



TRACECA - Railways
Inter-State Tariff and
Timetable Structure
TNREG9501

Draft Freight Marketing
Strategy - Launch of a new
rail service on TRACECA
Corridor
December 1997

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DRAFT FREIGHT MARKETING STRATEGY

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Traceca corridor stretches between China and the Black Sea along some 4,800 kilometres, throughout 8 countries. Total population accounts for over 70 million people. Kazakhstan and Uzbekistan, the largest ones in terms of population and surface (with Turkmenistan, for surface), are located at its far east end. Both long distances and significant markets are positive points for the development of rail transport.

Traceca countries are progressively turning to an open market economy that requires modern and efficient means for freight transport. However natural resources, hauled over long distances, are still the major outlet for Traceca railways. Rail's traffic dropped these last years, partly because of the disruption of the former Soviet Union, but also due to the emergence of a wild road competition biting over rail's markets.

The Northern corridor, through Russia, is the most often used, essentially for the Eastern countries. But as traffic is progressively developing, especially for higher value cargo traded with Europe and even the Far East, Traceca countries are seeking new transport routes, out of which the Traceca corridor can play a significant role. Some Traceca States have even already signed co-operation agreements to help developing traffic on this route.

Technical performances on the Traceca corridor are still rather poor, though the route is being (or will be) upgraded on some sections. Average speed did not considerably deteriorate from the Soviet period. Operation is not ruled by precise traffic schedules as trains leave only when maximum length and weight are reached. There is no direct block train service and trains stop at each marshalling yard for various technical controls. Major problems are met at the borders where, apart from compulsory locomotive and team changes, long and non harmonised administrative and customs procedures cause important delays. The crossing of the Caspian Sea is also of great concern, as boats have limited capacity and cannot operate during bad weather conditions.

Two categories of tariffs, which structure has been implemented during the Soviet period, are used by Traceca railways: domestic tariffs (called 10-01) and transit tariffs (MTT).

In some countries domestic tariffs rates are still expressed in Soviet Roubles which supposes complicated conversions to obtain the right price in local currency. Domestic rates' levels, at least in Uzbekistan and Kazakhstan, are quite scattered, from \$.006 to \$.15 per tonne-km, varying with commodities, distances, etc., hauled. These rates decrease slightly, for a given commodity, with the distance.

EXECUTIVE SUMMARY

For international transport, the MTT transit tariff is used, expressed in Swiss francs. According to information obtained from the railways, the average per tonne-kilometre rate from Almaty to Poti comprises between \$ 0.023 and \$ 0.036. The Sarakhs agreements, signed in 1996 between Uzbekistan, Turkmenistan, Azerbaijan and Georgia, allow a 50% discount on their transit to promote the Traceca corridor.

As no outstanding cost system currently exists in Traceca railways, it is quite difficult to assess whether the Traceca route is profitable or not. However an estimation made by the Consultant indicates that for some types of traffic (cotton, cement, etc.) the profitability ratio might be not far from balance.

Most Traceca railways have no commercial or marketing organisation and making business with them is considered rather complicated. Procedures are complex as transport must be planned in advance. Unloading time allowed to the clients is obviously too short and the wagons tracing system, getting information from the Tracing Centre in Moscow, is not very reliable. Consequently the services of accredited forwarders are commonly used, to meet the deficiencies of the railways.

An enquiry, made by clients located in Tashkent and Almaty, confirms that rail transport is not regarded as optimum (whatever the route used): transport time between Europe and Traceca countries is too long, related services (handling facilities, warehousing, etc.) are poor. Too many border crossings between Almaty and Poti drive many clients to prefer a Caspian Sea crossing through Aktau-Baku, when re-open.

Competition will more and more arise from road transport, mostly operated by foreign companies hauling light higher value products (alcohol, tobacco, foodstuffs, etc.) even on long distances. As bulk transport is likely to decrease progressively, Traceca railways had rather improve their service on the Traceca route if they want to continue to play a significant role.

Not all kinds of cargo need an improved rail transport system on the Traceca route. Only products of relatively high value, hauled on long distances between promising Traceca and foreign zones and available in significant volumes have been retained. European and Eastern Traceca markets, offering large enough distances and potentials, seem to be, as a first step, the most convenient for the new Traceca rail transport service. According to these assumptions 1,450 million tonnes for import and 0,650 million tonnes for export might be caught, out of which about 100,000 tonnes each way are immediately reachable by an outstanding direct block train service operated from Tashkent to Poti.

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However significant technical and commercial improvements must be made before launching the new direct block train service.

There are several means to enhance technical performances, especially by suppressing transits through marshalling yards (thus reducing technical stops), bettering locomotives and drivers' rosters, setting a proper wagons' tracing system, etc. Technical speed can immediately be slightly increased by 10 kph, through a better daily maintenance and the suppression of several useless slow-downs. The Caspian Sea crossing must be upgraded with a better co-ordination between the railways and the shipping Company. Some investments are required notably in modern communications means and in a better night access to the ports. On a longer range, boats will have to be replaced by larger ones to avoid cutting the trains in two parts. Freight terminals should also be modernised to offer sound handling and warehousing services.

Traceca railways must also improve their commercial organisation and turn to a market oriented policy. However these changes take time while the new service must be launched quickly. Furthermore this project not only involves Traceca railways and clients, but also transport and customers abroad. For these reasons a development company composed of an international staff skilled in transport and forwarding activities must be set up to operate the block train service and propose all transport related services.

The development company buys traction from the Traceca railways, corresponding to trains paths which number, characteristics and price are discussed between the company and the railways before the elaboration of each transport plan. The company sells room in the block train to its clients, by mutual agreement, without any published tariff, to respond quicker to the market. Full integrated haulage from end to end, including all complementary services abroad, are offered when required. A subscription system guarantees the steady clients that they will always have room spared for them.

The company is backed by an International Commission, composed notably of Traceca States Authorities, that contributes to solve all technical, administrative and customs problems and that follows up the evolution of the new service.

0. OBJECTIVES OF THE SURVEY

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The freight marketing survey is part of the Traceca project named « Railways Inter-State tariff and Timetable Structure ».

The purpose of the survey is to elaborate a marketing strategy paving the way for an improved rail transport service on the Traceca corridor, stretching between Kazakhstan and the Black Sea, and making it attractive enough for:

- the railways to keep, gain back or even catch traffic threatened by - or currently using - other means of transport;
- the clients to benefit from a high standard transport alternative for trade between the Traceca countries and the rest of the world and more particularly Europe.

The study comprises two parts:

- Part 1: Analysis of the existing situation

- 1/ economic situation of Traceca countries;
- 2/ railways' services;
- 3/ users' experience and judgement;
- 4/ competition's offer;
- 5/ strengths and weaknesses of the Traceca route;

- Part 2: Definition of the new service

- 6/ identification of market sectors;
- 7/ transport specifications;
- 8/ commercial means;
- 9/ objectives assignment.

So as to obtain the most accurate and updated information, the Consultant visited the main railways yards and port facilities in Traceca countries. A series of meetings have also been held with Traceca railways officers and interviews with forwarders and clients have been performed in different places, especially in Tashkent and Almaty.

1. ANALYSIS OF THE EXISTING SITUATION

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1.1 ECONOMIC SITUATION OF TRACECA COUNTRIES

1.1.1 *Comparison of main geographical and socio-economic data*

Traceca countries are composed of 8 ex-USSR states, independent from 1991, 3 in Caucasus and 5 in Central Asia. They are characterised by large distances linking scattered production and population centres and are of various geographical and economic importance.

Table 1: geographical and economic importance of Traceca countries

| Countries | Surface (000,000 km ²) | Density (inhab./km ²) | Population 1995(millions) | Population (foreseen 2025) | GDP/ inhab. (USD/1993) |
|--------------|---------------------------------------|--------------------------------------|------------------------------|-------------------------------|---------------------------|
| Georgia | 70 | 77.1 | 5.4 | 6 | 3,700 |
| Armenia | 30 | 123.3 | 3.7 | 4.3 | 3,000 |
| Azerbaijan | 86 | 84.9 | 7.3 | 10.3 | 2,900 |
| Turkmenistan | 488 | 9.2 | 4.5 | 7.9 | 2,800 |
| Uzbekistan | 447 | 50.8 | 22.7 | 42.5 | 1,900 |
| Tajikistan | 143 | 40.6 | 5.8 | 13.1 | 1,700 |
| Kyrgyzstan | 198 | 22.2 | 4.4 | 7 | 2,100 |
| Kazakhstan | 2,716 | 6.2 | 16.9 | 20.5 | 3,100 |
| Total | 4,178 | - | 70.7 | 111.6 | - |

Source: Population Reference Bureau (Washington-1995)

The largest country is by far Kazakhstan, also benefiting from the second highest GDP per inhabitant, then Turkmenistan and Uzbekistan. Uzbekistan is the most populated country before Kazakhstan. Highest GDP are found in Caucasus countries.

