



Unified Policy on Transit Fees and Tariffs
Единая Политика по Транзитным Расценкам и Тарифам

Cost based Tariffs for TRACECA Transit Traffic

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COST BASED TARIFFS FOR PORTS AND SHIPPING: PRELIMINARY ANALYSIS AND RECOMMENDATIONS

INTRODUCTION

This Working Paper is based on the information which has been provided by the Traceca area ports and shipping companies so far. It is not fully comprehensive, and many gaps remain to be filled; but the information contained is sufficient to draw preliminary conclusions on the scope for introducing cost-based tariffs to promote Traceca transit traffic. The text is based mainly on the Caspian maritime sector, which provided relatively detailed information, but includes relevant Black Sea information where available. It is hoped that the Black Sea ports and shipping lines will provide more detailed information in the near future.

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OBJECTIVES

The fundamental task of the ports and shipping part of the Terms of Reference is to

"propose tariff modifications to introduce *realistic rates reflecting actual costs*" (Terms of Reference, page 12)...for the purposes of making the "the whole of the Traceca route from the Chinese borders to the borders of Western European states ...commercially competitive and attractive" (page 8).

The main outputs will be:

- Proposals for realistic modifications to tariffs; and
- Recommendations on how to reduce costs/tariffs which are found to be too high in comparison with other countries, via cost reductions, improved efficiency or other approaches.

The project will also seek to *implement* the proposed changes

2 EXISTING PORT TARIFF SYSTEM

2.1 Existing Tariffs

The tariffs schedules for the three main Caspian ports are shown in detail in Appendix I.

2.2 Approaches to Setting Tariffs

Current Practice

Most of the Traceca countries are still applying the approach to tariffs which they inherited from soviet times - at least in theory. In that period tariffs were calculated by formulae administered by the Ministry of the Maritime Fleet (Sovmorflot) in Moscow.

In practice, however, the basis on which tariffs have been revised in recent years is often comparisons with tariffs in neighbouring countries. The obvious danger of this approach is that tariffs will drift upwards, rather than down.

The need to repay loans from development banks, especially EBRD, has been another motive for tariff increases.

Since independence, most tariffs have been fixed by the ports themselves, which remain state-owned. But because most of the ports have monopoly powers their rates have to be approved by the central government, often via the anti-monopoly commissions (see Chapter 3 for details)

For several years after the collapse of the Soviet Union revenues at the Caspian ports did not cover costs. But this was because traffic levels, rather than tariffs, were low.

The pressure to increase tariffs, however, has been reduced in recent years - by a revival of traffic at all the main Caspian ports. The traffic increase has brought all three of the Caspian ports into surplus (see Chapter 5 for details)

The tariffs have all been increased at all the main Caspian ports in recent years. Some of these changes have followed pressure from the EBRD. For example, Turkmenbashi's were increased in anticipation of loan repayments to EBRD.

Cost-Based Tariffs

This project seeks to introduce realistic rates based on actual costs, to enhance the competitiveness of the Traceca transit routes. The cost-based approach to tariffs is now generally accepted internationally, although actual tariffs are in practice often a compromise between cost based and value based (also known as demand-based, or "what the market will bear") approaches. To the extent that cost-based principles are applied the overall objective is usually to cover long term variable costs. But the Traceca ports are currently in a transitional phase with large amounts of surplus capacity, and this should allow the ports to charge tariffs based on short run variable costs and still make a profit on traffic generated.

In practice only limited attempts have been made in Traceca countries to base tariffs on costs - despite various port pricing studies which focused at least to some extent on a cost-based approach¹.

2.3 Structure of Existing Tariffs at Traceca Ports

The Traceca country port tariffs consist of tariff items which are **fairly standard throughout the world**. The main tariffs applied internationally are port entry dues, pilotage, tugs, berth occupancy, cargo handling and storage; and these tariff items are used in most Traceca ports (see Appendix I for details). The only significant difference is that some of the Traceca countries still use cubic measurements of the ship (length overall x beam x draft) rather than GRT, the standard international measure. This use of cubic metres is a legacy from soviet times and most countries have now converted to GRT.

2.4 Comparison of Traceca and International Tariff Levels

A comparison of Traceca country and international tariff levels is shown in Table 2.1. It is based on typical ships used in the Caspian. As shown, there are two main sets of dues - (a) those on ships and (b) those for cargo handling. The charges on cargo usually dominate in Caspian Black Sea ports - as well as elsewhere in the world.

The comparison shows that Traceca country port tariffs **are reasonably well in line with international tariffs**. The few **exceptions** include the **port dues** applied to ships

¹ For example, there have been studies in Aktau by Scott Wilson (Business Plan for Aktau, 1998); in Turkmenbashi by Corporate Solutions (Tariff Study Report, 1999); in Baku by PWC/Tebodin/Port of Rotterdam Institutional Development and Financial Management at Baku Port, Business Plan, 2001); in Georgia by a Canadian consultant working with the Georgian Maritime Transport Administration (current, 2002); and in Constanza with assistance from GTZ, Germany (current 2002)

at Black Sea ports. But although they are high, they are much less important than cargo handling tariffs. The total dues paid by ships range from US\$0.4 to US\$3.0 per tonne of cargo handled (see last column in Table 2.1).

These comparisons include only official tariffs. It has been claimed that underhand payments are also necessary to expedite movement at some of the ports; and that these increase the total cost of using the ports. But initial investigations, focusing on interviews with freight forwarders, agents, etc, suggest that although such payments undoubtedly exist, especially to persuade dock workers to speed up cargo handling, they are not a major concern (exceptions include sanitary dues on rail wagons at Georgian ports).

Port tariffs for handling *oil*, the main Traceca route cargo, are also low by international standards. They are only US\$0.36 per tonne at the key oil port of Dubendi (Baku)²; and even lower, at US\$0.13 per tonne, at Turkmenbashi. Only at Aktau, where they charge US\$1.5 per tonne, are the rates more in line with international rates.

Port tariffs for handling *rail wagons* on the Baku-Turkmenbashi/Aktau ferries are reported to be \$36 per 18 metre wagon at Baku and \$60 per 18 metre wagon at Turkmenbashi (BCEOM, August 2001). It is difficult to make international comparisons in this case, because there are relatively few rail ferries in industrialised countries, where road transport dominates and the ferries carry trucks and trailers. The few exceptions include Klaipeda, Kiel and some Swedish ports. But on the basis that an 18-metre truck would typically carry two TEU (three is possible, but unusual in practice), these tariffs are not high relative to lift-on-lift-off container tariffs elsewhere in the world.

Some conclusions

In general, Traceca port tariffs are reasonably in line with international tariffs. The main exceptions include port dues on ships in the Black Sea. But they are less important than cargo handling charges.

However, looking ahead to Chapter 5, it also appears that:

- whereas the tariffs for cargoes which *are* being handled are low by international standards, those for cargoes which are *not* being handled are slightly high; and
- there is considerable scope for reductions for transit traffic, because the marginal costs of handling additional traffic are low.

² Only the berths are owned by the Port of Baku. The operations are carried out by SOCAR, who also own the tanks and pipes. The port receives vessel dues plus 36 cents for "vessel inspection services". The latter was originally fixed at 60 cents before being reduced.

Table 2.1
COMPARISON OF PORT TARIFFS ON DRY CARGOES
IN TRACECA AND OTHER COUNTRIES

	CARGO HANDLING TARIFFS			PORT DUES
	Bagged Cargo	Bulk Cargo	Containers	(d)
	(a) \$/tonne	(b) \$/tonne	(c) \$/20'	\$/tonne
Varna	7.4	3.0	54	0.9
Bourgas	8.0	6.5	27	0.9
Constanza	7.5	3.1	64	0.6
Illychevsk	5.2	2.2	104	2.9
Odessa	5.2	2.2	104	3.0
Poti/Batumi	6.0	3.5	50	2.1
Baku	3.5	3.2	36	0.4
Aktau	8.0	8.0	80	1.5
Turkmenbashi	10.0	5.0	40-50	1.1
Typical International Tariffs		5.0	100(f)	0.7 (g)

(a) In 50 kg bags

(b) Grains

(c) The tariff shown is for loaded containers. Typical loads are about 12 tonnes (maximum 21 tonnes)

(d) The estimate shown includes port or tonnage dues, light dues, anchorage dues, channel dues, berth dues, quarantine dues, sanitary dues, pilotage, towage, mooring/unmooring and administration fees.

The cost per tonne assumes a 75% load factor on the typical 3000 tonne vessel on which the port dues are calculated

(e) Few bags are handled by conventional methods in the ports of industrialised countries. The cargoes previously handled in bags now move by container or ro-ro services.

(f) This rate is an approximate overall average. There are, of course, wide variations: examples of recent rates at major ports are as follows:

	US\$/TEU
Rotterdam	68
Felixstowe	100
Shanghai	107
Singapore	106
Hong Kong	142
Port Kelang, Malaysia	53
Karacahi	69
Yantian	100

(g) The rate shown is an approximate overall average. There are, of course, wide variations: examples of recent rates at major ports are as follows (please note that the consignment sizes over which the port dues are incurred are much greater outside the Caspian):

	US\$/ton
Tallinn	0.7
Riga	0.8
Klaipeda	0.7
St Petersburg	1.6
Ventspils	1.3
Singapore	0.4
Colombo	0.3
Bombay	0.8
Nhava Sheva	1.0
Dubai	0.1

Source of Caspian and Black Sea port rates: Traceca Secretariat, Baku, September 2001

Source of international tariffs, various.

3 INSTITUTIONAL AND REGULATORY ASPECTS

3.1 Role of Public and Private Sectors

Almost all the Traceca ports are owned and operated by the state. There is relatively little private participation as yet. The situation at the main ports is as follows:

Baku:	state monopoly (exceptions include private oil berths)
Turkmenbashi:	state monopoly at all terminals
Kazakhstan:	state monopoly (exceptions include private oil berths)
Ukraine:	state monopoly, with some joint ventures at petroleum, metal and other terminals.
Bulgaria	state monopoly, but concessions under discussion.
Romania:	state owned landlord port with private operations at Constanza.
Georgia:	state monopoly, but privatisation of operations has been discussed. There are already a few private operations, including terminals for scrap and oil.

Partial exceptions to the dominance of the state sector include Constanza where some of the cargo handling is privatised

Conclusion: The public sector is dominant. But although state monopolies have disadvantages, they have advantages for this project, via their control over tariffs.

3.2 Regulation of Tariffs

Almost all the port tariffs are regulated by the central governments. In most cases the regulation is via the anti-monopoly commission. This is reasonable, as the Caspian ports have monopoly powers. There is neither inter-port nor intra-port competition in most Traceca countries. (However, it should be emphasised that government regulation is normally necessary only to control the private sector, not other ministries within the same government.)

The regulatory authorities in the Caspian countries are:

- Azerbaijan: the anti-monopoly committee.
- Turkmenistan: the Cabinet of Ministers who have to approve the tariff proposals of the Ministry of Transport (?), which owns the port of Turkmenbashi and the TML shipping line.
- Kazakhstan: the anti-monopoly committee for the main tariffs. However, charges for tugs, storage and some other services are not fixed by government.
- Bulgaria; the Ministry of Transport regulates port tariffs..

- Romania: the Ministry of Public Works, Transport and Housing has to approve the tariffs levied by the Port of Constanza. But private stevedoring companies set their own prices.
- Georgia: the Georgian Maritime Transport Administration, under the Ministry of Transport

3.3 Discounts

Regulation of Discounting

The ability to negotiate tariffs to attract business is limited in the Caspian ports. All tariffs are fixed by the governments and discounting would often be breaking the law. The situation, however, varies by port, as follows:

- Turkmenbashi: discounts not permitted
- Baku: discounts up to 30% are allowed.
- Aktau. Tariffs are fixed by government. Discounts have to be approved. Furthermore, the port guaranteed the EBRD that it would not cut tariffs during the negotiations over their loan.
- Ukraine: 10% discounts are permitted from the tariffs which are approved by the MoT. Higher discounts require negotiation with the MoT.
- Bulgaria: discounts can reportedly be negotiated for high volumes at Bourgas.
- Discounts limited to those shown in the Maritime Administration tariff handbook.

Discounts at the Traceca Ports

Minor concessions have already been made. In February 2002 the Traceca Working Group for railways, seaports and shipping companies agreed the following:

- Baku and Batumi conceded discounts of 20% on containerised shipment to Afghanistan
- Caspar conceded a 50% discount on empty wagons taking humanitarian aid or construction materials to Afghanistan
- Ukrferry conceded a 30% discount on empty wagons taking humanitarian aid or construction materials to Afghanistan

These, however, are minor concessions, and Afghan aid cargoes are not yet flowing in large volumes.

