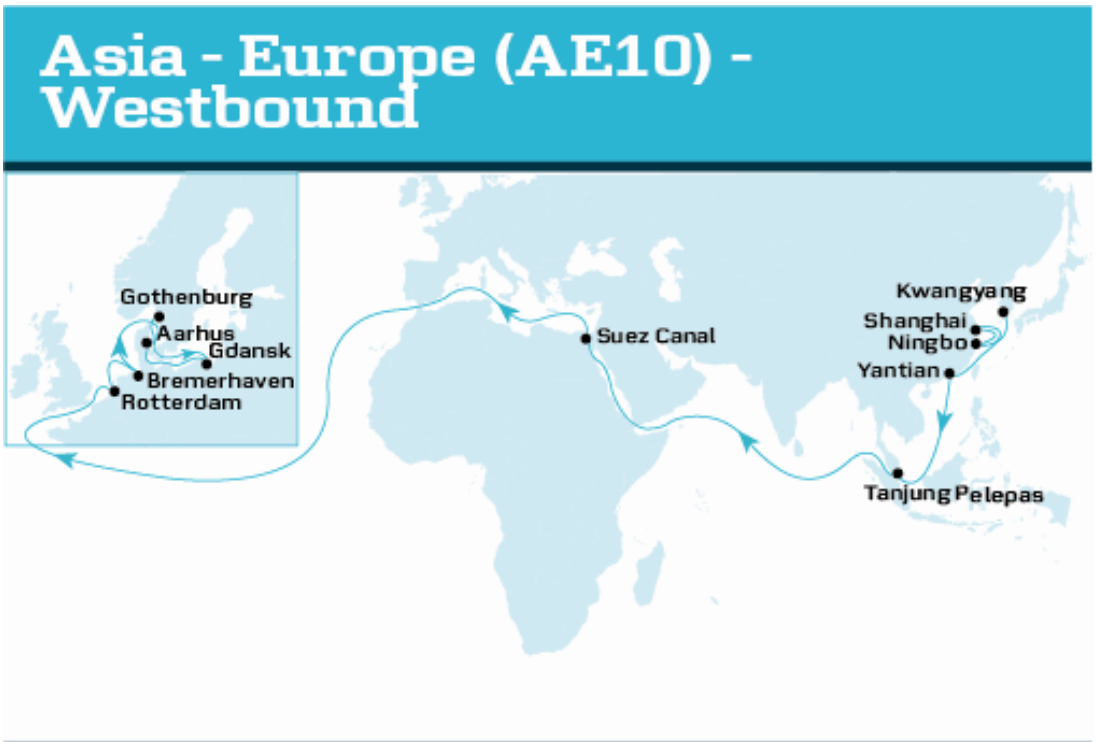
6.6 Appendix VI: Traffic at Ukrainian Ports for Selected Cargos

in thousand tonnes, tare included

Year	Roro		Wagons		Cntrs		Total		Total Ukrainian Ports Traffic
2009	**421.9**	**0.26%**	**2,826.8**	**1.74%**	**5,190.8**	**3.20%**	**8,439.5**	**5.21%**	**162,039.4**
	1.7	0.40%	493.1	17.44%	19	0.37%	513.8	6.09%	
2010	**452.4**	**0.29%**	**3,259.5**	**2.11%**	**6,687.5**	**4.33%**	**10,399.4**	**6.74%**	**154,381.9**
	3.8	0.84%	585.4	17.96%	25.9	0.39%	615.1	5.91%	
2011	**724.2**	**0,45%**	**1,788.8**	**1.11%**	**7,707.3**	**4.77%**	**10,220.3**	**6.32%**	**161,638.5**
	2.3	0.32%	416.8	23.30%	48.4	0.63%	467.5	4.57%	

The tonnages shown on the second line are those carried by Ukrainian-flag vessels for each year (e.g. 1.7 thousand tonnes Ro-Ro cargo have been carried by the Ukrainian fleet in 2009) and the percentages next to them represent the proportion carried by these vessels from the total tonnage for the considered type of cargo during that year (e.g. 1.7 / 421.9 = 0.40% of the total 2009 Ro-Ro cargo has been carried by the Ukrainian fleet).