1.1.2 *Significant economic factors per country*

Traceca countries are rich in natural resources and their economy heavily depends on mining and energy tapping. Industrial production is mostly focused on refining, chemistry, cement, leather and some foodstuffs derived from agriculture. Cotton is a major outlet mainly in Uzbekistan, also in Kyrgyzstan. Trade is still essentially made with CIS countries.

Thereunder a more detailed analysis of the significant economic factors in each Traceca country:

1. ANALYSIS OF THE EXISTING SITUATION

- Georgia's economy relies on agriculture (vegetable and fruit), fishing, cattle raising, and mines (coal, oil, manganese). Its industry is mainly dedicated to metallurgy, chemistry, cement, machine tools, fertilisers, leather, foodstuffs (mineral water and alcohol).
Both export and import consist of manufactured goods and agricultural products.
Main cities are Tbilisi (1,3 million inh.) then Kutaisi (0,24) and Rustavi (0,16).
- Armenia economy is characterised by agriculture (cereals, vegetable and fruit), cattle raising, mines (copper, gypsum, gold, marble, etc.). Its industrial production dropped by about 80% from 1989 and mainly consists of rubber, cement, leather.
Export is made of machinery and metal products, import of machinery, wood, petrol and gas.
Main cities are Yerevan (1,3 million inh.), Vanadzor (0,12), Gumri (0,76).
- Azerbaijan also relies on its agriculture (cereals, wheat), cotton, fruit and vegetable, cattle raising and fishing. Industry is mainly composed of refineries (important oil reserves), chemistry and mechanical engineering.
Export is made of chemicals, oil and metal products, foodstuffs. Import consists of foodstuff, metal, steel, chemical products.
The capital, Baku, is the main city (1,7 million inh.).
- Turkmenistan produces cereals (wheat), cotton, fruit and vegetables. However only 3% of the land is arable. Some cattle raising and fishing. Oil and gas are extracted from important reserves and pipelines are planned to China and Europe (through Bulgaria). Industry consists of refineries, textiles, fertilisers.
Exported products are cotton and energy (however Turkmenistan faces difficulties to be paid for its gas export to ex-URSS countries). Import consists of foodstuffs and manufactured products.
Main cities are Ashgabat (0,54 million inhabitants), Sharjau (0,19), Dashowuz (0,14).
- Uzbekistan produces cotton (1,3 million tonnes in 1995), some vegetable and fruit. Coal, oil, gas are also extracted. Textile, silk are the main industrial productions.
Export consists of cotton, some tool machines, chemicals, petrol and gas. Tool machines, foodstuffs, agricultural and chemical products are imported.
Major cities are Tashkent (2,3 million inhabitants), Samarkand (0,4), Namangan (0,35), Andijan (0,3), Bukhara (0,23), Fergana (0,19).

1. ANALYSIS OF THE EXISTING SITUATION

- Tajikistan also produces cotton (0,2 million tonnes in 1994), fruit and vegetable, cereals and silk. It holds mining reserves (coal, petrol, gas, gold) and water works. Industry outlets are aluminium, foodstuffs and textile.
Main export is cotton and foodstuffs, tool machines are imported.
Major cities are Dushanbe (0,52 million inhabitants), Khodjent (0,16).
- Kyrgyzstan relies on agriculture (cereals, tobacco), cattle raising, leather production, energy (coal, gas, oil, water works), some mechanical (motors) and glass industries.
Both export and import consist of machinery, metal, foodstuffs.
Main cities are Bishkek (0,6 million inhab.), Osh (0,23).
- Kazakhstan is characterised by cereals production (wheat, barley, etc.), cattle raising.
Iron mines in the Kustanaj region (north-west), non ferrous metals (Karaganda in the centre), copper (Saptajev, centre), gold (Akmola zone, North), oil (Ural'sk, Aktubinsk, Makat in the West) and coal fields (Kustanaj, Karaganda).
Main industries are steel, refineries, fertilisers, phosphates, rubber, tool machines, cement, textile.
Agricultural products, light industry, chemicals, iron and steel are exported.
Import consists of machinery, foodstuffs, chemicals.
Main cities are Almaty (1,16 million inhabitants), Karaganda (0,6), Shimkent (0,43), Semipalatinsk and Pavlodar (0,34), Ust Kamenogorsk (0,33), Jambul (0,31).

Traceca countries economy mainly relies on heavy bulk natural resources, agricultural products, some chemicals and machinery, usually traded over long distances.

These countries account for a large potential market of over 70 million people (over 54 million living in Central Asia states - and ¼ of them in Uzbekistan and Kazakhstan). This market is likely to reach more than 100 million inhabitants in 2025. Traceca states will progressively turn to a market led economy, with better standards of living, driving to a change in the nature of transport, lighter higher value consumer goods being particularly imported from various origins.

I. ANALYSIS OF THE EXISTING SITUATION

1.2 RAILWAYS' SERVICES

1.2.1 *Evolution of railways transport from the early 1990's*

Most of the transport in Central Asia and Caucasus (CAC) countries consists of heavy bulk commodities, for which railway is still, by far, the predominant mode of transport as it is more economic for massive hauls on long distances. Traceca railways currently haul between about 70 and 95% of total freight volumes, out of which 65 to 70% are obviously composed of heavy materials. Passenger is a minor activity and freight accounts, in some cases, for over 70% of total revenues.

However, the disruption of former USSR and the setting up of new borders have deeply modified the configuration of transport patterns in Traceca countries. In the meanwhile Traceca railways mainly guided by production targets set within a national economic planning system, continued to operate in an environment insulated from market forces, not understanding that for some categories of commodities, road competition, originating mainly from Western countries, no longer hesitates to operate modern trucks on thousands of kilometres. This resulted in a sharp decline in rail transport from the early 1990's, driving to a lack of revenue collections, thus curtailing funds for maintenance and investment.

For example, rail freight traffic heavily dropped in Kazakhstan, by some 70% since the breakdown of the former Soviet Union. This fall is mainly due to the decline in transport of raw materials (coal, ore, petroleum, grain, etc.) or semi finished products, which are the traditional markets of the railways, between regions that were previously specialised into planified production assignments.

International statistics, with origin-destination pairs, by commodity, are not fully available in CAC countries, preventing from any possibility to evaluate the exact volume of the freight traffic decline on the Traceca corridor and to make a basis for sound assumptions on traffic forecasts.

But it can be assumed that to strengthen their independence Traceca states are likely to look for developing transport corridors offering direct access to sea ports and favourable trade facilities with promising new markets. As distances and volumes are important enough, the railways should play a significant role in the future provided that they succeed in offering sound transport services.

1. ANALYSIS OF THE EXISTING SITUATION

1.2.2 Present traffic on the Traceca route

The traditional Traceca route links, on some 4,000 kilometres, Kazakhstan (Almaty) and the Black Sea (Port of Poti), including the Caspian Sea crossing, through Tashkent, Ashgabat, Turkmenbashi, Baku and Tbilissi. The distance even accounts for another 860 km, if considered the link with China, through the border of Druzbha in Kazakhstan.

Main commodities currently exported by the Traceca route from Central Asia to the port of Poti are cotton (essentially from Uzbekistan) hauled in covered rail units and 20-40' containers, chemicals (carbides and salpetre in covered or hopper wagons), some foodstuffs (vegetables and fruit in reefer units or cans in covered wagons - however most of these commodities are bound to or come from Caucasus countries).

Imports via Poti mainly consist of higher value commodities, a big part manufactured in Europe, (alcohol, tobacco, textiles and other consumer goods hauled in covered wagons or containers) and construction materials. This traffic should develop as some important projects are foreseen (Daewoo, for example, might import about 200,000 t. of various products to Central Asia through Poti).