Also, port tariffs for Caspian Shipping Company, the dominant shipping line on the Caspian Sea, have already been discounted at all three ports. The size of the ferries would make the normal tariffs very high, but special rates have been agreed at Turkmenbashi (about US\$2,800 per ferry call) and Baku (US\$800 a call). It might therefore be concluded that there is not much scope for further reductions. But on the other hand the variable cost of Roro operations at the port are extremely low. Little labour is involved; and the largest cost will be that of the loan repayments for (re)construction of the ferry terminals at all three ports.

The discounts to CSC, however, are for their ferry operations as a whole. They are not related to Traceca transit cargoes

Finally, Aktau is negotiating with its own and other governments for special discounts for two trades. First, they are trying to attract Chinese transit trade. And, secondly, they are trying to persuade their government to reduce steel port tariffs to retain Russian transit traffic (whose destination is Iran: it is not Traceca transit cargo).

4 TRAFFIC LEVELS

4.1 Total Traffic at Caspian Ports

Traffic volumes (including national imports and exports as well as transit traffic) are surprisingly low at the Caspian ports. If oil is excluded, the three countries, with a combined population of 30 million, had only four million tonnes of non-oil port traffic in 2001. The vast majority of their international trade is travelling by all-land routes - via Russia or Iran/Turkey.

In the late 1980s the Caspian ports were handling much more cargo, as follows:

	(million tonnes)
Turkmenbashi	8 (a)
Baku	16 (b)
Aktau	?

(a) Mainly ferry cargo

(b) Consisting of approximately 9-10 million tonnes of oil, plus 5 million tonnes of ferry traffic and 1.5 million tonnes of general cargo

The most important shipping service across the Caspian at that time was the Baku - Turkmenbashi rail ferry. In 1987 it handled 5.8 million tonnes, but by 1994 its throughput had fallen to 0.7 million tonnes. And although it has now revived to 1.6 million tonnes (in 2001), traffic levels are still well below those of the 1980s.

Nevertheless, the Caspian traffic is increasing, as shown in the following table:

Table 4.1
CARGO TRAFFIC AT CASPIAN PORTS 1995-2001
(000 tonnes)

	1995	1999	2000	2001
Baku	1,290	3,214	4,478	4,562
Aktau	361	3000?	4,110	5,659
Turkmen bashi	990	5,848	5,592	6,979
	Ex oil			
Total	2,641	9,062	14,180	17,200

The main cargoes are detailed in Table 4.2. As shown, they are dominated by oil, ferry traffic, metals and chemicals.

By far the most important cargo in the Traceca countries is *petroleum*. About 65 million tonnes are being produced and over 40 million tonnes are being exported from the Caspian region, according to the latest data available from the EIA.

The Russian monopoly of outlets to international petroleum consumer areas, which was almost 100% in the later 1990s, is now weakening. About 10 million tonnes are

moving by rail over the Caucasus from Azerbaijan to Batumi in 2001, and further volumes of so-called "early oil" have been moving via the Supsa pipelines to Georgia since 1999. Between them, these *Traceca routes have already attracted about one third of Caspian region oil exports*, with about two thirds still going out via Russian territory - in particular Russia's Druzhba pipeline network and CPC's new Tengiz-Novorossysk pipeline. The latter, however, despite moving over Russian territory and involving shipment via the Russian port of Novorossyisk, is controlled mainly by non-Russians. The Russian government has only a minority interest of 24%. The routing via Traceca of about a third of the regions exports within a short period can be considered a good achievement, given that much of the Kazak oil is located relatively close to the Russian Druzhba pipeline system which is its obvious outlet, as it was in Soviet times. The Traceca route cargoes consist mainly of Kazak oil shipped by tanker to Azerbaijan and then railed over to Batumi.

4.2 Existing Transit Traffic

Contrary to first impressions, it is relatively easy to identify transit traffic. All long-distance Traceca transit cargo has to pass over the Black Sea; and *almost all of it has to pass through Baku* (which also owns the Dubendi oil port). To the north of Baku lies Russia and to the south lies Iran. *Baku is therefore the key to the picture.*

Baku's port statistics identify transit traffic separately. In 2001 it reportedly consisted of:

- 3.2 million tonnes of oil, almost all from Kazakhstan to Baku/Dubendi, from where they are railed to Batumi . (Another 3 million tonnes of oil being routed via a private Azpetrol terminal close to Baku)
- 128,000 tonnes of alumina en route from Greece and other countries to an aluminium refinery in Takjikistan. There is also some aluminium traffic in the opposite direction.
- 36,000 tonnes of cotton from Uzbekistan and to a limited extent neighbouring countries to European destinations.
- 86,000 tonnes of soy bean from South America en route to an edible oil plant in Uzbekistan.
- 534,000 tonnes of other transit cargoes, consisting mainly of pipes, other oil industry equipment, and chicken (to Aktau).

The total amounted to 4 million tonnes, of which dry cargo accounted for 0.8 million tonnes:

	(000 tonnes)	
	2000	2001
Oil	3,571	3,246
Dry Cargoes		
Soybean	107	86
Cotton	122	36
Alumina	34	128
Others	222	545
Total transit	4,056	4,041

Turkmenbashi's statistics do not contradict this picture. They show some textile exports; some alumina materials going to the Tajikistan refinery and some aluminium ingots moving in the other products; and also some oil from Uzbekistan. In addition, some textiles from Ashkabad are exported via Turkmenbashi.

Aktau has been more successful than the other two ports, having attracted over a million tonnes of dry cargo - mostly steel. But this cargo is not Traceca transit cargo. Almost all of it goes to Iran.

On the Black Sea:

- **Poti** (Georgia) reported 1.8 million tonnes of transit cargoes (including oil) in 2001. Of the total, however, only 317,000 tonnes was recorded as going to/from Central Asia. The remainder of the trade was with Armenia (801,000 tonnes) and Azerbaijan (747,000 tonnes). Poti's traffic included 41,000 TEU in 2001, but no breakdown between transit and national cargoes was available. For local transit traffic Poti specialises in Georgian and Azeri traffic and Batumi specialises in Armenian traffic.
- **Batumi** recorded 7.6 million tonnes of petroleum and 414,000 tonnes of dry transit cargoes in 2001. Only a small part of the dry cargo, however went, or came from, Central Asia - i.e. 73,000 tonnes from Uzbekistan. The rest did not go to/come from beyond Armenia and Azerbaijan. The dry transit cargo is carried on (a) a Roro ferry (capacity, 40 trucks) from Constanza, every 2-3 weeks, which reported only 2,288 tonnes of cargo in 2001; and (b) a weekly rail ferry from Illichevsk. The rail ferry is reported to be fully booked in recent months, but the volumes of transit traffic are not available.
- **Bulgarian** ports report very little transit traffic. It is carried mainly by (a) SOMAT, owned by Willy Betz, which operates a Roro service between Bourgas and Poti/Novorossiysk and (b) a rail ferry linking Varna and Illychevsk with Poti and Batumi. The latter carried only 23,000 tonnes from Varna to Georgia in 2001.
- **Constanza** reports very little transit traffic. Favourable tariffs are offered by the port to rail ferries; but the rail ferry service started by Romanian National Railways 1998 linking Constanza and Poti was terminated after 3 calls because of lack of cargo

It can be inferred from Table 4.2 that the majority of the potential transit cargoes are bypassing the ports, and therefore moving on non-Traceca routes. A Traceca journey from Europe via Poti to, e.g., Ashkabad, crosses 4 borders and is handled 3 times, incurring unofficial payments as well as official tariffs, plus delays. The negative consequences can be illustrated by the following:

- The Aktau- Baku ferry was carrying only about 5-6 trucks per voyage in normal months at the end of 2000.
- The new container facilities at Baku have handled only 1000 TEU since they opened in 2000.

- The cotton exports which were the subject of an inter-governmental agreement to use the Traceca corridor have diverted to other routes. In 2001 Baku's reported cotton traffic was only 36,000 tonnes. This is a small fraction of the total, which is well over a million tonnes, mostly produced in Uzbekistan. Most Uzbek cotton used to go via the port of Riga in Latvia in Soviet times. The second port in those days was Illychevsk in Ukraine. In the mid 1990s an intergovernmental agreement was signed to divert much of this cargo diverted to the Traceca Route via Poti, with rail tariffs discounted to 40% of their normal levels. But Poti proved to have problems of security, restrictive practices and poor shipping services. It was not even used by Azerbaijan's own cotton exports. Today much of the cotton is exported via the port of Bandar Abbas in Iran.

Non Traceca Routes Used by Transit Cargoes

The main routes currently by the other potential Traceca corridor cargoes include:

- **The Volga-Don Canal.** This route is favoured particularly by the oil and construction industries, which bring in large volumes of equipment, pipes, machinery, etc. The canal suffers from several serious handicaps. First, its use is ruled out by ice for at least four months per year, and the users regard the effective season as even shorter. Secondly, its depth limits ships' loads to around 3000 DWT, which imposes serious diseconomies of size. Thirdly, the transit duties imposed on non-Russian ships are extremely high; and are increased by "special fees". Fourthly, the Russian authorities require non-Russian vessels to apply for permits on a case by case basis. And fifthly, even the non-Russian shipping services in the Caspian suffer from limited competition, being dominated by the Caspian Shipping Company. But despite these handicaps a large part of the supplies for the key oil and construction industries appear to be using this route. Some cotton also goes out via the Volga-Don canal.

Table 4.2

**CARGO TRAFFIC AT BAKU, AKTAU AND TURKMENBASHI
(000 TONNES)**
Baku Port Traffic

	2000	2001
Export		
Alumina oxide and alumina	251	111
Others	44	63
Total exports	295	174
Imports		
Salt	42	24
Others	85	77
Total imports	127	101
Transit		
Oil	3,571	3,246 (plus Azpetrol)
Soybean	107	86
Cotton	122	36
Alumina	34	128
Others	222	545
Total transit	4,056	4,041
TOTAL	4,478	4,562

Aktau Port Traffic

Crude oil and products(a)	3385	4357
Steel, metals	702	1060
Grain	15	84
Ferry	8	158
Total	4110	5659
of which... Transit		
Oil	2241	2621
Dry Cargo	145	312 (b)
Total	2386	2933

(a) Almost all crude oil

(b) Mainly Russian steel to Iran, not Traceca cargo

TURKMENBASHI

Oil (a)	4117	5113
Ferry (b)	1246	1662
- of which		
Chemicals	254	
Oil	237	
Textiles	80	
Metals	50	
Others	625	
Dry Cargo	229	204
- of which		
Salt	41	17
Metals	69	24
Chemicals	31	119
Machinery	62	25
Total	6838	6979

- Via **Turkey and Iran** by road. This route is favoured particularly by importers of construction materials and capital goods who place a premium on deliveries on time. The port of Baku reports that much of the transit traffic they have tried to attract has continued to be routed via Turkish/Iranian roads. Despite poor roads, building materials and other goods use this route where the sort of delays which occur in Baku and Turkmenbashi, especially in building sites at Ashkabad.
- Via **Russia by rail**. For example, about 95% of Kazakhstan's imports and exports are reportedly transported by rail. They include 600,000 tonnes of ferrochrome which goes out via Baltic (and also Black Sea) ports from Aktybinsk and Pavlodar. And even for imports from Northern Europe some Traceca country transport companies find the direct rail route via Russia more reliable and cheaper than Traceca routes.
- Routes from **the Middle East, via Iran**. The UAE is increasingly important as a source of supplies and a major trading partner for Azerbaijan and Turkmenistan. This will reduce trade with Europe.

It is concluded that a reasonably clear picture of current movements by sea in the Traceca corridor can be assembled. With only about 0.8 million tonnes of Traceca cargoes moving across the Caspian, it is clear that a large part of the potential traffic is moving by road (especially from Turkey, Iran and Europe), by rail (especially via Russia), by ship through the Volga-Don Canal during the summer months, and by various pipelines..

Potential Transit Traffic

The marketing departments of the ports did not have very specific lists of potential transit traffics. The few which were identified included:

- Possible oil shipments from Uzbekistan via Turkmenbashi. It is possible that this traffic could reach large volumes.
- Grains exports from Kazakhstan which has traditionally been a major producer of cereals.
- Containers
- Construction materials
- Sulphur

This short list, however, undoubtedly underestimates the potential. The Traceca countries have relatively large populations, totalling over 70 million. Potentially, they should generate reasonable volumes of trade. Even if Traceca trade continues to be dominated by Russia, Turkey, Iran and the Far East, reasonable volumes should still come from/go to Europe.