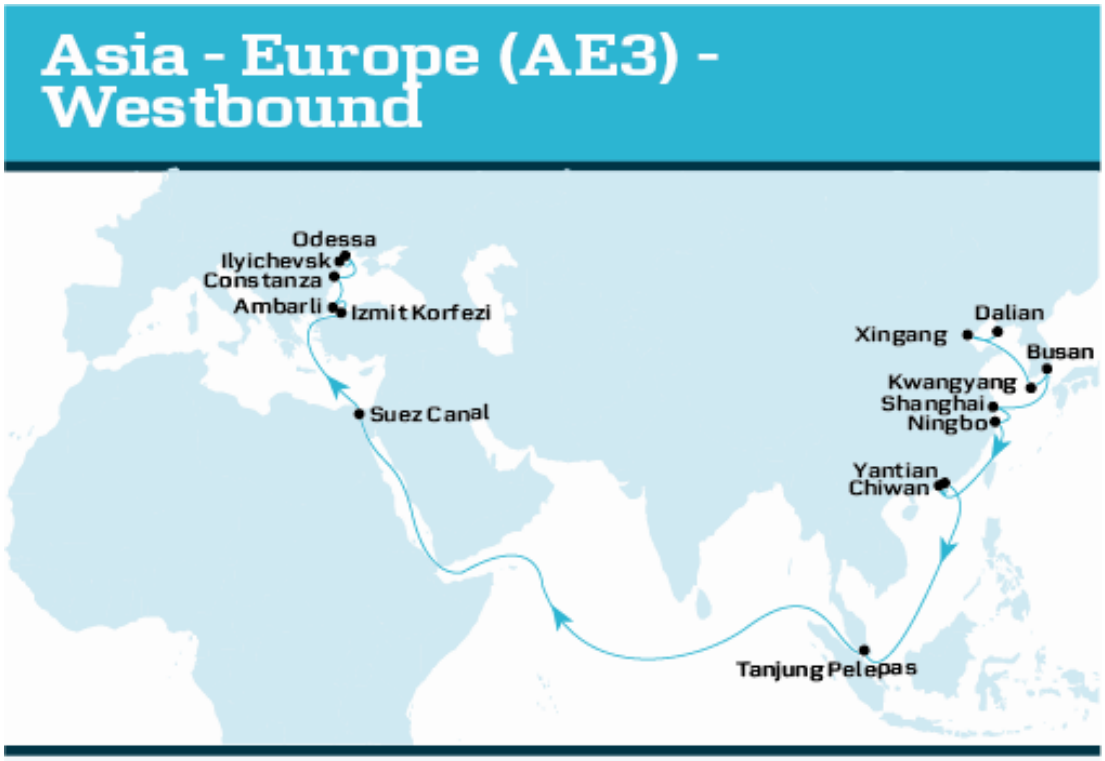
6.7 Appendix VII: MAERSK AE10 and AE3 Asia to Europe Services (WESTBOUND ROUTES)



Port	Arrives	Departs	Transit
Kwangyang, South Korea	TUE	WED	--
Ningbo, China	THU	FRI	1
Shanghai, China	SAT	SUN	3
Yantian, China	WED	WED	7
Tanjung Pelepas, Malaysia	SUN	MON	11
Suez canal, Egypt	FRI	FRI	23
Rotterdam, Netherlands	FRI	SAT	30
Bremerhaven, Germany	SUN	MON	32
Gdansk, Poland	WED	SAT	35
Aarhus, Denmark	MON	MON	40
Gothenburg, Sweden	TUE	WED	41

MAERSK LINE

Source: Maersk Line



Port	Arrives	Departs	Transit
Dalian, China		MON	–
Xingang, China	TUE	TUE	1
Kwangyang, Korea	FRI	FRI	4
Busan, Korea	SAT	SUN	5
Shanghai, China	MON	TUE	7
Ningbo, China	WED	WED	9
Chiwan, China	SAT	SAT	12
Yantian, China	SAT	SUN	12
Tanjung Pelepas, Malaysia	WED	THU	16
Suez Canal, Egypt	WED	WED	30
Izmit Korfezi, Turkey	SAT	SUN	33
Ambarli, Turkey	SUN	TUE	34
Constantza, Romania	THU	FRI	38
Odessa, Ukraine	SAT	MON	40
Ilyichevsk, Ukraine	TUE		43

MAERSK LINE

Source: Maersk Line

6.8 Appendix VIII: Potential Rail-ferry Trade in the Caspian Sea

Maritime distances retained for calculation are as follows:

- Baku/Aktau : 296 nm
- Baku / Turkmenbashi:179 nm

A number of assumptions are made:

- The newest 54 wagon, ferries (M/S 'Barda' and 'Balaken') sail at 90% of their design service speed (14.5 kn) as do the 4x52 wagon ones (M/S 'Academic Zafira Aliyeva', 'Karabakh', 'Aghdam' and 'Shahdag') and are deployed in priority on the longer Baku-Aktau route,
- The other rail-ferries of the 'Daghestan' class sail at maximum 12 kn,
- The steaming time along the shallow, unsafe Turkmenbashi access channel is about 3 hours per passage,
- All five rail bridges/ramps (2 in Baku, 2 in Turkmenbashi and 1 in Aktau) are in good working condition and can be used practically 24/7 year-long.