The traffic is at present highly unbalanced on the Traceca route. On the ferry line Turkmenbashi-Baku, exports amount to 2/3 of total transport. Most of the traffic on the Caspian Sea crossing consists of bulk cargo. Foodstuffs, textiles and other higher value products presently represent only 20% of import and 5% of export. A big part of this traffic is made with Caucasus.

At the port of Poti, the traffic is also unbalanced, but here import prevails, export representing only ¼ of total import. Consumer goods imported (flour, foodstuff, sugar, meat, equipment) represent only 10% of total volume (mainly dispatched to Caucasus countries). Container transport represents 6% of imported traffic. Exported non bulk cargo (equipment, fertiliser in bags, etc.) accounts for 22% of total volume (out of which only 4% are hauled in containers).

1. ANALYSIS OF THE EXISTING SITUATION

1.2.3 Technical issues

1.2.3.1 General characteristics of the Traceca corridor

Table 2: characteristics of each Traceca network

| Country / characteristics | Kazakhstan | Uzbekistan | Turkmenistan | Azerbaijan | Georgia |
|---------------------------|------------|------------|--------------|------------|---------|
| total length (km) | 13,410 | 3,655 | 2,462 | 2,125 | 1,531 |
| double track (km) | 8,310 | 682 | 33 | 806 | 268 |
| single track (km) | 5,167 | 2,973 | 2,429 | 1,319 | 1,263 |
| electrified (km) | 3,050 | 353 | none | 1,280 | 831 |
| semi automatic block (km) | 10,700 | 3,100 | 1,275 | 1,572 | 1,224 |
| centralized control (%) | 66 | 75 | 78 | 80 | 80 |

Kazakhstan has by far the longest network, well equipped in double track and automatic block.

Table 3: characteristics of the Traceca route

| Traceca route | Kazakhstan | Uzbekistan | Turkmenistan | Azerbaijan | Georgia |
|-------------------------|------------|------------|--------------|------------|---------|
| length (km) * | 902 | 787 | 1,163 | 485 | 363 |
| % of network | 7 | 20 | 47 | 24 | 24 |
| double track (%) | 100 | 100 | 0 | 100 | 84 |
| electrified (%) | 85** | 50*** | 0 | 100 | 100 |
| semi automatic bl. (%) | 100 | 100 | 100 | 100 | 70**** |
| centralized control (%) | 100 | 100 | 100 | 100 | 100 |

* Total Traceca length is of 4010 km (including 310 km for the ferry crossing) ;

** The last section, between Almaty and Otar (150 km) is being electrified at present. The Otar/ Yzounagash section will be operated in winter 1997. The second group of works (Yzounagash/Almaty), though with shorter distance, should take more time as two stations must be electrified in Almaty ;

*** Electrification to Marakan should be completed by end of 1997 ;

**** Signalling between Samtrednia and Batumi .

It can be noticed that the Traceca route has the longest sections in Turkmenistan then in Kazakhstan and Uzbekistan. However the Kazakh share only accounts for 7% of total length of its network.

1. ANALYSIS OF THE EXISTING SITUATION

1.2.3.2 Freight wagons characteristics

Table 4: freight wagons characteristics

| wagons' type | unit number | tare (t) | payload (t) | observations |
|---------------------------|-------------|----------|-------------|---------------|
| open | 1 | 22 | 60 | - |
| flat | 1,05 | 21 | 60 | 2 bogies |
| tank | 0,86 | 24 | 68 | 2 bogies |
| covered | 1,05 | 23 | 62 | - |
| hopper | 1,05 | 22 | 62/67 | - |
| flat (20' containers) | 1,05 | 22 | 60 | - |
| flat (40' containers) | 1,40 | 22 | 65 | - |
| flat (for 20' containers) | 1,08 | 22 | 65 | ex-open wagon |
| flat (cars holder) | 1,55 | 26 | 15 | - |
| reefer | 1,58 | 46/95 | 40 | group of 5 |

The length of the trains is given in wagons units, considering the open wagon (13,4 m. often rounded up to 14 m.) as the standard.

Table 5: containers' wagons

| wagon's category | 916 | 942 | 946 |
|-------------------|---------|---------|-----------------------------------|
| containers per wg | 2 x 20' | 2 x 20' | 3 x 20' or 1 x 20' and 1 x 40' |
| wagon's length | 13,4 m | 13,4 m | 18,4 m |

Current Traceca railways regulations oblige to operate trains only when maximum weight and length are attained (except for local feeding trains named « zborgne »).

1.2.3.3 Trains average speed. Transport times

The Consultant studied at different periods and in different places the speed of the trains on the Traceca route between Almaty and Baku. Main conclusions are shown in hereunder table.

1. ANALYSIS OF THE EXISTING SITUATION

Table 6: theoretical and commercial speeds according to the planned train diagrams (years 1988, 1990 and 1992)

| Countries / speeds | Kazakhstan | Uzbekistan | Turkmenistan |
|---|------------|------------|--------------|
| reference year | 1990 | 1992 | 1988 & 1992 |
| passenger trains technical speed | 58 km/h | 60 km/h | 64 km/h |
| freight trains technical speed (odd track) | 46,3 km/h | 45 km/h | 48 km/h |
| freight trains technical speed (even track) | 46,3 km/h | 42 km/h | 45 km/h |
| odd track commercial speed | 35,5 km/h | 33,5 km/h | 38,5km/h |
| even track commercial speed | 35,5 km/h | 32 km/h | 36,5 km/h |

Table 7: real and commercial speeds noticed on train diagrams

| Borders stations | Almaty / Tshengueldy | Tshengueldy / Farap | Farap / Turkmenbashi | Turkmenb./ Baku (ferry) | Baku / Poti * |
|--------------------|----------------------|---------------------|----------------------|-------------------------|---------------|
| date | 12 / 06/ 97 | 27 / 8/ 97 | 16 /9/97 | 25/9/97 | - |
| transit time | 22 h | 21 h | 28 h | 14 h | 30 h |
| real speed | 41 km/h | 38 km/h | 41,6 km/h | 22 km/h | - |
| technical stops | 8 h | 10 h | 10 h | 36 h | - |
| transport duration | 30 h | 31 h | 38 h | 50 h | - |
| commercial speed | 31 km/h | 26 km/h | 31 km/h | 6 km/h | 28,6 km/h |

* technical characteristics on Baku-Poti are those currently existing for the operation of the new « Trans Caucasian Logistic Express » block train service.

The comparison between both these tables shows that the difference between the current commercial speeds and those planned some years ago do not significantly differ. This means that no major worsening in trains' speed occurred during the last years, especially in Kazakhstan and Turkmenistan.

1.2.3.4 Trains frequency

Table 8: theoretical planned capacity of the Traceca route (1997)

| Line capacity* | Kazakhstan | Uzbekistan | Turkmenistan | Azerbaijan | Georgia |
|----------------------|------------|------------|--------------|------------|---------|
| passenger | 9+7 | 8+8 | 8+8 | 10+11 | 11+11 |
| freight (odd track) | 21 | 20 | 12 | 20 | 21 |
| freight (even track) | 23 | 20 | 15 | 20 | 21 |

* Lowest average figure noticed

1. ANALYSIS OF THE EXISTING SITUATION

Table 9: train circulation real diagram

| Date /traffic | 12/06/97 | 28/08/97 | 16/9/97 | 27/05/97 | 07/05/97 |
|----------------|----------|----------|---------|----------|----------|
| passenger | 7+8 | 6+6 | 6+6 | 9+9 | 7+7 |
| freight (odd) | 8 | 9 | 4 | 7 | 9 |
| freight (even) | 9 | 10 | 5 | 6 | 11 |

From the above tables, it can be noticed that the Traceca line is currently not at all saturated. Even if the traffic were to develop dramatically in the near future, new services can be incorporated to the present diagrams without any bad consequences hampering the regularity and reliability of the trains schedules.