But as yet the trade volumes are still very low for countries of this size. There is a strong focus on oil development. In contrast, industry is not developing - not even the oil based industries in which many other countries with plentiful supplies of oil have been investing. The typical investment program of oil-rich countries which are trying

to diversify to avoid over-dependence of oil exports includes petrochemicals, ammonia production, fertilisers, sponge iron plants, aluminium plants. But there is little activity, existing or planned, of this type in the Traceca region.

Also, it is possible that even when/if the Traceca economies take off there may be a strong trend towards trading with Asia rather than Europe. Dubai already appears to be an important supplier of the countries surrounding the Caspian. The increasing influence of Dubai has been assisted by the development of relatively good road and rail transport via Iran.

5 COSTS AND REVENUES

5.1 Revenues

The revenues at Caspian ports are low. In 2001, they averaged only US\$1 per tonne at Turkmenbashi and Baku, and \$4 per tonne of cargo at Aktau and These figures include cargo handling as well as port dues. *Port dues* alone amounted to only US\$ 0.6 per tonne at Turkmenbashi, less than US\$0.5 at Baku and \$1.3 per tonne at Aktau and in 2001. On the Black Sea the revenues were also low. The port of Batumi's revenues averaged US\$1.5 per tonne and Odessa's averaged US\$1.8 per tonne in 2001.

Table 5.1
REVENUES PER TONNE AT CASPIAN PORTS

	Revenues (US\$ mn) (a)	Cargo Handled (mn tonnes)	Revenues, (\$ per tonne)
Baku	2.9	4.3	0.7
Turkmenbashi	7.3	7.0	1.0
Aktau	22.7	5.6	3.9

(a) see Tables 5.8-5.10 for details.

The revenues are low for several specific reasons, including the following:

- *The port traffic is dominated by oil, which never generates high revenues per tonne in any country.* Oil is a high volume cargo, and handling is fully mechanised. This enables costs to be low.
- *Ferry traffic enjoys large discounts.* For example, the CSC ferries receive a discount of 50% off official tariffs at Turkmenbashi and pay only US\$800 per call at Baku, their home port, for their ferries (and \$1200 for other liquid and dry bulk ships: these amounts include all vessel and cargo charges).
- *Most of the small volume of "other" cargoes consists of low-value cargoes with low cargo handling charges.* For example, at Turkmenbashi the main cargoes are salt, for which the cargo handling charge is only \$2/tonne, metals (\$2) and chemicals(\$4). Aktau is an exception, handling over a million tonnes of steel in 2001, for which revenues were \$6 per tonne. Also, it earned higher cargo handling charges from oil than the other ports.

Furthermore, there are no charges between shipping and ports owned by the same organisation: e.g. TML ships do not pay port dues to the Port of Turkmenbashi.

But there are also a few very high specific charges. For example Iranian ships pay very high charges at Turkmenbashi.

It should be emphasised that *if the ports were handling more mixed general cargo or containers, their average revenues would be higher.* The cargo handling tariffs for

key cargoes are shown in Table 5.2. It will be seen that the tariffs for most cargoes are well above the average revenues per tonne shown in the last column of Table 5.1.

Table 5.2
CARGO HANDLING CHARGES FOR THE MAIN CARGOES
(US\$/tonne)

	Aktau	Turkmenbashi	Baku	Baltic Countries	International
Oil	1.5 (a)	0.13	0.36	1-5 (g)	1-2
Steel	6	4	4.5	4	5
Grain	8 (e)	3	3	4(c)	4 (c)
Containers(f)	80/120	40/60	50/100	60/90 (b)	100/150(d)

- (a) Aktau, however, recently lost much of its oil revenues when ownership of two of its three oil terminals were transferred to the local petroleum shipping company.
- (b) The Baltic ports have full container terminals and moderately fast handling speeds. This is in contrast with the Caspian countries which have very little container traffic and no specialised berths.
- (c) For large volumes in bulk
- (d) There is a wide variation
- (e) But the port receives only \$0.9 in practice, as the grain is handled at a private silo.
- (f) For 20' and 40' containers
- (g) The low end of the range is for crude oil arriving in pipelines. The high end is for products from rail cars with difficult handling characteristics, e.g. a need for heating.

5.2 Costs (Total)

The total costs of operation are significantly below revenues at all three of the Caspian ports (see Table 5.3).

Table 5.3
Total Costs Compared with Revenues at Caspian Ports, 2001

(\$ million)	Revenues	Costs	Costs excluding depreciation (a)
Aktau	22.7	11.1	9.4
Turkmenbashi (b)	7.3	4.0	3.8
Baku	2.9	2.3	2.0

- (a) Depreciation is not a real cost, and its justification is questionable for many of the main assets at ports (see section 5.3 (b) for discussion)

The ratios of total costs to total revenues in the 2001 accounts were as follows:

Aktau	50%
Turkmenbashi	55%
Baku	79%

The costs at the ports are very low when expressed per tonne of cargo handled. The average costs are as follows:

(Costs, US\$/tonne, including depreciation)

Baku	0.5
Turkmenbashi	0.4
Aktau	1.9 (a)

(a) Aktau, unlike the other ports, has already started repaying EBRD loans

However, it is emphasised that the costs are understated. In particular, (a) depreciation is too low; (b) maintenance expenditure is insufficient to keep the ports in good order; and (c) EBRD loan repayments have not yet started at two of the ports. The costs are adjusted to take these deficiencies into account in section 5.4.

5.3 Breakdown of Cost by Main Item

The main costs are wages, depreciation, loan repayments and interest. The shares accounted for by each of these items are summarised in the following table.

Table 5.4
COSTS AT THE CASPIAN PORTS, BROKEN DOWN BY ITEM

% of total	Baku	Turkmenbashi	Aktau
Wages	35%	48%	26%?
Social Insurance	11%	9%	5%?
Depreciation	15%	5%	21%
Repair	6%	13%	10%
Fuel	2%	3%	11%
Others (specify)	31%?	21%?	28%?
	100%	100%	100%?

The main costs are discussed in the following paragraphs.

(a) *Wages*

The numbers of staff, wage bills and average salaries at Caspian ports are shown in Table 5.5. There is a large variation, but *none of ports has wage costs amounting to more than 50 US cents per tonne of cargo handled.*

Table 5.5
EMPLOYMENT AND AVERAGE SALARIES, 2001

Port	Number of Staff	Salaries (US\$million)	Average Salary (US\$ p.a.)
Baku	850 (a)	1.1	1300
Turkmenbashi	930	2.4	2600
Aktau	400	2.7	6800

(a) Staff numbers have declined from about 1000 five years ago and 1500 in Soviet times.

(b) Depreciation

The depreciation charges shown in the ports' accounts are low. They are shown in Table 5.6. Only at Aktau are they calculated at realistic levels. At Turkmenbashi and Baku, however, they are estimated on the basis of general government rules which assign values to assets which are far below their replacement costs.

Table 5.6
DEPRECIATION CHARGES SHOWN IN PORTS' ACCOUNTS, 2001

	(US\$ 000)
Baku	363
Turk	160
Aktau	1,790 (a)

(a) The assets were last revalued in 1997. Their current value, US\$47 million, is considered realistic.

The undervaluation of depreciation allowances is a major defect in the accounts, but not quite as important as might appear at first sight. Depreciation is not, of course, a real cost. It has two main uses in practice - first to reduce tax obligations; and, secondly to build up a fund for replacement. In practice, however, the main assets - berths - are rarely replaced, and even when they are, it is common practice internationally to fund the investment from loans rather than internal surpluses. On the other hand, replacement of the second main asset, handling equipment, is normally funded internally from accumulated depreciation allowances. Accordingly, it may be more realistic to include depreciation on only 50% of the replacement value of total assets.

(c) Loan Repayments

At present only Aktau is paying back loans for development in 2001. But by 2003 all three ports will be doing so.

The loans were as follows:

Aktau loan US\$54 million from EBRD,
 Turkmenistan US\$30 million from EBRD (plus \$11 million to be passed on to an oil
 company)
 Baku US\$16 million

The repayments and interest on these loans will increase the cost base quite considerably over the next few years. Future loan repayments at the Caspian ports were calculated by the financial staff at the respective ports as follows:

Table 5.7
INTEREST AND LOAN REPAYMENTS SCHEDULE FOR CASPIAN PORTS
(US\$ Million)

	2002	2005	2010
Baku	1.4	1.4	1.4
Turkmenbashi	2.4	4.4	3.4
Aktau	3.8	3.8	3.8

(d) Maintenance

The maintenance expenditures shown in the accounts are too low to keep the ports assets in good working order.

5.4 Adjustment of Costs to Cover More Realistic Depreciation and Maintenance, and Loan Repayments.

The last section concluded that the current accounts tend to understate the costs of maintenance, depreciation and debt service. Table 5.8 therefore adjusts the costs shown in the 2001 accounts to include:

- more realistic depreciation allowances
- more realistic maintenance costs; and
- repayments and interest on EBRD loans.

The calculations shown are in approximate terms, based on international working rules. They assume that:

- annual maintenance costs average about 1.5% of approximate asset replacement costs; that depreciation values;
 - depreciation allowances based on average asset lives are around 25 years, for 50% of asset replacement values (see previous page); and
- loan repayments and interest for the next few years (actual data supplied by the ports).

Table 5.8
ADJUSTMENT OF PORT COSTS TO COVER MORE REALISTIC
DEPRECIATION ALLOWANCES AND MAINTENANCE, AND FUTURE
LOAN REPAYMENTS
(US\$ million)

	Costs as Shown in in Accounts, 2001	Costs as Shown in in Accounts, 2001 PLUS a. Future Loan Repayments b. More Realistic Depreciation c. More Realistic Maintenance
TURKMENBASHI		
Wages	1.42	1.42
Social Insurance, etc	0.28	0.28
Depreciation	0.13	0.60
Loan Repayments, Interest		3.00
Repairs	0.39	0.39
Fuel	0.10	0.10
Others	0.63	0.63
Total	2.95	6.42
BAKU		
Wages	0.83	0.83
Social Insurance, etc	0.26	0.26
Depreciation	0.36	0.60
Loan Repayments, Interest		1.40
Repairs	0.13	0.23
Fuel	0.05	0.05
Others	0.72	0.72
Total	2.35	4.08
AKTAU		
Wages	2.27	2.27
Social Insurance, etc	0.44	0.44
Depreciation	1.79	0.90
Loan Repayments, Interest	2.46	2.46
Repairs	0.84	0.84
Fuel	0.94	0.94
Others	2.39	2.39
Total	11.13	10.23

5.5 Reductions Necessary to Bring Tariffs into Line with *Total* Costs

The overall tariff reductions which would be necessary to bring in line with *average* or *total* costs - are shown in Table 5.9. It shows, first, the percentage by which tariffs would have to fall to bring them in line with costs as shown in the 2001 accounts (*without any surplus*). And secondly, and more realistically, how far tariffs would have to fall to bring them in line with the same costs *with additions* to cover:

- more realistic depreciation allowances
- more realistic maintenance costs; and
- repayments and interest on EBRD loans.

It will be seen that all ports could reduce their tariffs if they only had to cover the total costs shown in their 2001 accounts. But only Aktau would be in a position to reduce tariffs if the more realistic assumptions on depreciation, loan repayments and maintenance described in section 5.4 are taken into account are taken into account.

Table 5.9
CHANGES NECESSARY TO BRING TARIFFS INTO LINE WITH *AVERAGE/TOTAL* COSTS, 2001

	Based on Costs as Shown in In Accounts, 2001, without Profits	Based on 2001 Costs PLUS a. Future Loan Repayments b. More Realistic Depreciation Allowances c. More Realistic Maintenance - Plus 20% growth in cargo Costs
Turkmenbashi	-60%	(a) -9%
Aktau	-51%	-58%
Baku	-21%	+42%

(a) All three of the above items are estimated in approximate terms.³

5.6 Comparison of Revenues and Costs for the *Individual* Services.

The costs of almost all *individual services* are well below revenues at the three main Caspian ports. They are shown in Tables 5.10 to 5.12. The only significant exception, where costs *exceed* revenues, is in general cargo handling operations at Baku - where staff have been retained despite the fact that cargo volumes have remained very low.

³ It is emphasised that the costs shown in this summary are approximate. It is not the objective of this project to carry out a detailed cost-based tariff study for each of the Traceca ports. The objective is to reach clear conclusions about the scope for discounting tariffs throughout the Traceca region in broad terms.