Hypothesis 1

Calls at each port from arrival at inward pilot station to sailing from outward pilot station last 24 hours (without any waiting time for berthing) which seems to be the very best achievable at Aktau and Turkmenbashi for the time being.

Estimated roundtrip durations:

Baku-Aktau:
1 d (Baku)+2*296/14.5*0.9*24 (sailing time to and from)+1 d (Aktau)=3.89 d rounded up to 4 d

Baku-Turkmenbashi:
1 d (Baku) +2*179/12*0.9*24 (sailing time to and from)+2*3 h (Turkmenbashi channel in and out) +1 d (Turkmenbashi = 3.64 d rounded up to 4 d

Number of possible trips per vessel

(360-5)[207]/4 = 90

Theoretical carrying capacity based on full loading of all vessels both ways

=90*(2*54*2+4*52*2+7*28*2) = 92,160 wagons i.e. ca 5.5 Mt cargo.

As a matter of fact this figure can't be reached. In this scenario the only 2 ramps at Baku working at full capacity cannot handle more than:

360 d * 2 vessels * 2*54 wagons (based on the capacity of the biggest vessels) = 77,760 wagons p.a.

Hypothesis 2

Calls at each port from arrival at inward pilot station to sailing from outward pilot station last 12 hours (without any waiting time for berthing) as was the norm at all rail-ferry ports during Soviet times.

[207] Taking into account a yearly provision for normal maintenance and repair and about 15 days drydocking every 5 years for class inspection and other technical maintenance requirements.

Estimated roundtrip durations:

Baku-Aktau:
1/2 d (Baku)+2*296/14.5*0.9*24 (sailing time to and from)+1/2 d (Aktau)=2.89 d rounded up to 3 d

Baku-Turkmenbashi:
1/2 d (Baku)+2*179/12*0.9*24 (sailing time to and from)+2*3 h (Turkmenbashi channel in and out) +1/2 d (Turkmenbashi = 2.64 d rounded up to 3 d

Number of possible trips per vessel

(360-5)[208]/3 = 120

Theoretical carrying capacity based on full loading of all vessels both ways

=120*(2*54*2+4*52*2+7*28*2) = 122,880 wagons i.e. ca 7.4 Mt cargo.

In this case the 2 ramps at Baku working at full capacity can handle up to:

360 d * 2 * 2 vessels * 2*54 wagons (based on the capacity of the biggest vessels) = 155,520 wagons p.a.

The rail access to the port of Baku being restricted to night time only, it will probably not be possible to implement such a working schedule until Alyat becomes operational.

[208] Taking into account a yearly provision for normal maintenance and repair and about 15 days drydocking every 5 years for class inspection and other technical maintenance requirements.

6.9 Appendix IX: UKRFERRY/NAVIBULGAR Black Sea Trade

			2008	2009	2010	2011	2012
Routes: Batumi/Poti-Iliychevsk/Kerch+Varna-							
Poti/Batumi							
Cargo gross tonnage in thousand tonnes			**1,029.4**	**864.2**	**1,119.7**	**1,117**	**969.3**
Wagons*			**13,305**	**12,458**	**15,851**	**14,841**	**10,423**
Containers*			**2,930**	**2,660**	**2,802**	**2,652**	**2,903**
Vehicles*			**8,521**	**5,529**	**7,496**	**9,381**	**11,409**
Pax			**12,013**	**10,078**	**10,618**	**11,977**	**13,117**
Iliychevsk-Varna route							
Cargo gross tonnage in thousand tonnes			**180**	**66**	**36.9**	**36**	**21.5**
Wagons	Full		**3,302**	**1,343**	**938**	**847**	**542**
Iliychevsk-Derince route							
Gross Cargo tonnage in thousand tonnes			**211.5**	**120**	**130.7**	**122.5**	**55.9**
Wagons*			**3,361**	**2,160**	**2,345**	**2,169**	**1,010**
Vehicles*			**2,905**	**548**	**502**	**383**	**169**
Pax			**45**	**44**	**43**	**103**	**47**

Remark: *Wagons include loaded and empty units*
Containers include loaded and empty units
Vehicles include: trucks + cars

6.10 Appendix X: Press Article in Port Finance International / 13-03-2013

The OECD (Organisation for Economic Co-operation and Development) is encouraging Turkey to create a public port authority. It is one of the recommendations of a study published March 2013.