1.2.3.5 Transport times and means to haul traffic in Uzbekistan between Tashkent or Bukhara and different locations

Uzbekistan is a promising market for the new Traceca service. Tashkent (Shumilovo) and Bukhara freight terminals are well located and equipped enough to be considered as the most appropriate yards where to gather or dispatch traffic using the Traceca route. Under these assumptions, the Consultant undertook a detailed study of the present available train services (with corresponding transport time) linking Tashkent and Bukhara. As no complete statistics on traffic flows are available, the major consumption-production centres in Uzbekistan, likely to benefit from a new service on the Traceca route, have been retained. The possibility of catching some traffic from/to China via Almaty has also been anticipated.

1.2.3.6 Train services

Each en route station holds its own light rail tractor, enabling shunting 24 hours a day. Feeding trains are operated daily (they are named « zborgne ») and they service each yard between two important stations (the distance between these stations is usually of about 100 km).

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1.2.3.7 Service between Tashkent (Shumilovo) and Bukhara

Table 10: train service between Tashkent and Bukhara

| Sections | Distances (km) | Stations serviced | trains number | transport time |
|-------------------|----------------|-------------------|---------------------|----------------|
| Tashkent / Kavast | 300 | 12 | 2 (even) 2 (odd) | 12h |
| Marakand / Kavast | 220 | 6 | 2 (even) 2 (odd) | 11h |
| Marakand/ Binokor | 170 | 5 | 2 (even) 2 (odd) | 8h |
| Karchi / Bukhara | 157 | 1 | 1 (even) 1 (odd) | 3h30 |
| Navoi* / Bukhara | 83 | 1 | 2 (even) 2 (odd) | 3h30 |

| | |
|----------------------|---|
| Navoi* / Ushkuduk | Few traffic on this section servicing the North of Uzbekistan |
| Karchi / Talimarjan* | Due to the numerous borders to cross, no « zborgne » but a direct train to Talimarjan (transport time: 2 hours) |

* The wagons collected in each station are hauled from Navoi to Bukhara by a direct train (average transport time : 2 h. 15).

From the above tables it can be deducted that the transport time between the further (or the worst serviced) yards and Tashkent/Bukhara is :

- for Tashkent(Kavast / Tachkent) : 16 h
- for Bukhara (Navoi / Bukhara) : 10 h

The stations service seems to be quite efficient. No more than 48 hours are required between ordering a wagon in the most remote yard from Tashkent and its incorporation in a train leaving Tashkent on the Traceca route.

1.2.3.8 Transport times between Druzbha/Almaty and Tashkent

Some traffic already exists between the Far-East (notably Korea) and Uzbekistan through China, that might develop in the future.

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Table 11: transport times (and distances) between Druzbha and Tshengueldy

| Section | Druzbha Aktogai | Aktogai Almaty | Druzbha Almaty | Almaty Tshu | Tshu Jambul | Jambul Aris | Aris Tsheng | Almaty Tsheng |
|---------------|--------------------|-------------------|-------------------|----------------|----------------|----------------|----------------|------------------|
| distance (km) | 304 | 557 | 861 | 312 | 240 | 309 | 68 | 902 |
| time (h) | 9 | 12 | 22 | 7 | 5 | 6 | 2 | 20 |

In addition to these transport times, delays for compulsory technical controls, locomotives and staff changes must be added. Between Druzbha and Beskol a stop is obligatory at each station (6 stops) due to the single line token block. Between Almaty and Tshengueldy, stops are required at Otar, Tshu, Jambul, Turkeybass, Tshembok, Aris. Average stop time for technical controls is usually about 30 mn.

Table 12: transport times (and distances) between Druzbha and Tashkent

| Sections | Transport times (h) | Distances (km) |
|--------------------|---------------------|----------------|
| Almaty / Tashkent | 30 | 965 |
| Druzbha / Tashkent | 60 | 1826 |

These transport times include technical stops and cross borders stops.

1.2.3.9 Characteristics of border crossings

According to an agreement signed between Kazakhstan, Uzbekistan and Turkmenistan, the waiting times at the border are calculated on the basis of 1 minute per axle that is 4 mn per wagon. For a 70 wagons train the maximum delay required is therefore 4h 40 mn, but the railways officers interviewed assured the Consultant that 2 hours are usually sufficient. This time includes all necessary formalities such as customs, technical, commercial and transport documents controls, locomotive and staff changes.

1.2.3.10 Tshengueldy

Tshengueldy is mainly an exchange station between Kazakhstan and Uzbekistan, located on the Kazakh territory, 65 km away from Tashkent. The yard comprises 2 groups of 6 sidings. The even group of tracks is used for trains bound to Kazakhstan, the odd one for trains bound to Uzbekistan. The track between Tshengueldy and the border belongs to Uzbek railways. The main formalities at the border are completed by Kazakh railways staff paid by Uzbek authorities.

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1.2.3.11 Farap

Farap is located on Turkmen territory, a few kilometres from the border and the track belongs to Turkmen railways. Formalities are carried out 24h a day by a team of 10 to 12 Uzbek officers.

1.2.3.12 Caspian Sea ferry crossing

The ferries operated on the Baku-Turkmenbashi line have been built in Yugoslavia, from 1984 to 1986. They belong to the Caspian Shipping Company (CSC), from Azerbaijan. Their length is 155 metres, their width 18,30 m. and the draught 4,50 m. 5 ferries are said to be working on the line, but when the Consultant made the crossing on the 25 September 1997, 2 boats were parked in the roads of Baku, 1 was under repairs and the non operated one was passing a sanitary inspection.

There is no planned ferry schedule for the Caspian Sea crossing. The boats leave when they are full, priority being given to rail traffic (with a maximum of 28 wagons per crossing). The cargo may be completed by some lorries or cars loaded in the lower part of the hold. About 200 passengers may also be accepted but when dangerous cargo is on board (petrol, etc.).

The ferry operation is managed by CSC that decides (giving orders by radio telegram in Morse) to stop or start a boat and that selects the cargo to be loaded on board.

The Captain takes the decision to operate or not the boat on bad weather. Many reasons are given to justify the cancellation of ferry crossings among which :

- the channel heading to the port of Turkmenbashi is long and narrow and must therefore be taken at reduced speed, the more than winds are blowing perpendicular to the channel;
- the wagons trimming in the ferries is not secure enough to assure safe crossings on windy days;
- adverse winds from the West are said to reduce significantly the speed of the boats;
- night crossing is difficult as the lateral buoys marking the entrance of both Turkmenbashi and Baku channels are not lightened. The arrival in Baku is marked by a fixed light that can be seen at 10 miles by clear weather. But the grounding is difficult as there is no light to steer the boat along the pier. When arriving in Baku the Consultant noticed that two manoeuvring in the darkness

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were necessary before grounding, though the weather was fine and the sea still.

1.2.3.13 Description of a Turkmenbashi - Baku crossing

The Consultant, arrived in Turkmenbashi on the 22 September 1997, was unable to obtain any reliable information on the possible arrival - thus departure - of a boat from/to Baku. Several pedestrians were awaiting for the ferry together with some Turkish lorries.

Finally the boat named « Professor Gull » arrived in Turkmenbashi on the 24 September at 10.30 AM. The unloading started 4 hours after the arrival of the ferry, comprising 18 wagons and 12 lorries. The loading of the 22 wagons and 8 lorries was completed at night, after 12.00. The passengers were allowed on board from 7.00 PM, without any information on the departure time. The boat left Turkmenbashi, without any notice, the 25 September at 7.00 AM.

The Caspian Sea crossing lasted for a total of 15h.30, the boat arriving in Baku at 10.30 PM. A total of about 2h.30 were spent for manoeuvring at both ports and getting out of the Turkmenbashi channel. The lorries were immediately unloaded, but due to the poor conditions of passengers' disembarkation it was not possible to attend the wagons unloading.

1.2.3.14 Tractive stock rotation

The rotation of the tractive stock on the Traceca corridor is extremely constraining. For example Uzbekistan is split into 3 sections in which the locomotives and drivers are employed.

These sections are :

- Tshengueldy / Tashkent / Jizac (139 km);
- Jizac / Samarkand / Marakan (420 km);
- Marakan / Bukhara / Farap (405 km).

Moreover the same team cannot drive the full distance Marakan-Farap because of maximum driving time limits. 3 stops are consequently required to change locomotives (as it seems that they cannot be manned by several crews) and staff, which may be done in 30 minutes. Electric locomotives can be driven 12 hours at a time when for diesel engines the driving time is limited to 8 hours. About 1h30 must be saved going on duty and another 1 hour going off duty. This means that the same crew (thus same locomotive) can run a maximum distance of 150 to 180 km as the working period also include the return to the depot of origin.