Table 5.10
COMPARISON OF AKTAU COSTS AND REVENUES 2001

	Revenue (US\$ 000)	Costs (US\$ 000)	Cargo Handled (000 t)	Revenue Per tonne (US\$)
Cargo Dues				
Oil	6,507	2,014	4329	1.5
Grain	75	41	84	0.9
Ferries	205	89	191	1.1
Cargo Handling Charges				
Metal	6,322	4,507	1,041	6.1
Ferry, almost all metals	137	103	22	6.2
Others, incl. Grain	192	103		
Total, cargo dues and cargo handling	13,438	6,856	5,659	2.4
Port Dues	7,137	3,500	5,659	1.3
Tonnage dues	1,274	589		
Berthing	425	192		
Alongside	4,192	2,116		
Light dues	267	130		
Environmental dues	123	75		
Other	856	397		
Other	2,144	788		0.4
Total	22,733	11,130	5,659	3.9

Source: Port of Aktau

Table 5.11
TURKMENBASHI COSTS AND REVENUES 2001

	(US\$ 000)		Cargo Handled (000 Tonnes)	Revenue Per tonne (US\$)
	Revenue	Costs		
Navigation	1,977	956	6,979	0.3
Port and Berth Dues	4,029	1,365	6,979	0.6
Cargo Handling	888	538	6,979	0.1
- of which				
PPK 1, Dry Cargo	..	540	204	
PPK 2, Ferry	..	85	1,662	
PPK 3	..	0		
PPK 4, oil , Okarem	..	33	5,113	
Ferry Services	4	0	1,662	
Others (a)	452	452		
	=====	=====		
Total Port, excluding ship charter	7,336	2,950	6,979	1.1
	=====	=====		
[Ship Charter (excluded)]	1,460	1,062]		

(a) Mainly workshops

Source: Port of Turkmenbashi

**Table 5.12
BAKU COSTS AND
REVENUES 2001**

	Revenue (US\$ 000)	Costs (US\$ 000)	Cargo Handled (000 Tonnes)	Revenue per tonne (US\$)
Cargo Dues by Terminal				
Oil terminal	750	475	2,619	0.29
Ferry terminal	815	85	1,877	0.43
General Cargo	145	620	64	2.26
Total Cargo Dues	1,710	1,181	4,562	0.38
Ships Dues and Others	1,190	1,119	4,562	0.26
Total	2,900	2,300	4,562	0.64

Source: Port of Baku

5.7 Profitability

All the Caspian ports are making a profit at present (see Table 5.13), after a period of losses in the early-mid 1990s⁴. Furthermore, almost all the individual services make profits. Also, traffic has been rising.

Table 5.13
PROFITABILITY AT MAIN CASPIAN PORTS, 2001
(US\$ million)

	Aktau	Turkmenbashi	Baku
Revenues	22.7	7.3	2.9
Expenditure	11.1	2.9	2.3
Surplus	11.6	4.4	0.6

Source: Ports' Accounts

However, the financial positions of the Caspian ports may not be as stable in the future. First, it should be recognised that much of the additional income at the ports has come from oil. About 10 million tonnes at present use Traceca transit routes across the Caspian and via the railway to Batumi, Georgia. But the oil is vulnerable to the development of pipelines - particularly the 30 million tonne CPC Tengiz-Novorossiysk pipeline and the planned 60 million tonne Baku-Ceyhan pipeline. Secondly, the Russian government has started to protect its own ports in the last two years. The worst hit of the Caspian ports is Aktau, which has seen its Russian steel transit trade diverted to Russian ports, via manipulation of Russian rail tariffs. Thirdly, all the ports will have to pay back loans to EBRD for port development over the next decade. The financial position of Caspian ports could therefore deteriorate over the next few years

5.8 Variable Costs of the Main Services

The key to the scope for discounting tariffs for Traceca transit cargoes, however, is not total costs, but variable costs.

The tables on the next page confirm that majority of the Caspian ports' costs are fixed, rather than variable. That is to say, they will remain the same whether more transit cargo is handled or not.

⁴ On the Black Sea,

- the Ukrainian ports' accounts show minor profits in 2001
- Varna (Bulgaria) recorded a profit of 50% over costs of Euro 10 million. The port lost about 30% of its revenues to the new Port Administration when it was set up in 2000, but raised its tariffs by an average of about 30% to compensate.
- Batumi reported a large profit, with revenues of US\$12.1 million and cost of only US\$4.5 million in 2001
- Poti reported only a small profit of US\$1 million on its total revenues of US\$ 16.1 million in 2001

The main *fixed costs* are loan repayments, depreciation, social insurance and the majority of salaries; while the main *variable costs* are fuel, supplies, maintenance, materials, operating expenses.

Detailed analysis of the port of Aktau undertaken by Scott Wilson in 1998 came to the conclusion that variable costs were less than 15% of total costs.

Preliminary analysis of the 2001 accounts of the Caspian ports gave similar results. They showed that variable costs accounted for approximately 19-31% of total costs:

Variable costs as a % of Total Costs, 2001

Baku	19%
Turkmenbashi	31%
Aktau	22%

Details of these calculations are shown in Tables 5.12-14. Furthermore, variable costs account for only 11-15% of revenues.

Variable costs as a % of Total Revenues, 2001

Baku	15%
Turkmenbashi	12%
Aktau	11%

Table 5.12
PORT OF AKTAU: VARIABLE AND FIXED COSTS, 2001
(including 2001 loan repayments)

	(US\$ million)	
Fixed Costs		
Wages (75%)	1.7	
Social Insurance (25%)	0.3	
Depreciation	1.8	
Loan repayments	2.5	
Others	2.4	
Total Fixed Costs	8.7	(78%)
Variable		
Wages (25%)	0.6	
Social Insurance (25%)	0.1	
Repairs	0.8	
Fuel	0.9	
Total Variable Costs	2.4	(22%)
Total Costs	11.1	(100%)

The figure shown is based on the 2001 accounts.

Table 5.13
PORT OF TURKMENBASHI: VARIABLE AND FIXED COSTS, 2001
(excluding imminent loan repayments)

	(US\$ million)	
Fixed Costs		
Wages (75%)	1.07	
Social Insurance (25%)	0.21	
Depreciation	0.13	
Loan repayments (a)		
Others	0.63	
Total Fixed Costs	2.04	69%
Variable		
Wages (25%)	0.36	
Social Insurance (25%)	0.07	
Repairs	0.39	
Fuel	0.10	
Total Variable Costs	0.91	31%
Total Costs (plus imminent loan costs)	2.95	100%

NB. Loan repayments had not started in 2001. The figure shown is based on the 2001 accounts.

Table 5.14
PORT OF BAKU: VARIABLE AND FIXED COSTS, 2001
(excluding imminent loan repayments)

	(US\$ million)	
Fixed Costs		
Wages (75%)	0.62	
Social Insurance (25%)	0.20	
Depreciation	0.36	
Loan repayments (a)		
Others	0.72	
Total Fixed Costs	1.90	(81%)
Variable		
Wages (25%)	0.21	
Social Insurance (25%)	0.06	
Repairs	0.13	
Fuel	0.04	
Total Variable Costs	0.44	(19%)
Total Costs (plus imminent loan costs)	2.34	(100%)

The figure shown is based on the 2001 accounts.

6 PROMOTIONAL PORT PRICING ELSEWHERE IN THE WORLD

It is common practice in ports elsewhere in the world to cut prices to attract traffic.

The best example is probably the discounts offered by international container terminals to attract transshipment of containers with both origins and destinations in other countries (similar to transit traffic). Typical examples at key container transshipment ports in Asia are given in Table 6.1. As shown, Singapore, Colombo and Port Klang all offer much lower rates per lift for transshipment compared with national containers.

Table 6.1
COMPARISON OF TARIFFS FOR NATIONAL AND TRANSHIPMENT TRAFFIC AT MAJOR TRANSHIPMENT PORTS, 2002 (US\$)

	Imports/Exports		Transshipment (per move)	
	20'	40'	20'	40'
Colombo	148	228	36	72
Singapore	82	117	70	70
Port Klang	61	61	27	41

Source: Major Container Shipping Line, 2002

One of the most publicised recent reductions on port charges was at Singapore. After years as the top container port in the world (first equals with Hong Kong) it has lost its two main customers to a neighbouring port in 2001/2. Its response in 2002 was to cut port dues by 10% and tariffs for empty containers by 50%.

The Baltic ports have also reduced tariffs in recent years as they have had to face strong competition to win Russian transit traffic.

7 SURPLUS CAPACITY

The Caspian ports' traffic levels are all well below (i) those for which they were designed and (ii) the volumes handled in the late 1980s. Table 7.1 compares current with peak traffic levels.

Table 7.1
COMPARISON OF PEAK AND CURRENT TRAFFIC LEVELS AT MAIN CASPIAN PORTS
(Million tonnes, excluding oil)

	Peak Traffic, late 1980s	Current Traffic
Aktau	n.a.	1.3
Turkmenbashi	8 (1987)	2
Baku	7 (late 1980s)	2

There is therefore surplus capacity at most of the berths at the three main Caspian ports. Data from the respective ports suggests that they have the following surplus capacity in approximate terms:

Surplus Capacity, 2001

Baku

General cargo berths	90%
Ferry terminal (a)	70%
Oil berths	50%

Turkmenbashi

General cargo berths	60%
Bulk/aggregates	90%
Ferry terminal (a)	70%
Oil berths	..

Aktau

General cargo berths	30%
Ferry terminal (a)	>90%
Oil berths	40%

- (a) The figures for the ferry terminals reflect the surplus capacity of the ferry fleet as well as the terminals.

On the Black Sea

- Berth occupancy in Bulgaria was reported at only 46% at Bourgas and 55% at Varna in 2001.
- Berth occupancy at Constanza was reported at about 40% in 2001
- The ports of the Ukraine report surplus capacity.
- The Georgian ports reported 77% surplus capacity at the dry cargo berths and 37% at the oil berths of Batumi in 2001

The surplus capacity would allow the ports to cut tariffs to much lower levels and still make a profit on any cargo attracted.

8 TARIFF VERSUS NON-TARIFF BARRIERS TO TRACECA TRANSIT TRADE

Tariffs are by no means the only barriers to the use of Traceca routes. There are also major non-tariff barriers, and they need to be borne in mind if a programme of tariff concessions is to be successful. The non-tariff barriers were reported as follows, roughly in declining order of importance, by forwarders and other representatives of the transport industry who were interviewed fundamentally in their capacity as *users of the ports and shipping services*:

Customs Difficulties

Difficult customs practices in the Traceca countries - including arbitrary and unpredictable interpretation of the rules, unnecessary delays, slow and bureaucratic procedures, high import duties and under the counter payments - were generally regarded as the most important non-tariff barrier to the development of Traceca transit trade. The transport organisations who were interviewed stated that the customs problems have made **Baku**, the key transit port, a difficult place in which, and via which, to do business. They have also prevented Azerbaijan's emerging as the main trading centre (say, the Dubai) of the Caspian. Customs problems were also singled out as the main barrier by freight forwarders at **Turkmenbashi**. Freight forwarders complained that the interpretation of the rules is constantly changing and emphasised the need for greater transparency. It is noteworthy that customs at the Iran-Azerbaijan border at Astana, where the truck traffic is heavy, procedures are reported to be reasonably fast. The transit trucks are issued with transit documents which are faxed to the next border crossing and have to be followed up within two days. There is little inspection except for sniffer dogs. The main procedure is the adding of an extra seal to the truck as it crosses the border. Customs, however, are cleared only at the destination.

Caspian Shipping Company Monopoly

The Caspian Shipping Company is a semi-monopoly, handling the majority of dry cargo crossing the Caspian along Traceca routes. It accounted for almost 90% of the ships calling at Baku in 2001. The volumes of non-CSC dry cargo at Baku are low. CSC's operations were criticised in the feasibility study for the upgrading of the ferry terminal in 1998, for (i) unreliable departure and arrival schedules, which were mainly a result of CSC's waiting until their vessels are full, and under the counter payments. Their freight rates are also rather high (see section Chapter 10 for details). In 2002, interviewees continue to cite CSC as one of the main hurdles to the development of transit traffic. The main criticisms are that the services are expensive, and can be inflexible and unresponsive to customers' needs. This is a significant problem, as a high proportion of potential Traceca transit traffic would be likely to use Caspar ferries.

Poor Rail Services

Rail services are perceived to be relatively inexpensive, but extremely inefficient. For example, in Turkmenistan, key forwarders stated that they would not even consider rail because of its poor service. They used only road services, despite its high cost. This must be a cause for concern. If the long-distance transport chain is in practice likely to be road-sea rather than rail-sea its economics are going to be much less competitive (see below).