The Turkish ports sector has undergone extensive privatisation since 1994, write authors Olaf Merk and Oguz Bagis. Out of the seven ports that were under the aegis of the Turkish State Railways (TCDD), four have been privatised (Mersin, Iskenderun, Bandırma and Samsun). The Haydarpasa container port has remained public, while Izmir and Derince are still in the portfolio of the privatisation department. The TCDD now plays a monitoring role, making sure the concession agreements are implemented, but it is not a governance structure, bemoan the OECD researchers.

'The creation of a public port authority is warranted,' consider MM. Merk and Bagis. 'The Turkish central government was traditionally strongly involved in cargo ports via the TCDD. This involvement has become much smaller with the privatisation of almost all of its ports. In many countries in which port operations are privatised, a public port authority takes up the remaining public functions, such as harbour master functions, but also the function of community manager, facilitating exchange between the operator, port clients, the regional development agency and the port-city'.

The authors came to this conclusion after examining the case of Mersin, one of the emerging gateway ports in the East Mediterranean. Located in the Cukurova region (southern Turkey), Mersin International Port (MIP) is now the second container port of the country, after Ambarli. It handled 1.1 million TEU in 2011.

The authors of the study note that Mersin is 'not subject to much competition, being the only container port in the region and having only one terminal operator, namely PSA/Akfen, the consortium that won the concession bid in 2007'. In their view, 'MIP enjoys a relative monopoly position'.

Local newspapers reported a 10% tariff hike in April 2008, whereas any increase was forbidden during the first three years after privatisation, and another rise in 2010, note the OECD researchers.

They also expose an inconsistency on the part of the Turkish government. Whereas MIP has submitted a proposal to expand its container reception capacity (in line with the concession agreement which requires the operator to increase its throughput), Ankara decided to build a new container port in Mersin, a project that would require reclaiming the land next to the current port facility.

'Instead of introducing intra-port competition by granting two concessions for the operation of the Mersin port, as suggested by the National Competition Authority, the Turkish government granted the operation of the whole port to one consortium, subsequently constraining the possibilities of this consortium to grow by proposing a new container port just next to MIP, that would effectively change its port layout and disable its own extension plan,' observe MM. Merk and Bagis.

That is another reason why they plead for a public port authority: 'The creation of such a port authority function could also clarify the chain of command in port-related decisions and investment plans'.

6.11 Appendix XI: Press Article in Port Finance International / 14-05-2013

Total Terminals International (TTI), which operates in the Californian port of Long Beach, wants to use the empty containers being returned to China to export grain for cattle feed. Construction of the transloading facility could start next September if the plan, currently under review, is approved.

The Port of Long Beach is holding public consultations on the Environmental Impact Report (EIR) on the project, with a meeting set for early next month.

According to this document, shipping vessels currently transport empty containers from TTI's pier, on Terminal Island. Under the proposed project, the same frequency of shipping vessels would occur, but the containers would instead transport grain and Dried Distillers Grains with Solubles (DDGS) from the American Midwest to China. Both products would be for cattle feed – and not for human consumption.

TTI's objective would be to export at least 750,000 tonnes of grain and DDGS per year.According to the US Grains Council, American DDGS exports to China grew by almost 50% between 2011 and 2012, when China overtook Mexico as the number one US export customer for that product.

At the port of Long Beach, TTI has therefore proposed to build a grain transloading facility at pier T, next to its container terminal whose annual capacity exceeds 3 million TEU. Spreading over 17.6 acres (71,225 sqm) on Navy Mole, the facility would comprise three concrete storage silos and be served by existing rail infrastructure.

According to the EIR, it would operate as an integral part of the existing TTI container terminal, and would be comprised of an automated facility that includes a hydraulic rail indexing system, automated conveyor systems, and automated shuttle conveyors to fill empty containers.

The document adds that construction is expected to take place over a year and a half, from September 2013 to February 2015.

The Port of Long Beach says that the capacity of this new grain export facility could range from 750,000 to 2.8 million tonnes a year.

Total Terminals International (TTI) operates two other terminals on the US West Coast, in Oakland (California) and Seattle (Washington). It is headquartered in Long Beach, where it operates the busiest of its three terminals.