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1.2.3.15 Empty wagons return

As the traffic is unbalanced, the empty wagons consignments from Poti do not pose a problem, though the Caspian Sea Shipping Company tends to favour loaded wagons paying full price on board. Currently the transport time of empty wagons from Poti to Tashkent is of about 10 days.

1.2.3.16 Description of the Uzbek freight yards likely to be used on the Traceca route

Three yards have been selected, after several studies and visits, that could be used by then new Taceca service :

- Shumilovo (Tashkent) including the terminal operated by the forwarder Shostrans;
- Tavarnayo (Tashkent);
- Bukhara (considering the project for an extension).

A full description of these yards is made at appendix 1.

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1.2.3.17 Real transport times noticed on the Traceca route

From the previous considerations it can be deduced that the transport times on the Traceca route are the following :

Table 13: transport times on the Traceca route (1997)

| Times/sections | Transport times | Technical stops | Stops at borders | Total |
|-----------------|--|-----------------|------------------|-------|
| Druzhba/Almaty | 22 h | 10h | - | 40h |
| Almaty/Tashkent | 30 h | 4 h | 4 h | 38 h |
| Tashkent/Turkm. | 48 h | 12 h | 8 h | 68 h |
| Turkmenb./Baku | 14 h | 36 h | 4 h | 54 h |
| Baku/Poti | 30 h. (« Trans-Caucasian Logistic-Express » service) | | | 30 h |

| | Transport times | Technical stops | Stops at borders | Total |
|----------------|-----------------|-----------------|------------------|-------|
| Druzhba/Poti | 152 h | 62 h | 16 h | 230 h |
| Almaty/Poti | 132 h | 52 h | 16 h | 200 h |
| Bukhara/Poti | 72 h | 46h | 12 h | 134 h |
| Tashkent /Poti | 92 h | 48 h | 12 h | 152 h |

This table cannot but give estimated and optimised transport times as no direct train service currently exists from the Chinese border (Druzhba) to Poti. Moreover, at each stop in a marshalling yard, the train numbers change. This makes difficult any follow up of a selected train.

1.2.4 Commercial issues

1.2.4.1 Commercial organisation

The clients interviewed by the Consultant generally reported that making business with the railways was not simple as contacts with rail administration are rather complicated and bureaucratic. Wagons ordering and tracing is said to be of poor reliability. For example once visiting an important marshalling yard in Central Asia, the Consultant asked for a demonstration of the wagons tracing system, connected with the Main Computer Centre located in Moscow. Despite several trials, the system could not find a tank wagon which had been seen passing through a few minutes ago.

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Little space is left for commercial activity which is still a part of railway's operations. Few consideration is paid to sales, pricing, marketing functions (enabling to understand the needs of the client) and to competition's offers. Statistics and information about rail market share are scarce as Traceca railways have been structured mostly according to production preoccupation's. Major railways customers are still State organisations directly linked to the corresponding Ministries (of Energy for gas, petrol, coal) which do not need intensive communication processes or heavy commercial organisation.

As a consequence direct contacts between the client and the railway are limited especially for international traffic. Customers, mostly the smallest ones, are obliged - or even prefer - to proceed through accredited forwarders, either belonging to the railway or independent, to get rid of heavy administrative and customs formalities. The forwarders help getting discounts, through negotiations with railways, and finding appropriate wagons and trains as no traffic schedules, nor fares are currently published. They can manage freight insurance, handling, storage, transshipment facilities and road transport. However forwarders' intervention is of various importance according to the Traceca countries and even is quite inexistant in Turkmenistan.

In Uzbekistan, 15 forwarding companies are entitled by the railway to deal with exports and 36 in the whole CIS have been granted the right to assure consignment to Uzbekistan. Shostrans Company, which has been created in 1994 by Uzbek railways with private capital participation, has been entrusted with multimodal transport.

In Kazakhstan, no specific law is ruling forwarding activities and about 30 forwarders are currently operating, in addition to the 4 freight agents owned by the railways.

Payment is made by the client to the forwarder which pays in turn the railway according to the corresponding tariff (a variable discount may be granted according to the size of the shipment). This procedure leaves the forwarder free to determine his margin and hampers contacts between customer and the railway.

Customers are usually asked to pay cash in advance before the transport, as transport fares are intended prepaid. This may be the source of long en-route delays as, for various reasons, clients do not always prepay the freight for the complete route to destination, resulting in long stops of the wagons or trains. Only some important customers may be exempted of this obligation. Other delays often occur due to the tedious control of freight payment at each main station. A kind of barter (goods in exchange of transport) is also admitted for some clients temporarily facing financial difficulties (however this practice has been recently forbidden in Uzbekistan).

Some railways, particularly in Kazakhstan, understood that if the forwarders help gaining traffic, especially international, they also deprive the railways from getting full revenue as a part is kept to remunerate the forwarder. Besides the Kazakh Anti-Monopoly Committee recently issued a law aiming at suppressing all railways owned freight agents.

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In response Kazakh Railways is setting up a « Freight Transport Centre » (that should be operational start of 1998) acting as a forwarder with its own transit structures, which operating costs would amount up to a mere 0.5% instead of the usual 5 to 10% percentage on total revenues granted to forwarders. This Freight Transport Centre will firstly hire 10 people located in Almaty Railways headquarters and, on a longer range, up to 300 people. It might be a structure put apart in the Railways management chart but that would not be legally separated. The Centre will be responsible for providing transport services to the clients (rail and road), undertaking administrative and customs formalities, tracing the wagons, and forecasting freight traffic volumes enabling to elaborate the traffic schedules. Branch offices will be opened in main freight stations.

Kazakh Railways also intend to open shortly an office in Tokyo, Japan, so as to provide information on tariffs, timetables, etc. to local clients. This experiment, if successful, will be extended to other countries.

1.2.4.2 Wagons' provision and penalties. Wagons' pools

Wagons fleets, that were previously part of the Soviet Union network, have been scattered between new Central Asia railways. Many wagons, because of bad maintenance, are in poor condition. When sent to foreign countries, charges must be paid by the railway using them, resulting in empty wagons being returned to the owner as quickly as possible, usually using the same way it came.

Thereunder example of charges to be paid (per day) for the use of foreign wagons in Kazakhstan:

Table 14: example of daily rates charged for the use of foreign wagon (in CHF. Sept. 97)

| wagon's type | daily rate (Swiss Francs - CHF) |
|--------------|---------------------------------|
| covered | 5.05 |
| flat | 4 |
| open | 6.84 |
| tank | 7.3 |
| hopper | 5.98 |
| other | 5.32 |

Source: Kazakh Railways (Almaty)

The use of Chinese wagons on foreign networks is even more costly, charged 11.5 CHF per day for a 1-7 day period, 17.25 CHF for 8-15 and 34.5 after 15 days.

As the traffic dropped, there is no shortage of wagons. However the client is still supposed

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to order the wagons 2 weeks before the beginning of the planification to be set for the next month (20 days for international traffic) so that the railways Planning Centre can elaborate the monthly train schedule enough in advance as when of the Soviet centralised train planning. This schedule must then be confirmed by the Ministry of Transport, meaning that the railway has no direct control upon its wagons dispatching. In case the client asks for a number of wagons that he finally does not need, he will be fined \$ 4 per covered wagon and from \$ 5 (for a container) to \$ 9 (for a special wagon) in Uzbekistan - and even \$ 18 (reefer wagons) - in Kazakhstan, per unit ordered and not used.

The wagons are followed by the Tracing Centre located in Moscow, which pinpoint the train in which they have been inserted each time it crosses a border or some other important junction. The railways should inform the client 12 hours before the wagons' arrival at the station of destination, then notify by phone 2 hours before placing the wagons at the client's disposal. From the disposal the client then has 2 hours to unload wagons that may carry up to 50-60 tonnes of cargo, which is obviously too short a time. If the client gives back the wagon with delay, he is charged, in Kazakhstan, from about \$ 7.5 to \$14 (according to the wagon's category) for the first day then from 20 \$ to \$ 40 from the second day if the wagon is returned after one day. Beyond a 2-day delay, the wagon is charged an additional \$ ½ per hour. For a 30-tonne container, the fine is \$ 0.20 per late hour.