High Road Haulage Costs

Road haulage costs in the region in the area are high. First, trucking costs are inevitably well above rail costs, as in all countries. The basic operating costs probably average about US\$1 per km for large trucks, compared with rail rates about

a quarter of this level. Secondly, they are inflated by transit fees (justified by the claim that heavy trucks cause road damage) which can almost double the basic charge, e.g. in Georgia. Thirdly, the number of permits to drive trucks across the Traceca countries is limited, so that permits often have to be purchased at high prices. Fourthly, visas for drivers are often both expensive and hard to obtain. And, fifthly, cost can escalate alarmingly when loads are above standard dimensions - which is quite common, given the dominance of importance of oil industry equipment and construction materials in the market. For example, in Turkmenistan forwarders confirmed those special payments for inland transport of oversize movements can cost as much as US\$3000-4000 per truck. Also, they can involve payments to several different ministries (e.g. special surveys are sometimes needed for each routeing).

Port Efficiency

The quality of the services at the ports is generally considered to be in need of improvement. (In comparison, tariffs are considered reasonable by most users - except for heavy lift crane, which is extremely expensive)

Miscellaneous.

- The Russians authorities are actively trying to divert cargoes to their own ports. The main example in the Caspian is the manipulation of rail tariffs to divert steel exports which were being shipping via Aktau in 2001 to Mahachkala and Astrakhan. Similar policies are being implemented in the Baltic.
- Inter-modal transfer costs at Baku can be high. For example, at Baku the cost of moving a 40' trailer between the railway and the port is reported to be US\$100.
- Documentation is much more complicated than in Europe.
- In Georgia, there are particularly obstructive practices, including:
 - The need for each container to be escorted by customs
 - Prohibition of night time driving for containers
 - Absence of harmonised documents, and excessive document control at at random locations;
 - Excessive processing of documents and permits
 - 'Road tax' for trucks in Azerbaijan (200 USD);

Also, for containers arriving by rail from Georgia to Baku, it is compulsory to use Kishley terminal, where the customs are sufficiently difficult to deter shippers from using rail

9 RECOMMENDATIONS FOR PORT TARIFFS

It has been confirmed that there are two key points which should allow significant reductions in *port* tariffs for *transit cargo*:

- First, there is a large amount of surplus capacity in the ports. Traffic levels are now well below those for which the ports were built in Soviet times.
- Secondly, the ports' costs are largely fixed; and the marginal cost of handling additional transit cargo is low. There should therefore be little to lose by large reductions in transit tariffs - at least temporarily, until traffic picks up and further investment and employment becomes necessary.

These circumstances should allow the ports to discount tariffs for transit and *still make a profit* on the traffic attracted. This project does not intend not recommend any tariff changes which would not be expected to *add to profits* of the port concerned.

Our focus is on *transit* traffic. It is not the objective of the project to propose reductions in tariffs for local imports and exports, although it is hoped that our work will clarify the cost basis for tariffs.

It has been shown that the Caspian ports' accounts show that the variable costs account for only about 19-31% of total costs. The fixed costs account for the remaining 69-81%.

Furthermore, the variable costs account for an even lower proportion - about 10-15% - of total revenues.

The fixed costs' share will increase for two reasons. First, loan repayments to EBRD will rise to higher levels in the next decade. And, secondly, maintenance costs are too low, and should rise to keep the port in good working order.

On the other hand, variable costs may also rise in the future. In particular, salaries would rise if the ports were to introduce inbuilt incentives to attracting transit traffic. The ports' salary bills already vary to some extent with cargo handled. It may be possible to build on this and offer bonuses related to transit traffic handled (dry cargo only). The formula would have to be worked out on a port by port basis. If bonuses or other incentives were adopted this would increase variable costs, but not to a large extent. Even if salaries were doubled it would add only US\$0.25/tonne at Baku, US\$0.40 at Turkmenistan and \$0.50 at Aktau at current cost and traffic levels.

In addition, price elasticity should be taken into account when setting tariffs. However, this may be difficult in practice (see box on the following page).

It is concluded that there is a logical case for reducing tariffs for transit by about two thirds and still make modest profits on additional transit cargo. But to generate more comfortable surpluses a discount of only 50% may be preferable.

PRICE ELASTICITY

Price elasticity measures the responsiveness of demand to price. More specifically, it measures the ratio of the percentage change in cargo volume to the percentage change in price. For example, if cargo volume increases by 80% in response to a price reduction of 40%, the price elasticity is 2. But if a reduction of 20% in price results in cargo increase of only 20%, price elasticity is only 1. It will be clear that price elasticity must be greater than 1.0 for a price reduction to be worthwhile. In practice, price elasticity should be well above one for most Traceca transit cargoes, as the transit cargo volumes are minimal at present at most ports.

The analysis of price elasticity, however, will be complicated by the fact that the attraction of traffic will depend on the overall discounting in the total transport chain

Incorporation of Port Tariffs into Through Tariffs

(Covering rail, sea, port, shipping and road tariffs for Traceca Corridor Routes)

It is emphasised that port tariffs reductions *alone* would be unlikely to attract transit traffic. They would help, but would not be critical, as they are not notably high at present. They would have to be part of a series of discounts through throughout the transport chain.

Table 9.1. shows an example, to be completed as more information comes in on rail.....

Table 9.1

EXAMPLE OF THROUGH TRANSPORT COST, KAZAKHSTAN-MEDITERRANEAN.

(US\$/TEU)

Inland, Kazakhstan to Aktau (say, 1000 km)

Lift from rail

Aktau port

Caspian Sea Freight Rate

Baku Port

Rail, 1000 km

Lift from rail

Poti Port

Lift from rail

Black Sea Freight Rate

Varna port

Rail to destination

Local delivery

Total

This through tariff will be compared with:

- Road via Turkey/Iran
- Rail via Russia
- Road via Russia

10 SHIPPING

The main shipping lines, which are particularly important for Traceca traffic on the Caspian, are:

- (i) Caspian Shipping Company, based in Baku; and
- (ii) TML, based in Turkmenbashi

Ukrferries, based in the Ukraine, and running joint services with Bulgarian operators, should also be important for Traceca traffic which uses ferries across the Black Sea.

10.1 Caspian Shipping Company (CSC)

10.1.1 CSC Fleet

The key shipping line for the development of Traceca transit traffic is Caspian Shipping Company (CSC). Almost all of the potential Traceca transit traffic would have to cross the Caspian on the route between Baku and Turkmenbashi or Aktau, and CSC has a semi-monopoly on this route. There are other small shipping lines in the Caspian but in practice they do not compete much with CSC. This is confirmed by the fact that Baku handles very little cargo at the general cargo berths where the non-CSC ships call.

CSC is state owned. Its fleet consists mainly of vessels which were operating in the Caspian at the time of the break-up of the FSU. The fleet has 70 ships - of which 60 are "river-sea" vessels (34 are tankers and 26 for dry cargo). CSC also has 8 large "Dagestan" rail-passenger ferries and 2 Roro ships.

The majority of the fleet is reportedly operating in the Caspian. Most of the ships are employed transporting oil from Turkmenbashi and Aktau to Iran, and, to a lesser extent, Azerbaijan. Although much of the oil traffic moves in tankers, even the ferry traffic is dominated by oil. The passenger traffic is minor.

About 20 of the dry cargo ships, however, are operating in the Mediterranean, Black Sea and the Sea of Azov. The Roro (non-rail) ferries have also been operating outside the Caspian. Profitability outside the Caspian is reportedly lower than in the Caspian.

10.1.2 Traffic

CSC handled 10 million tonnes of cargo in 2001. Of this about 80% was on Traceca routes.

The majority of the cargo was *oil, carried in tankers and ferries*. The two main destinations were Iran and Azerbaijan (for onward movement to Batumi)

The *rail ferries* serving Turkmenbashi and Aktau handled 1.8 million tonnes in 2001. Of this total about 70% was oil, according to the Port of Baku. The remainder is dry cargo, according to Baku port statistics.

The inward and outward cargo volumes are fairly well balanced.

Almost all the ferry cargo was handled in rail wagons. Truck traffic is minimal. The ferry traffic fell from a peak of over 6 million tonnes in 1986 to only 0.6 million tonnes in 1993. Since then it has gradually revived, although much of the inbound cargo is oil.

Passenger numbers fell from over 300,000 in 1989 to 93,000 in 1993, and are now at very low levels.

10.1.3 Total Revenues and Expenditures

CSC earned revenues of US\$ 77 million in 2001. Their services account for a large part of total maritime transport costs in the Caspian, the company's income being more than twice as high as those of the three main ports of Aktau, Turkmenbashi and Baku combined. However, it should be borne in mind that a large part of CSC's income is from petroleum and non-Caspian trades.

Their accounts show a healthy profit in 2001 (see Table 10.1).

Table 10.1
CSC REVENUES AND EXPENDITURES, 2001

(US\$ million)	
Revenues	77
Costs	59
Surplus	18

CSC's revenues averaged US\$7.7 per tonne carried in 2001. But they include cargoes handled outside the Caspian. They also combine ferries, oil and other traffic.

The tankers are reported to be more profitable than the ferries.

10.1.4 Tariffs

Shipping tariffs for (i) the ferries, (ii) dry cargo and (iii) containers on conventional vessels are summarised on the next page. (It should be emphasised that the figures given by the organisations interviewed, including port operators, ship operators and freight forwarders, differed - as did figures in various reports. There was also some disagreement about the extent to which discounts were given.

In all cases, they are above tariffs for similar services elsewhere in the world.

Table 10.2
FERRY FREIGHT RATES ON THE CASPIAN

1. CARGO ON RAIL WAGONS (18 metre)

	\$ per lane-metre	\$ PER 18 m RAIL WAGON		Distance (km)	\$ per tonne-km (a)
		Single Journey	Including Return Empty		
Baku-Aktau	35	630	1260	468	0.027
Baku-Turk'shi	30	540	1080	305	0.035

2. RAIL WAGONS CARRYING CONTAINERS (2 per 18 metre wagon)

	\$ per lane-metre	\$ PER 20' CONTAINER (2 per wagon)			\$ per tonne-km (b)
		Single Journey	Including Return Empty (c)	Distance (km)	
Baku-Aktau	35	315	630	468	0.056
Baku-Turkm'i	30	270	540	305	0.074

- (a) Assuming a load of 50 tonnes
 (b) Assuming load of 12 tonnes per 20' container
 (c) Returning empty is normal

NB Tariffs reported by various transport users and operators varied to some extent. There are also reported to some discounts for empty returns on some routes.

Table 10.3
SHIPPING FREIGHT RATES FOR DRY CARGO ON THE CASPIAN

	\$ per tonne	Distance (km)	\$/tonne-km
General Cargo			
Baku-Aktau	11	468	0.023
Baku-Turkmenbashi	7	305	0.023
Bulks			
Baku-Aktau	12	468	0.026
Baku-Turkmenbashi	7	305	0.023

Source: BCEOM/Uniconsult (July 2001)

Table 10.4
SHIPPING FREIGHT RATES FOR CONTAINERS ON MULTI-PURPOSE
SHIPS (with empty return)

	20' Round Trip (full out, empty back)	Distance (km)	\$ per Tonne Km
	US\$		(a)
Baku-Aktau	400	468	0.071
Baku-Turkmenbashi	400	305	0.109

Source: BCEOM/Uniconsult (July 2001)

Tariffs for *containers* shipped across the Caspian on the ferries are well above international levels. For example, the tariff for a 40' container from Baku to Turkmenbashi (165 n miles) is about US\$540/40', including the return of the container empty, which is normal. In comparison, similar feeder rates from the main hub European hub ports to the Baltic ports cover much longer distances. For example, tariffs for the 500 n mile distance from Hamburg/Bremerhaven to Lithuania and the 700 n mile distance to Estonia and Finland, are only US\$500-550 per 40'. [There are relatively few *rail* ferries elsewhere. One of the few runs out of Klaipeda. Its official tariff for its main route from Klaipeda to Kiel (400 n miles) is \$630 per 40', again well above the Baku-Turkmenbashi route per TEU-kilometre.]

The high freight rates, however, are partly explained by the use of the Dagestan ferries for containers and rail wagons. They are far too large for the cargo volumes they handle. Their capacity in terms of containers is effectively only 56 TEU. In other countries these volumes would be handled in ships with less than one fifth of the size in terms of GRT. They would also have lower design speeds and block coefficients, and much lower fuel consumption than the Dagestan ferries. The excessive capacity of the Dagestan ferries is partly a consequence of their being built to carry a much larger number of passengers than use the ferries today. If a shipping company were able to start with a blank sheet of paper to design a service for a 165 n mile sea voyage (for adequate volumes of containers) it could charter a small 100TEU vessels even in tight world charter markets at \$2000 per day and complete round voyages at total costs which would be far lower than those of the Dagestan ferries.