All these constraints and penalties laid on clients are rather rigid and counterproductive. Rail competitors, especially road transport, appear to be much more flexible and easier to use.

There are no wagons pools on large scale set up between different railways as it is the case in Western Europe. Only some bilateral agreements have been signed, for example between Russia and Kazakhstan for coal and petrol transport in open and tank wagons hauled in shuttle trains between plants, or multilateral pools as for the Kazakh / Uzbek / Russian fleet of covered cars specially fitted to the transport of wheat. These pools are limited to certain categories of goods and the wagons are pinpointed by their number and exchanged on a free basis between the participating networks. The agreements may have been firmed up on a one year period (for example tanks cars for petrol) or on longer range (wagons for coal transport).

The obligation to return back as fast as possible to the owning railway foreign empty wagons to avoid paying charges creates numerous and unnecessary hauls of empty wagons, most of them being usually of covered, open or tank type. This could be avoided through the creation of pools constituted with the most frequently used wagons that might be re-used by the network of destination, thus saving time and money.

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1.2.4.3 Pricing

Two categories of tariffs, domestic (called 10-01) and intra-CIS countries (transit MTT-ETT), prevail in Traceca railways. Both have kept the structure elaborated in Moscow and applying during the Soviet period and depend on the distance, the tonnage, the commodity's and wagon's types.

1.2.4.3.1 Domestic tariff (10-01)

Domestic tariff is valid only within the territory of each Traceca country, though with different levels of rate. They are under Government control which major them, usually once a year, essentially according to inflation rates. The level of 10-01 prices is usually lower than for international tariffs the latter being often used with more strategic aims as, for example, to increase the revenues of countries which transit is unavoidable.

Domestic tariff consists of 2 leaflets. The first one comprises 4 parts (directions for use, additional transactions, penalties, commodity list - with code number giving the minimum required weight per wagon: for example, in Uzbekistan, cotton's code is « 32 » with a minimum weight of 34 tonnes per covered wagon).

The other leaflet indicates the coefficients to be applied according to the minimum required weight, per distance bands. This coefficient is multiplied by a fix price set in Soviet Roubles (determined every 6 months by railways economists), itself being converted in current Russian Roubles, then in Sums, for Uzbek Railways (applying a coefficient calculated by the Railways Financial Department). For the given 111 km

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distance (Bukhara to Farap) and for cotton, the coefficient is « 67 », which multiplied by 18750, gives the price in Soviet Roubles, itself being multiplied by 0.01267, gives the price per wagon in Sums (15,916 Sums i.e. about \$ 227).

Prices are quoted out of VAT (+ 18% for Uzbekistan). Discounts, limited to a maximum 35% may be granted on domestic tariffs. A list of wagons' types is appendixed, with a coding from 1 to 14 (covered, hired, hopper units, wagons for cereals and fertilisers, etc.). For transport in private owned (or hired) wagons a 15% discount is allowed.

Thereunder some examples of prices for domestic transport respectively in Uzbekistan and Kazakhstan:

Table 15: example of rail domestic prices in Uzbekistan (Sept. 1997)

in Uzbek Sums (and USD for t.km - 1 USD # 70 Sums - 09/1997)

| Distance (km) | Commodity/rate | | | |
|---------------|--------------------------------|---------------|-----------------|---------------|
| | per wagon (Sums) | per km (Sums) | per t.km (Sums) | per t.km (\$) |
| - | cotton (50t. covered wagon) | | | |
| 100 | 15,916 | 159.16 | 3.18 | 0.045 |
| 200 | 19,955 | 99.77 | 1.99 | 0.028 |
| 300 | 24,231 | 80.77 | 1.61 | 0.023 |
| - | vegetables (25t. reefer wagon) | | | |
| 100 | 14,996 | 149.96 | 5.99 | 0.085 |
| 800 | 55,580 | 69.475 | 2.77 | 0.039 |
| - | cans (40t. reefer wagon) | | | |
| 100 | 43,473 | 434.73 | 10.86 | 0.15 |
| 800 | 88,978 | 111.22 | 2.78 | 0.039 |
| - | cement (64 t. hopper wagon) | | | |
| 100 | 18,054 | 180.54 | 2.82 | 0.040 |

Source: Uzbek Railways - Tashkent

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Table 16: Example of rail domestic prices in Kazakhstan (Sept. 1997)

in Kazakh Tenge (and USD for t.km - 1 USD # 75 Tenge - 09/1997)

| Distance (km) | Origin-Destination | Commodity/rate | | | | |
|---------------|-----------------------|--------------------------|-------------------|----------------|------------------|---------------|
| | | commodity | per wagon (Tenge) | per km (Tenge) | per t.km (Tenge) | per t.km (\$) |
| 861 | Druzhba-Almaty | cotton (50t. covered.wg) | 25,704 | 29.8 | 0.60 | 0.008 |
| | | vegetables (25t.ref.wg) | 87,318 | 101.4 | 4.05 | 0.054 |
| | | ans (40t. reefer wg) | 81,018 | 94.0 | 2.35 | 0.031 |
| | | ement (64t. hopper wg.) | 37,170 | 43.1 | 0.67 | 0.009 |
| 1373 | Karaganda-Tshengueldy | cotton (50t. covered.wg) | 37,296 | 27.1 | 0.54 | 0.007 |
| | | vegetables (25t.ref.wg) | 113,904 | 82.9 | 3.31 | 0.044 |
| | | ans (40t. reefer wg) | 107,604 | 78.3 | 1.95 | 0.026 |
| | | ement (64t. hopper wg.) | 55,314 | 40.2 | 0.63 | 0.008 |
| 2028 | Pavlovar-Tshengueldy | cotton (50t. covered.wg) | 52,542 | 25.9 | 0.52 | 0.007 |
| | | vegetables (25t.ref.wg) | 148,806 | 73.3 | 2.93 | 0.039 |
| | | ans (40t. reefer wg) | 142,506 | 70.2 | 1.75 | 0.023 |
| | | ement (64t. hopper wg.) | 79,128 | 39.0 | 0.61 | 0.008 |
| 3272 | Almaty-Aktau | cotton (50t. covered.wg) | 79,632 | 24.3 | 0.48 | 0.006 |
| | | vegetables (25t.ref.wg) | 210,798 | 64.4 | 2.57 | 0.034 |
| | | ans (40t. reefer wg) | 204,498 | 62.6 | 1.56 | 0.020 |
| | | ement (64t. hopper wg.) | 121,464 | 37.1 | 0.57 | 0.007 |

Source: Kazhak Railways - Almaty

From both above tables, it can be noticed that:

- price per tonne-kilometre, comprising between \$ 0.006 (cotton over 3000 km in Kazakhstan) and 0.15 (cans in reefer wagon over 1000 km in Uzbekistan) is quite scattered;
- for a selected commodity, the per km. rate decreases, but slightly (by a mere 18%, when the distance is multiplied by 3.8, for cotton in Kazakhstan);
- per t.km. rates are quite different, for a given commodity hauled on the same distance, depending on the railway on which the transport is made (vegetables are priced \$ 0.039 for 800 km in Uzbekistan, when \$ 0.054 for 861 km in Kazakhstan - that is 38.5% more);
- the use of special wagons (in that example reefer units), increases significantly the per t.km. rate (5.4 times more for vegetables hauled in reefer wagons on 1373 km, if compared with cotton in covered wagons on same distance, in Kazakhstan).

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1.2.4.3.2 Inter CIS countries tariffs: International transit (MTT 8100) and Unique Transit (ETT)

Both MTT and ETT tariffs apply to CIS countries transit traffic (there is a project to join them). ETT has been created in 1959 and its rates are a bit lower for distances up to 2000 km than MTT's, which is in force since 1977.

MTT structure is simpler as it does not split into commodity classes. It is edited in Russian and expressed in Swiss Francs (so as to meet the problem of various national currencies issued by countries having different economic trends and huge inflation rates). 9 CIS countries participate to this tariff. Its rates are decided by an international Tariff Committee, meeting once at the start of each year, the tariff being valid from April, 1 to March, 31. Traceca railways do not take part in the MTT Committee but use the tariff 8100 for transit between their countries.

The transport rate depends on the commodity, the distance, the speed, the weight. Each country may propose different rates for a given commodity and route. Discounts may be granted, upon decision of the President of the Railways, according to the volume and distance hauled. MTT prices are usually higher than domestic tariffs'.

MTT tariff comprises 6 parts (generalities, pricing rules, transport in large containers, formalities for transport between countries of different legal regulations - SMGS-CIM, commodity list, distances - rates - payments).

High speed consignments are charged 50% more than low speed ones. Empty consignments are rated 0.10 CHF per axle per km for a 2-axle wagon and 0.06 CHF per axle per km for wagons with more than 2 axles. A 15% discount is granted for the use of privately owned wagons.

1.2.4.3.3 Caspian Sea ferry crossing rates

The ferry boats on the Caspian Sea between Turkmenbashi and Baku convey wagons, trucks and cars, though rail traffic has always priority. Information diverges on ferry crossing rates. However various sources and especially the Caspian Shipping Company Officer in Turkmenbashi and Azeri Railways representatives in Baku insured the Consultant that both wagons and trucks were rated about the same price per meter, i.e.:

- meter rate for trucks amounts up to \$ 30 (this rate having been increased by 25% from 1995);
- loaded wagons are charged a \$ 600 lump sum when empty wagons are rated half this price: \$ 300.

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1.2.4.3.4 The Sarakhs agreement

An agreement between Uzbekistan, Turkmenistan, Azerbaijan and Georgia has been signed on 13 May 1996 in Sarakhs, granting a 50% discount on loaded and empty wagons transit tariffs along the route Farap-Turkmenbashi-Baku-Poti, Batumi. This agreement also aims at simplifying custom procedures, allowing up to 200 wagons belonging to the four networks to be crossed every day on Turkmenbashi-Baku ferry-line, developing training of railways staff, etc.

1.2.4.3.5 The Northern Traceca route

Kazakh railways officers interviewed in Almaty declared against joining the Sarakhs agreement. They consider they would have to stand a higher sacrifice on their revenue, as distances in Kazakhstan are significantly higher than in neighbouring networks, especially in Caucasus. Kazakh railways also clearly expressed their interest (confirmed by the clients met by the Consultant in Almaty) for the « Northern » Traceca route passing through the Kazakh port of Aktau, on the Caspian Sea. This route, apart from allowing Kazakh railways a higher income (they do not have to share revenue with Uzbekistan and Turkmenistan), also offers a determining alternative to the « Southern » Traceca corridor via Turkmenbashi-Baku (as there is only one country to be crossed to reach the Caspian Sea) as it reduces and simplifies:

- the technical constraints (no locomotive changes at the borders, wagons tracing centralised at Almaty for the whole trip to Caspian Sea);
- the customs and other administrative formalities;
- the commercial negotiations.

Two problems are currently hampering the Northern corridor:

- the absence of a ferry line crossing the Caspian Sea at Aktau (the service has been stopped in 1992. At that time the trip lasted two hours more than via Turkmenbashi-Baku);
- the remote location of the Kazakh railways terminal, set 18 km away from the port of Aktau (rail installations in Aktau belong to a private company).

However funds (over \$ 65 million in a first phase) are available, partly from EBRD, to upgrade terminal facilities in Aktau. An additional \$ 12 million is required to invest in a ferry boat enabling to operate a supplementary Traceca route.

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1.2.4.3.6 Railways rates on Traceca corridor

Both Kazakh and Uzbek Railways provided the Consultant with the examples of rates estimation on the Traceca route (from either Almaty or Bukhara to Poti, through the Turkmenbashi-Baku ferry line) for the same commodities as hereabove considered on domestic hauls (point 12431). The total Traceca rate is built using domestic tariff rates (alternatively from Almaty and Bukhara) to the border, added to MTT inter-CIS rates - reduced by 50% according to Sarakhs agreements -, set on Turkmen, Azeri and Georgian transits.

The following table shows these rates estimations :

Table 17: example of rail rates on the Traceca corridor (Sept. 1997)

in USD (09/1997)

| Origin-Destination | Dis-tance (km) | Commodity / rate (\$) | | | | | | | |
|-----------------------------------|----------------|-------------------------|--------|---------------------------|--------|-----------------------|--------|-------------------------|--------|
| | | cotton (50t covered wg) | | vegetables (25t. reef wg) | | cans (40t. reefer wg) | | cement (64t hopper wg.) | |
| | | p.wg | p.tkm | p.wg | p.tkm | p.wg | p.tkm | p.wg | p.tkm |
| Almaty-Tshengueldy | 902 | 354.5 | 0.0078 | 1191 | 0.0528 | 974 | 0.0269 | 514 | 0.0089 |
| Tshengueldy-Farap | 787 | 1562.5 | 0.0397 | 795.5 | 0.0404 | 1271 | 0.0403 | 2000 | 0.0397 |
| Bukhara-Farap | 111 | 227 | 0.0409 | 214 | 0.0771 | 621 | 0.1398 | 258 | 0.0363 |
| Farap-Turkmenbashi | 1163 | 1010 | 0.0173 | 505 | 0.0173 | 808 | 0.0173 | 1293.5 | 0.0173 |
| Turkmenbashi-Baku (ferry) | 310 | 600 | 0.0387 | 600 | 0.0777 | 600 | 0.0483 | 600 | 0.0302 |
| Baku-Beyuk-Kessik | 485 | 522 | 0.0215 | 261 | 0.0215 | 878.5 | 0.0452 | 668.5 | 0.0215 |
| Beyuk-Kessik-Poti | 363 | 605 | 0.0333 | 302 | 0.0332 | 484 | 0.0333 | 774.5 | 0.0333 |
| Total per wg from Almaty* | 4010 | 4654 | | 3654.5 | | 5015.5 | | 5850.5 | |
| <i>Per km</i> | - | <i>1.160</i> | | <i>0.911</i> | | <i>1.250</i> | | <i>1.458</i> | |
| <i>Per tonne.km</i> | - | <i>0.0232</i> | | <i>0.0364</i> | | <i>0.0312</i> | | <i>0.0227</i> | |
| Total per wg from Bukhara* | 2432 | 2964 | | 1882 | | 3391.5 | | 3594.5 | |
| <i>Per km</i> | - | <i>1.218</i> | | <i>0.773</i> | | <i>1.394</i> | | <i>1.478</i> | |
| <i>Per tonne.km</i> | - | <i>0.0243</i> | | <i>0.0309</i> | | <i>0.0348</i> | | <i>0.0230</i> | |

Source: Uzbek and Kazakh Railways (Tashkent-Almaty)

* taking into account the Sarakhs agreement (50% reduction on Turkmen, Azeri, Georgian transits).

NB: Per t.km. rates are calculated including the ferry rate (\$ 600), and corresponding maritime distance.

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From the previous table it can be noticed that:

- average per t.km rates, on total length of the Traceca route, comprise between \$ 0.023 and \$ 0.036 according to the commodity and type of wagons hauled;
- these rates are quite comparable, for a given commodity, whether starting from Almaty or Bukhara (though slightly lower, by 6 - 15%, when starting from Kazakhstan - except for vegetables in reefer wagons);
- average per t.km. rate, from Almaty to Poti is, for a given commodity, higher than Kazakh railways domestic rates (for example from more than + 300% to + 16%, respectively for transport of cotton or vegetables, over 3000 km);
- per t.km. average inter-CIS rates are quite different, for given commodity, depending on the railways used (for example from 0.0173 on Turkmen transit to 0.0404 on Uzbek transit, the average per t.km. rate all throughout the Traceca route being of 0.0364 for transport of vegetables);
- average per t.km. rates in special wagons (here reefer wagons) are significantly higher (by at least one third) on the Traceca corridor.
- the per wagon rates on the mere section Almaty-Poti, comprising between \$ 3,654 and \$ 5,850 (respectively for cotton and cement), appear to be relatively high, if compared with rates found on the competitive Northern corridor (about \$ 4000-5000 throughout the total length from Europe to Almaty. See point 3.1.4 thereafter).