Also the tariffs have to cover the costs of operating all the ferries, despite the sharp traffic decline of more than two thirds (see section 10.1.5). It seems likely that some economies could be obtained by laying up some of the ships.

Oil tariffs on the Caspian have been variously reported at US\$5-5.5/tonne in 1998 and \$6.5-8/tonne in 2001. These rates are high by international standards. This is partly explained by the relatively small tankers used, and the consequent diseconomies of size. There are several reasons for the small vessel size - including

short distances, shallow drafts in the main ports and severe limits on drafts in the Volga-Don canal. However, the shipping tariffs on the Caspian appear higher than would be expected even for such small ships.

Tariffs for *ship charter* also seem slightly high by international standards. Charter rates in 2002 were reportedly around US\$2,500/day for small (3000 DWT) dry cargo ships and \$4,500/day for 5000 DWT tankers.

10.1.5 Surplus Capacity

Caspar has a large amount of surplus capacity on its ferries. Total volumes transported amounted to only 1.8 million tonnes, compared with 6 million tonnes in the mid 1980s. The theoretical maximum capacity of 8 ferries would be about 8 million tonnes including both directions. But the predominance of oil on the westbound routes will reduce this.

Caspar reportedly has a moderate amount of surplus capacity (say, 10-20%) for tankers.

10.1.6 Costs of Operation

The operating costs for the ferries and oil tankers are estimated⁵ in Tables 10.5 to 10.8.

The tables show:

- Total operating costs for the Dagestan ferries; and also daily operating costs (Table 10.5). They are calculated for both new and old vessels. The costs are complicated by the problem of the value to assume for capital costs. First, the ships were inherited from the FSU at "no cost". Secondly, historic prices are not very meaningful as the original prices of these ships were expressed in roubles (the ships were built in Yugoslavia in the 1980s). Thirdly, it seems unlikely that similar ships will be built again. If new ships were built they would probably be to a different design. The assumptions made are detailed in the footnotes to the table.
- Variable and fixed operating costs for the Dagestan ferries (Table 10.6). Vessel costs are sunk costs, and insurance and crew and administration are more or less fixed. This leaves only fuel, supplies and the majority of maintenance and repair as variable costs
- Total operating costs for oil tankers of 5000 DWT and 10,000 DWT (Table 10.7). The capital costs in this case are included at replacement costs. This reflects the reality that CSC and other lines in the Caspian intend to acquire new tankers.

⁵ CSC has not provided details of its revenues and expenditures.

- Variable and fixed operating costs for the oil tankers (Table 10.8).

Commentary

- Variable costs for the ferries are estimated at only 16-36% of total costs, depending on whether the ship is new or old.
- The daily operating cost of the Dagestan ferry are well above the daily charter costs of a small container vessel capable of carrying the same tonnage

	(Daily Ship Costs)	
	In Port	At Sea
Dagestan ferry ,		
capacity, 28 rail wagons or 56 TEU (a)		
New Ship	\$6,697	\$8,617
Old Ship	\$3,230	\$5,630
Container feeder, 100 TEU, Charter Cost	\$2,000 (b)	\$2,750

(a) It is possible to load three TEU on an 18 metre rail wagon, but it is rare in practice, in the Caspian or elsewhere.

(b) On world charter market (high)

- Variable costs for the ferries are estimated at only 23-27% of total costs, depending on whether the ship is new or old. However, this is of limited significance as the oil tankers are reported to be reasonably well employed, so that there is little surplus capacity to exploit.

Table 10.5
ESTIMATED ANNUAL OPERATING COSTS FOR A CASPIAN RAIL
FERRY (FREIGHT OPERATIONS ONLY)

(based on Dagestan type ferry) (US\$)	New Ship	Old Ship (15 years)
Purchase Price (\$ million) (a)	12	4
Ship life (years)	25	25
Required rate of return	12%	12%
Capacity (rail wagons)	28	28
Crew (actual) (a)	40	40
Number of crews (b)	3	3
Average salary, \$ p.a	1000	1000
Fuel consumption, tonnes per hour at sea, normal	1.25	1.5
Fuel consumption, tonnes per hour at sea, actual (d)	0.8	1
Fuel oil price (\$/per tonne) (e)	100	100
OPERATING COSTS p.a.		
Capital (interest and repayment)	1,530,000	510,000
Crew	120,000	120,000
Crew subsistence	40,000	40,000
Insurance (2% of value)	240,000	80,000
Maintenance and Repair (1.5% of new price)	180,000	216,000
Fuel (f)	197,120	246,400
Administration	100,000	100,000
Total	2,407,120	1,312,400
- \$/day in port	6,697	3,230
- \$/day at sea	8,617	5,630

- (a) The replacement prices for the Dagestan ferries are largely theoretical. There are relatively few similar rail wagon-based services in the world; and rail wagon traffic tends to be low on those that exist. Also passenger traffic is falling. It is likely that if another similar ferry were built it would be mainly freight oriented, and much smaller. The actual carrying capacity of the Dagestan ferries in practice is only 1680 tonnes, plus a few road trucks. The price of US\$ 12 million assumed for replacement cost is a compromise between the cost of building a new Dagestan ferry and the price for building a ferry with about 2000 tonnes capacity (28 x 60 tonne rail wagons, plus a few trucks)
- (b) The CSC ships have crews of at least 40. They could operate with smaller crews
- (c) Three crews per vessel
- (d) In practice ships run at lower speeds than their design speeds, to save costs.
- (e) The ships were designed to run on diesel but now use fuel oil, which is cheaper.
- (f) In 2001 the 8 ferries completed an average of 88 round trips (average trip time including idle time, 4.1 days). The annual fuel cost per vessel is therefore based on 14 hours sailing in both directions at slow speed for 88 round trips per year.

NB Port charges and minor costs such as fuel in port are not included in this table

Table 10.6
ESTIMATED FIXED VERSUS VARIABLE COSTS FOR CASPIAN RAIL
FERRY (Dagestan)
(US\$)

	New Ship	Old Ship (15 years)
FIXED COSTS		
Capital (interest and repayment)	1,530,000	510,000
Crew	120,000	120,000
Crew subsistence	40,000	40,000
Insurance (2% of value)	240,000	80,000
Maintenance and Repair	54,000	64,800 (a)
Fuel	0	0
Administration	30,000	30,000 (b)
(b)		
Total	2,014,000	844,800
- \$/day including fuel	6,103	2,560
VARIABLE COSTS		
Capital (interest and repayment)	0	0
Crew	0	0
Crew subsistence	0	0
Insurance (2% of value)	0	0
Maintenance and Repair	126,000	151,200 (a)
Fuel	197,120	246,400
Administration	70,000	70,000 (b)
Total	393,120	467,600
- \$/day including fuel	1,191	1,417
TOTAL FIXED + VARIABLE	2,407,120	1,312,400
<i>Variable as % of total costs</i>	<i>16%</i>	<i>36%</i>

(a) 70% of maintenance assumed variable

(b) 70% of administration assumed variable

Table 10.7
ESTIMATED OPERATING COSTS FOR CASPIAN OIL TANKERS

(US\$)

Capacity, DWT	5,000	10,000
Speed, knots	11	13
Purchase Price, new (\$ million)	6.0	9.1
Ship life (years)	25	25
Required rate of return	12%	12%
Crew per vessel	15	18
Number of crews	3	3
Average salary, \$ p.a	1000	1000
Fuel consumption, tonnes per hour at sea	0.30	0.64
Fuel oil price (gasoil, \$/per tonne)	180	180
OPERATING COSTS p.a.		
Capital (interest and repayment)	765,000	1,159,523
Crew	45,000	54,000
Crew subsistence		
Insurance (2% of value)	120,000	181,886
Maintenance and Repair (1.5% of new ship price)	90,000	136,414
Fuel (a)	194,400	411,543
Administration	50,000	50,000
Total p.a.	1,264,400	1,993,367
- \$/day in port	3,242	6,041
- \$/day at sea	4,538	8,784

(a) Assumes 300 operating days per years, with half of total time at sea and half in port.

Table 10.8
ESTIMATED FIXED AND VARIABLE COSTS FOR CASPIAN OIL
TANKERS
(US\$)

FIXED COSTS		
Capital (interest and repayment)	765,000	1,159,523
Crew	45,000	54,000
Crew subsistence		
Insurance (2% of value)	120,000	181,886
Maintenance and Repair (1.5% of new price)	27,000	40,924 (a)
Fuel	0	0
Administration	15,000	15,000 (b)
Total p.a.	972,000	1,451,333
- \$/day in port	2,945	4,398
VARIABLE COSTS		
Capital (interest and repayment)	0	0
Crew	0	0
Crew subsistence		
Insurance (2% of value)	0	0
Maintenance and Repair (1.5% of new price)	63,000	95,490 (a)
Fuel	194,400	411,543
Administration	35,000	35,000 (b)
Total p.a.	292,400	542,033
- \$/day in port	886	1,643
TOTAL FIXED PLUS VARIABLE	1,264,400	1,993,367
<i>Variable as % of total costs</i>	<i>23%</i>	<i>27%</i>

(a) 70% of maintenance considered variable

(b) 70% of administration considered variable

10.1.7 Comparison of Revenues and Costs

(a) Ferries

The revenues and costs of the ferries in 2001 are estimated illustrative terms in Table 10.9. The figures cover freight operations only (passenger numbers are now small)

It will be seen that the surplus over costs appears to be quite high on the basis of old ships (with low capital cost), but more modest with new ships (with high capital costs).

Table 10.9
ESTIMATES OF REVENUES AND COSTS OF FERRIES, FREIGHT OPERATIONS ONLY, 2001
(US\$ million)

	With New Ship	With Old Ship (15 years)
REVENUES (a)	28.1	28.1
COSTS OF FERRY FLEET		
8 vessels at \$1.27-\$2.37 million p.a. (see Table 2)	19.3	10.5
Port Dues (b)	2.6	2.6
Total Costs	21.8	13.1
SURPLUS	6.2	15.0

ASSUMPTIONS

(a) Revenues based on:

Traffic, 2001:	1.87 million tonnes
Wagon load assumed, average	50 tonnes
Wagon length, average	15 metres
Tariffs:	
Average tariff assumed	50 \$ per linear metre, including empty returns

(b) **Port costs:** mainly \$800 per call at Baku and \$2800 per call at Turkmenbashi, for 709 round voyages in 2001.

(b) Tankers

The costs of servings transporting oil across the Caspian between Kazakhstan and Azerbaijan is estimates in table 10.10 at about \$3 per tonne. This is well below the reported tariffs (see section 10.1.4)

Table 10.10
COSTS OF OIL TRANSPORT BETWEEN KAZAKHSTAN AND
BAKU
(US\$)

Ship Capacity, DWT	5,000	10,000
Aktau-Baku		
Distance, nautical miles	250	250
Ship speed, knots	11	13
Cost of Ship Time (\$/day)		
In Port (a)	3,242	6,041
At Sea (b)	4,538	8,784
ROUND VOYAGE TIME		
Days at sea, including return	1.89	1.60
Idle time	0.11	0.40
Days in port (one for loading, one for unloading)	2	2
Total Round Voyage, Days	4	4
COSTS OF ROUND VOYAGE		
Ship time at sea	8,595	14,077
Ship time in port	6,829	14,482
Total Round Voyage Cost	15,424	28,559
Tonnes transported	5,000	10,000
Cost, \$ per tonne	3.08	2.86

(a) See Table 10.7

(b) See Table 10.7

10.1.8 Views of Transport Industry

Caspian Shipping Company was the subject of criticism by several organisations. It has more or less a monopoly of the dry cargo crossing the Caspian, accounting for almost 90% of the ships calling at the key port of Baku in 2001. The volume of non-CSC dry cargo at Baku is very low.

CSC's operations were also criticised in the Ramboll/EBRD feasibility study for the rehabilitation of the ferry terminals in 1997. The main criticisms were "arbitrary scheduling of the departure times combined with reported extensive unofficial pricing and additional fares to reduce the waiting time for users of the ferry service. The total unofficial fares are reported to amount to more than 100% of the official fare, and the average waiting time for trucks is five days...". Opinions on the extent to which this has changed varied. But interviewees still regarded CSC as one of the main hurdles to the development of transit traffic. The main criticisms are that, as a monopoly, it is inflexible, uncommercial and expensive. This is a significant problem, as Caspar's services would be the obvious first choice for a large part of potential Traceca transit traffic.

10.1.9 Scope for Preferential Tariffs for Traceca Transit Traffic

It is concluded that

- There is a large amount of *surplus capacity* on the ferries across the Caspian. Fifteen years ago the same fleet of ferries was carrying more than three times as much cargo - about 6 million tonnes.
- The *variable costs*⁶ of handling additional cargoes are well below total costs. Even if the new cargo required additional sailings, the extra cost, including port dues, is estimated to amount to only about 16% of the cost of a service using a new ship (which would have high fixed capital costs) - and about 36% of the cost with a second hand ship (which would have lower fixed capital costs).

The arguments for and against tariff discounts for the ferries are as follows.

The main argument against lower tariffs is that the Caspian ferries are to some extent in a similar position to the port of Baku. That is to say, a large part of the ferry cargo is Traceca cargo. Consequently, to avoid a fall in profitability, it would be necessary to be confident that price elasticity of demand is greater than one to justify tariff discounts. But, as mentioned earlier, the elasticity is complicated by being dependent on rail and port tariffs as well as sea tariffs, and being affected by non-tariff barriers especially customs problems.

⁶ *Variable costs* consist mainly of fuel, most of the maintenance/repair, and part of the administration costs. These costs will be incurred for significant additional tonnages of cargo. The *fixed costs* of the shipping services consist mainly of depreciation, wages and insurance.

There are, however, strong arguments in favour of sea freight rate discounts for transit cargoes:

- Transport users have identified ferry tariffs as one of the main deterrents to the use of Traceca routes.
- The sea freight rates across the Caspian are well above international levels, especially for containers. For example, the tariff for a 40' container from Baku to Turkmenbashi (165 n miles) is about US\$540/40', including the return of the container empty, which is normal. In comparison, similar feeder rates from the main hub European hub ports to the Baltic ports cover much longer distances. For example, tariffs for the 500 n mile distance from Hamburg/Bremerhaven to Lithuania and the 700 n mile distance to Estonia and Finland, are only US\$500-550 per 40'. The high freight rates on the Caspian, however, are to some extent inevitable with the use of the Dagestan ferries for containers and rail wagons. They are far too large for the current traffic. Their capacity in terms of containers is effectively only 56 TEU. In other countries these volumes would be handled in ships with less than one fifth of the size in terms of GRT. They would also have lower design speeds and block coefficients, and much lower fuel consumption than the Dagestan ferries. The excessive capacity of the Dagestan ferries is partly explained that they were built to carry a much larger number of passengers than use the ferries today. Also the tariffs have to cover the costs of operating all the ferries, despite the sharp traffic decline of more than two thirds. It seems likely that some economies could be obtained by laying up some of the ships.
- A comparison of estimated revenues and costs on the Caspian ferry operations⁷ suggests that revenues are well above costs - at least for an old ferry with low capital costs. Our estimates suggest that total costs may be less than 50% of revenues for an old ferry, For a new ferry, with high capital costs, however, total costs are estimated at over three quarters of revenues.
- Although most of the ferry cargoes are Traceca cargoes, oil accounts for the majority; and oil could well be excluded from Traceca discounts.
- The ferry tariffs account for a much higher percentage of total transport cost on Traceca routes than the port tariffs. Discounts of ferry traffic are therefore more important than discounts of port tariffs.

It is concluded that tariff discounts for dry cargoes, possibly excluding some existing cargoes, would be likely to increase Traceca transit cargo volumes. They might, however, be restricted to "new" transit cargoes, as distinct from the main existing transit cargoes.

⁷ Estimates by Traceca staff. The Caspian Shipping Company have not provided information on their costs and revenues.

10.1.10 TML (Turkmenistan)

TML is the state-owned shipping line of Turkmeista. It is currently part of the same organisation that owns and operates the port of Turkmenbashi. But the port, shipping and regulatory functions will soon be separated under different organisations.

The line owns four small dry cargo vessels, each with capacities of 2500-3000 DWT, built around 1992. They are usually chartered out for voyages. There are no liner services. TML uses agencies to find some of their cargoes, but find some themselves

All the TML ships trade inside the Caspian. In the mid 1990s they operated outside, with regular voyages to the Mediterranean (some handling cotton). But the increasing costs and other problems involved in using the Volga Don Canal has resulted in their withdrawal from Black Sea/Mediterranean trades.. This has been a favourable for them, as cargo is plentiful in the Caspian and fuel costs are lower than outside. The period in which they traded outside the Caspian was not successful. They had poor load factors and at one time were in danger of arrest in foreign ports for non-payment of bills.

Traffic

TML handled 171,000 tonnes of cargo in 2001. This is far below the traffic handled by CSC, which totalled about 10 million tonnes in 2001.

Furthermore, TML does not trade on Traceca routes. Its main routes are to Iran and the Russian ports of Mahachkala and Astrakhan.

Revenues and Expenditures

The company's revenues and expenditures in 2001 were relatively low, at US\$1.5 million. As shown, TML is making a profit at present

Table 10.11
TML REVENUES AND EXPENDITURES, 2001

	(US\$ 000)
REVENUES	1,459
COSTS	
Wages (a)	310
Social	63
Depreciation	13
Repairs	63
Fuel	101
Others(b)	512
Total	1,061
Surplus	398

(a) The shipping operations employ 225 staff, of whom some are also involved in tug operations at the port.

(b) "Others" is reported to consist mainly of port dues.

Tariffs

The freight rates charged by TML are low. They amount to only US\$1100 per ship day on the assumptions of 330 working days per year for the 4 ships. This is well below the normal charter rate for ships of this size, which should be close to US\$2000/day in favourable markets (this would give a return of about 12%). However, TML are able to operate ships which are only ten years old with no obligation to cover capital costs, as the ships were inherited from the USSR at no cost and have not been properly revalued. As shown in the Table above, the depreciation allowance included in the accounts is only US\$13,000 in 2001. Realistically, it should be around \$600-700,000, on the basis of 4 vessels costing about \$4 million each and working lives of 25 years. Furthermore, a 12% return on capital for the ships would require revues of almost US\$2 million in excess of operating expenses, while actual revues were only US\$410,000 in excess of operating expenses.

Their main routes and voyage charter rates at present are:

Charter Rate per Round Voyage

Turkmenbashi- Iran	US\$16000 plus Iranian port dues
Turkmenbashi- Mahachkala	US\$15,000 plus port dues
Turkmenbashi-Astrakhan	US\$18,000 plus port dues

TML rarely calls at Baku, where ***almost all the transit cargo is carried on CSC ferries and tankers.*** In fact TML does not compete with CSC to any significant extent (Baku's calls are almost all Azeri flag, plus a few Russian ships).

TML's main cargoes include polypropylene chips, chemicals, coke, and salt and project cargo.

11 SUMMARY AND CONCLUSIONS

11.1 PORTS

The objective of this report is to:

"propose tariff modifications to introduce *realistic rates reflecting actual costs*" (Terms of Reference, page 12)...for the purposes of making the "the whole of the Traceca route from the Chinese borders to the borders of Western European states ...commercially competitive and attractive" (page 8).

At present, tariffs at the Traceca ports are reasonably well in line international tariff levels, with a few exceptions.

But at these tariff levels most of the ports are handling relatively little Traceca transit cargo, except for oil. It is clear that promotional discounts would help.

Our analysis has confirmed two key conditions for introducing cost-based tariffs are fulfilled. They are that:

- there is a large amount of *surplus capacity* in the main Traceca ports. They were designed to handle much higher volumes of traffic - often more than twice the current throughputs; and
- the *variable costs*⁸ of handling additional cargoes are low (see Table 11.3)

There is therefore little to lose but much to gain from preferential tariffs at most, but not all, ports.

The ports are currently in a good financial position to experiment with preferential tariffs. All three of the main Caspian ports make profits, after a period of losses in the early-mid 1990s. Furthermore, almost all the individual services within the ports make profits. Also, traffic has been rising.

On the other hand, the financial positions of the Caspian ports may not be as stable in the future. First, it should be recognised that much of the additional income at the ports has come from oil. About 10 million tonnes at present use Traceca transit routes across the Caspian and via the railway to Batumi, Georgia. But the oil is vulnerable to the development of pipelines - particularly the 30 million tonne CPC Tengiz-Novorossiysk pipeline and the 60 million tonne Baku-Ceyhan pipeline. Secondly, the Russian government has started to protect its own ports in the last two years. The worst affected of the Caspian ports is Aktau, which has seen its Russian steel transit trade diverted to Russian ports, as a result of manipulation of Russian rail tariffs. Thirdly, all the ports will have to pay back loans to EBRD for port development over the next decade. The financial position of Caspian ports could therefore deteriorate over the next few years

⁸ See the third page of this summary and conclusions for definitions of *variable* and *fixed costs*.

This would therefore appear to be an ideal time to try to build up additional transit business.

At present all the Caspian ports show a profit in their accounts (see Table 11.1).

Table 11.1
PROFITABILITY AT MAIN CASPIAN PORTS, 2001
(US\$ million)

	Aktau	Turkmenbashi	Baku
Revenues	22.7	7.3	2.9
Expenditure	11.1	2.9	2.3
Surplus	11.6	4.4	0.6

Source: Ports' Accounts

The overall tariff reductions which would be necessary to bring in line with *average* or *total* costs - are shown in Table 11.2. It shows, first, the percentage by which tariffs would have to fall to bring them in line with costs as shown in the 2001 accounts (*without any surplus*). And secondly, and more realistically, how far tariffs would have to fall to bring them in line with the same costs *with additions* to cover:

- more realistic depreciation allowances
- more realistic maintenance costs; and
- repayments and interest on EBRD loans.

It will be seen that all ports could reduce their tariffs if they only had to cover the *average* costs shown in their 2001 accounts. But only Aktau would be in a position to reduce tariffs if more realistic assumptions on depreciation, loan repayments and maintenance are taken into account.

Table 11.2
CHANGES NECESSARY TO BRING TARIFFS INTO LINE WITH *AVERAGE/TOTAL* COSTS, 2001

	Based on Costs as Shown in In Accounts, 2001, without Profits	Based on 2001 Costs PLUS a. Future Loan Repayments b. More Realistic Depreciation Allowances c. More Realistic Maintenance - Plus 20% growth in cargo Costs
Turkmenbashi	-60%	(a) -13%
Aktau	-51%	-52%
Baku	-21%	+41%

(a) All three of the above items are estimated in approximate terms.⁹

The foundation for transit tariffs, however, should not be the *average* costs, but the *variable cost* of handling an additional tonne of cargo, plus a reasonable profit.

⁹ It is emphasised that the costs shown in this summary are approximate. It is not the objective of this project to carry out a detailed cost-based tariff study for each of the Traceca ports. The objective is to reach clear conclusions about the scope for discounting tariffs throughout the Traceca region in broad terms.

It is emphasised that:

- These tariff reduction should be expected to increase profits rather than reduce them. Transit traffic is negligible at present. There is therefore little to lose but much to gain from preferential tariffs for most routes. There are, however, exceptions. In particular, 75% of dry cargo and almost all the oil cargoes at Baku were reportedly Traceca transit cargoes in 2001. Also, Baku's profit margins are not as high as at other ports. Accordingly they would have to be confident that price elasticity would be greater than one before discounting tariffs. Otherwise, if price elasticity proved to be below one, revenues would be likely to fall below total costs, especially after the loan repayments to EBRD begin.
- We do not recommend reductions in non-transit tariffs.
- Identical transit tariffs at the different ports are not recommended. There are major differences in national salary levels, port infrastructure and equipment investment (partly due to different volumes), dredging costs and breakwater costs.

The preferential transit tariffs should be introduced for a trial period of at least a year.

It should be borne in mind, however, that:

- port dues would not be decisive in attracting transit cargoes.. The discounts would have to be part of a chain of promotional tariffs offered by ports, shipping lines and railways.
- Other non-tariff problems will have to be solved if transit traffic is to be attracted. The ports would have to contribute by giving assurances of fast tracking. In particular, customs involvement should be minimal for transit traffic, especially for containers with seals

11.2 SHIPPING

The shipping services which would be used by Traceca transit cargoes are dominated by Caspian Shipping Company. There is little competition on the main routes across the Caspian, linking Baku with Turkmenbashi and Aktau. CSC's revenues in 2001 were 50 times as high as those of the second shipping line on the Caspian, TML. Furthermore, almost all TML's operations are on non-Traceca routes, to Iranian and Russian ports.

The ferries carried 1.8 million tonnes in 2001. Of the total about 70-80% was reportedly petroleum. Dry cargo movements are minor.

As for the ports, our analysis has confirmed that

- There is a large amount of *surplus capacity* on the ferries across the Caspian. Fifteen years ago the same fleet of ferries was carrying more than three times as much cargo - about 6 million tonnes.

The variable costs consist mainly of energy/fuel, supplies and a minor part of the wages. These costs will be incurred for each additional tonne of cargo.

In contrast, the fixed costs at the port consist mainly of the majority of the wages bill, repayments of loans, insurance and depreciation. These fixed costs remain the same whether or not additional cargoes are handled.

Analysis of the Caspian ports' accounts show that the *variable* costs account for only 19-31% of total costs in 2001 (see Table 11.3). The fixed costs account for the remaining 69-81%. The variable costs shown in the accounts, moreover, account for only *10-15% of total revenues*.

Table 11.3
VARIABLE COSTS AS A PERCENTAGE OF TOTAL COSTS AND TOTAL REVENUES AT CASPIAN PORTS

	Based on 2001 Accounts	Based on 2001 Accounts With Adjustments (a)
VARIABLE COSTS AS % OF TOTAL COSTS		
Aktau	22%	23%
Turk'bashi	31%	14%
Baku	19%	13%
VARIABLE COSTS AS % OF TOTAL REVENUES		
Aktau	11%	10%
Turk'bashi	12%	12%
Baku	15%	15%

(a) With

- more realistic depreciation allowances
- more realistic maintenance costs; and
- the inclusion of repayments and interest on EBRD loans.

It should be borne in mind that variable costs would increase with salary increases, especially if the ports were to introduce inbuilt incentives to attracting transit traffic. But even if salaries were doubled it would add only US\$0.25/tonne at Baku, US\$0.40 at Turkmenistan and \$0.50 at Aktau at current cost and traffic levels.

In addition price elasticity should be taken into account in setting discounts, but this is complicated by the fact that the attraction of traffic will depend on the discounting of tariffs in the total transport chain, including rail and shipping tariffs..

It is concluded that there is a sound case for reducing tariffs for transit by about two thirds and still make modest profits on additional transit cargo. But to generate more comfortable surpluses a discount of only 50% may be preferable.

- The *variable costs*¹⁰ of handling additional cargoes are well below total costs. Even if the new cargo required additional sailings, the extra cost, including port dues, is estimated to amount to only about 16% of the cost of a service using a new ship (which would have high fixed capital costs) - and about 36% of the cost with a second hand ship (which would have lower fixed capital costs).

The arguments for and against tariff discounts for the ferries are as follows.

The main argument against lower tariffs is that the Caspian ferries are to some extent in a similar position to the port of Baku. That is to say, a large part of the ferry cargo is Traceca cargo. Consequently, to avoid a fall in profitability, it would be necessary to be confident that price elasticity of demand is greater than one to justify tariff discounts.

There are, however, strong arguments in favour of sea freight rate discounts for transit cargoes:

- Transport users have identified ferry tariffs as one of the main deterrents to the use of Traceca routes.
- The sea freight rates across the Caspian are well above international levels, especially for containers. The high freight rates on the Caspian are partly explained by the use of the Dagestan ferries for containers and rail wagons. They are far too large for the current traffic.
- A comparison of estimated revenues and costs on the Caspian ferry operations¹¹ suggests that revenues are well above costs - at least for an old ferry with low capital costs. Our estimates suggest that total costs may be less than 50% of revenues for an old ferry, For a new ferry, with high capital costs, however, total costs are estimated at over three quarters of revenues.
- Although most of the ferry cargoes are Traceca cargoes, oil accounts for the majority; and oil could well be excluded from Traceca discounts.
- The ferry tariffs account for a much higher percentage of total transport cost on Traceca routes than the port tariffs. Discounts of ferry traffic are therefore more important than discounts of port tariffs.

It is concluded that tariff discounts for dry cargoes, possibly excluding some existing cargoes, would be likely to increase Traceca transit cargo volumes. They might, however, be restricted to "new" transit cargoes, as distinct from the main existing transit cargoes.

¹⁰ *Variable costs* consist mainly of fuel, most of the maintenance/repair, and part of the administration costs. These costs will be incurred for significant additional tonnages of cargo. The *fixed costs* of the shipping services consist mainly of depreciation, wages and insurance.

¹¹ Estimates by Traceca staff. The Caspian Shipping Company have not provided information on their costs and revenues.

**APPENDIX I
PORT TARIFFS**

**APPENDIX I
PORT TARIFFS**

1 BAKU

TARIFFS ON SHIPS

Tariff	Per:	US cents
Vessel dues	Cubic metre of ship volume	1.6
Channel dues	Cubic metre of ship volume	2.7
Berthing dues, per day	Cubic metre of ship volume	2.4
Anchorage dues	Cubic metre of ship volume	0.1
Ecological dues	Per call	2.4
Pilotage dues	Cubic metre of ship volume	0.6

Tariffs calculated in AZM for Azerbaijan flag and USS for foreign flag

**CARGO HANDLING
(USS/tonne)**

	DIRECT	INDIRECT
PIECE CARGOES		
Bags, Boxes, Packets	3.3	4.7
Piles, bales, rolls, drums	3.9	5.9
Packed metal	2.9	4.3
Unpacked metal	3.3	4.7
Metal scrap	2.0	2.7
Cargo in big bags	3.1	4.3
BULKS		
Grain	3.1	0.0
Salt	2.2	2.4
Food (beans, sugar, etc)	1.4	1.8
Metal Ores	1.8	2.7
Sand, gravel	1.8	2.0
Timber packed	2.9	4.3
Timber unpacked	3.3	5.3
Cars	11.6	15.7
CONTAINERS		
20' loaded	36.1	49.6
40' loaded	72.4	99.2
20' empty	16.3	25.1
40' empty	32.9	50.0
PETROLEUM	0.36	

2 AKTAU

TARIFFS ON SHIPS

Tariff	Per:	US cents
Light dues	GRT	5
Tonnage	GRT	12
Channel dues	Cubic metre of ship volume	7
Berthing dues, per day	Cubic metre of ship volume	8
Anchorage dues	Per call	2382
Ecological dues	GRT	2.4
Pilotage dues	Cubic metre of ship volume	0.6

CARGO HANDLING

	(\$/tonne)	
PIECE CARGOES		
Food (salt, sugar etc)	6	
Grain	8	
Coal	6	
Bags up to 30 kg	9-10	
Bags over 30 kg	8-9	
Metal , coloured	8-9	
Metal, black	6	
Cotton	10	
CONTAINERS		
20' loaded	80	
40' loaded	120	
20' empty	60	
40' empty	100	
PETROLEUM	1.5	

3 TURKMEMBASHI

TARIFFS ON SHIPS

Tariff	Per:	US cents
Vessel dues	Cubic metre of ship volume	2.4
Channel dues	Cubic metre of ship volume	4
Berthing dues, per day	Cubic metre of ship volume	3
Anchorage dues	Cubic metre of ship volume	1
Pilotage dues	Cubic metre of ship volume	2.3

CARGO HANDLING (US\$/tonne)

	DIRECT	INDIRECT
Food, salt, sugar, etc	2	2
Metal ore	2	2.5
Chemicals	4	
Boxes and bags	10	12
Flour in sacks	10	12
Metals, coloured	10	12
Metals, black	6	8
CONTAINERS		
20' loaded	40	50
40' loaded	60	70
20' empty	20	25
40' empty	30	35
PETROLEUM	0.13	

4 POTI, Georgia

TARIFFS ON SHIPS (for Liner Cargo Vessels)

Tariff	Per:	US cents
Tonnage dues	Per GT	20
Wharfage	Per GT	2
Channel dues	Per GT	12
Anchorage dues	Per GT	0.1
Mooring	Per operation	36-54
Pilotage dues	Per GT	1
Lighthouse dues	Per GRT per call	2

CARGO HANDLING (US\$/tonne)

	DIRECT (\$/tonne)	
BULKES		
Grain, by grabs	3.5	
Grain, pneumatic	5.5	
Sugar	6.0	
Ores, concentrated	4.5	
BAGS		
Up to 25 kg	6.5	
25-50 kg	6.0	
CARGO ON PALLETS	5.0	
Metal products	7-11	
Metal scrap	7-8	
Timber	7-9	
CONTAINERS		
By port cranes:		
20' loaded	50	
40' loaded	60	
20' empty	20	
40' empty	30	
By Ships' Cranes:		
20' loaded	25	
40' loaded	35	
20' empty	10	
40' empty	15	
LIQUIDS ON TANKERS		
Ship to tank/car, and vv	2.50	
FERRY DUES		
Per Wagon, loaded	60	
Per wagon, empty	10	
PETROLEUM	0.36	

5 VARNA

TARIFFS ON SHIPS

Tariff	Per:	US cents
Vessel Tonnage dues	GT	40-55
Channel dues	GT	1-10
Berth dues	Linear metre/day	10
Anchorage dues	Cubic metre of ship volume	0.1
Ecological dues	Per call	2.4
Pilotage dues	Pre call	\$80-560

Cargo handling	US\$/tonne (direct)
Sacks	7.4-8.1
Big bags	4
Paper, rolls	7.5
Slabs	5.4
Steel	4
Cereals	3
Coal	1.5
Sugar	4
Soda Ash	2.5
Klinker	2
Fertilizer, bulk	2.7
Cement	2
Containers 20'	54
Containers 40'	63

6 BOURGAS

TARIFFS ON SHIPS

Tariff	Per:	US cents
Vessel Tonnage dues	GT	40-55
Channel dues	GT	1-10
Berth dues	Linear metre/day	10
Anchorage dues	Cubic metre of ship volume	0.1
Ecological dues	Per call	2.4
Pilotage dues	Per call	\$80-560

CARGO HANDLING (US\$/tonne)

	DIRECT	INDIRECT
Bags, bales up to 40 kg	9.6	13.2
Bags, bales 41-82 kg	8.1	13.0
Big Bags over 1000 kg	3.1	4.0
Paper rolls up to 1000 kg	5.3	8.1
Pallets, 800-1600 kg	4.6	5.2
Scrap in bulk	2.3	3.7
Steel	2.4-3.2	2.7-4.0
Salt in bulk	1.3	1.4
Feed pellets in	1.4	3.2
Feed pellets out	2.4	2.6
Wheat	1.4	1.7
Coal	0.9	1.0
Sugar in bulk	1.2	2.0
Oil via pipeline	1.0	

Containers 20'	\$30
Containers 40'	\$40

7 CONSTANZA

TARIFFS ON SHIPS

Tariff	Per:	US \$
Channel dues	Cubic metre of ship volume	2.7
Quay tariff	Metre per day	6.0-8.0(a)
Basin tariff	Metre per day	0.15-0.28(a)

(a) Varies by ship type. Example shown is for container ships

Cargo Handling

Containers	\$70 per 20' or 40'
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8 ILLYCHEVSK

TARIFFS ON SHIPS

Tariff	Per:	US \$
Vessel Dues	Cubic metre of ship volume	29.7
Channel Dues	Cubic metre of ship volume	2.0
Berthing Dues, per day	Cubic metre of ship volume	2.2
Anchorage Dues	Cubic metre of ship volume	2.7
Light Dues	Cubic metre of ship volume	2.9
Admin Dues	Cubic metre of ship volume	1.4
Sanitary Dues	Cubic metre of ship volume	1.4

CARGO HANDLING TARIFFS

	(\$/tonne)	
Ore	2.1	
Sugar	1.8	
Iron	5.3	
Liquid	1.5	
Grain	1.6	
Liquid chemicals	3.3	
Chemicals in bulk	2.2	
Timber	8.6	
Coal		
Paper	4.5	
Scrap		
Ferry wagons	0.6	
Equipment	6.3	

APPENDIX II TRAFFIC VOLUMES AT BLACK SEA PORTS, 2001

Varna	7.4
Bourgas	12.5
Constanza	33.7
Batumi	8.4
Poti	3.4 (including 41,000 TEU)
Supsa	5.9 (oil from Azeri oil fields)
Odessa	28.6
Illychevsk	11.9

APPENDIX III

NEED FOR REDUCING COSTS

The Terms of Reference state that

"Where existing cost are high in comparison with those of ports and shipping services of a similar size in other countries the contractor should make provisional recommendations as to how these costs might be reduced"

In practice, however, existing costs are relatively low. The accounts are examined in Chapter 5, and the following conclusions were reached:

Total costs per tonne of cargo handled are low by international standards

The three main costs are

- Salaries
- Depreciation
- Loan repayments and interest

Salaries. Although staff numbers are on the high side at Baku and Turkmenbashi, wage levels are low by international standards. Consequently wage cost per tonne of cargo handled are low - in the range US\$0.25 to US\$0.50 per tonne of cargo handled.

Depreciation allowances are very low at Baku and Turkmenbashi, mainly because the assets are undervalued. The only Caspian port at which they are at realistic levels is Aktau. But even there the depreciation allowance is not excessive, amounting to only about US\$0.30-0.40 per tonne of cargo handled. In any case, depreciation is not a real cost.

Loan interest and repayments will account for a large part of total costs in the next ten years for all three of the main Caspian ports, but this cost is inescapable.