1.2.4.3.7 New international Balkan-Near East tariff

A project for an international freight tariff (wagons and containers) linking Iran, Turkey and Syria to Central Europe (Albania, Bulgaria, Greece, Romania, Yugoslavia, FYROM) has been discussed for long and might be issued soon. This tariff will be expressed in Swiss Francs, with a commodity list and minimum tonnages. A 20% discount is foreseen for the use of private wagons and empty consignments would be charged 70% of the wagon's gross weight.

When into effect, this tariff could be used, with reshipment, for traffic with Central Europe passing via Turkmenistan or Georgia, thus diverting transport from the Traceca route through Iranian Caspian Sea ports and Turkish Black Sea ports.

1. ANALYSIS OF THE EXISTING SITUATION

1.2.4.4 Costs

Tariffs rates had been initially based on costs. But the current level of costs is generally unknown which makes any comparison with revenues, thus estimation of contribution (revenue less costs), daring. To meet this problem, the Consultant undertook a study of the estimated per tonne costs standed by rail transport on the Traceca route.

A high-performing management control software (« Sys-management ») has been used, consisting of modules in which was introduced all existing and available information on revenues and expenses. The accuracy of the results is obviously subject to the relevance, the degree of detail and the coherence of the data provided by each railway considered.

The main direct expenses considered were:

- rolling stock maintenance/ amortisation;
- permanent way maintenance/ amortisation;
- electricity systems maintenance;
- energy;
- staff on trains ;
- shunting operations;
- other operating expenses.

Indirect expenses considered were:

- overhead/financial expenses;
- taxes.

The cost estimation has been calculated on a per-tonne basis, for 50 tonnes loaded wagons hauled in trains offering maximum length-load capacity, on the corridor Druzhba (Chinese's border) to the port of Poti (Black Sea), respectively for years 1995 and 1996. The results obtained cannot but be an approximation (several costs cannot be estimated such as marshalling yards processing, haulage on origin-destination routes, etc.) and are set with minima-maxima. Costs are considered to have increased by 32-36% between 1996 and 1997.

Table 18: estimation of the per-tonne cost on Traceca corridor (Druzhba-Poti - 1995/96)

in USD (1995-96)

| Countries/year | 1995 (\$) | 1996 (\$) |
|----------------|------------------|------------------|
| Central Asia | 23.3-27.9 | 35.5-38.8 |
| Caspian Sea | 18 | 18 |
| Caucasus | 12-17.4 | 19.4-26.8 |
| Total | 53.3-63.3 | 72.9-83.6 |

1. ANALYSIS OF THE EXISTING SITUATION

These figures can be compared with the tariff rates on the total length of the Traceca corridor (1997 figures), provided by Kazakh and Uzbek Railways (see above table 17), adding the domestic leg on Kazakh network from Druzhba to Almaty.

Table 19: estimation of the per-tonne rate on Traceca corridor (Druzhba-Poti- 1997)

in USD (09/1997)

| Origin-Destination | Commodity / rate | | | |
|---------------------------|---|---|---|--|
| | cotton (50t covered wagon) per tonne (\$) | vegetables (25t. reefer wagon) per tonne (\$) | cans (40t. reefer wagon) per tonne (\$) | cement (64t hopper wagon) per tonne (\$) |
| Druzhba-Almaty | 6.85 | 46.56 | 27.00 | 7.74 |
| Almaty-Poti | 93.08 | 146.18 | 125.38 | 91.40 |
| Total Druzhba-Poti | 99.93 | 192.74 | 152.38 | 99.14 |

Would costs have grown the same percentage in 1997 than in previous years (an average 34%), they would comprise between 97.7 \$ and 112 \$ per tonne. This means that for cotton and cement hauled from Druzhba to Poti, which are basic commodities for many Traceca railways, the profit per tonne is probably be nil and moreover that these transports are probably not profitable at all. Only transport in special wagons (here reefer units) might be economical.

However these assumptions represent only rough estimations that must be considered with the utmost caution as either transport rates or estimated costs on the total Traceca route are incomplete and quite approximate.

1.2.4.5 Administrative aspects

The newly independent states have set up complicated and not harmonised customs and administrative procedures. The Consultant has performed different interviews at crossborders and customs branches and has noted, among several other weaknesses, that:

- international trade usage considerably differ from one country to another (transit authorisation may be required or not, phytosanitary taxes may be needed or not);
- customs procedures are not harmonised (a deposit is sometimes necessary, sometimes not for some categories of commodities);
- tariffs for customs transit and commission fees are specific to each country;

1. ANALYSIS OF THE EXISTING SITUATION

- the railways bill is differently applied from one country to another (one per wagon or one for the whole consignment);
- the CIS transit declaration does not cover the transit of goods on all CIS country (a national one is often required);
- the CIM railways bill is not accepted in CAC countries.

These constraints constitute an obstacle to a fluid international transit operation of the Traceca route and they are often a source of delay at the border.

1.3 USERS' EXPERIENCE AND JUDGEMENT

So as to better appraise the clients' judgement on the current Traceca service, the Consultant proceeded to several interviews conducted by existing and potential clients of the Traceca route (forwarding companies, carriers, manufacturers), located either in Tashkent or Almaty.

Both these cities have been retained at a first stage, as being the capital of Uzbekistan and Kazakhstan - the most populated zones of the CAC countries (39.6 million inhabitants, i.e. about 56% of global CAC countries population) - themselves accounting for a total of about 3.5 million inhabitants. They represent the biggest potential for the Traceca route.

They are also located at one end of the corridor, thus offering the longest - and potentially most profitable - hauls for railway transport.

Only the interviews providing comprehensive indication on hauled commodities, used itineraries, transit times and tariffs have been retained so as to appraise users' experience and judgement about the service currently offered by the Traceca route and its alternatives.

The detailed results of the selected interviews are shown in:

- appendix 2 (21 interviews performed in Almaty - April 1997) and
- appendix 3 (12 interviews in Tashkent - April / September 1997).

This survey cannot be considered as showing the exact configuration of the freight traffic flows in Central Asia. However the pattern is wide enough to provide interesting information on the commodities hauled, the average trip times and tariffs with reference to the provenance/destination areas and appreciation on the route currently used as well as on the Traceca performances.

1. ANALYSIS OF THE EXISTING SITUATION

1.3.1 Commodities hauled

From the interviews performed in Almaty and Tashkent it can be deduced that:

- the commodities mostly imported are:
 - **to Almaty:** foodstuff/tobacco/alcohol (Germany, France, Austria, Belgium) for 9 out of the 21 interviewed people (43%), then: metal, construction material, textile, wool, equipment, chemicals (Germany, Holland), clothes (France, Austria, Belgium);
 - **to Tashkent:** foodstuff/ tobacco/ alcohol (Germany, Holland, Belgium) for 9 out of 12 interviewees (75%), then: clothes (France), cereals (wheat from the USA), equipment (Germany, Slovakia, Hong Kong).
- the commodities mostly exported are:
 - **from Almaty:** metal (to Europe/Finland), for 3 companies (14%) then ore (Belgium);
 - **from Tashkent:** cotton (all destinations) for 4 companies (25%), then metal and copper (Europe).

1.3.2 Itineraries used

- **in Almaty**, 16 companies (76%) are only (or mainly) importing goods to Kazakhstan. They quite never export. 20 (95%) quote the Northern corridor (via Russia) as being the only (or main) corridor used.
- **in Tashkent**, 8 companies (66%) are mainly importers. 10 (83%) quote the Northern corridor as being the first route used. 25% also use transit through port of Bandar Abbas.

1.3.3 Transport means and transit times

- **in Almaty**, 7 companies (33%) use wagons, 3 road transport (lorries) and 12 (57%) use (only or additionally) containers.

Trip time from Europe (Belgium, Germany, Austria, etc.) is said to be a minimum of 10 days by road and from 3 to 4 weeks through the Northern corridor by rail.

1. ANALYSIS OF THE EXISTING SITUATION

- in Tashkent, 4 companies (33%) use wagons, 4 (33%) road transport and 11 (92%) use containers.

Trip time from Europe is of 4 weeks by rail through the Northern route.

1.3.4 Pricing

- to Almaty,
 - average rate per container 20' from Europe through Northern route is USD 4,500 (USD 3,700 by rail, 5,000 by road).
Through Dubai: USD 4,900, through Istanbul: USD 5,200.
 - average rate per container 40': USD 8,000
USD 9,800 by truck from Europe, USD 8,000 to Europe, USD 5,400 from Dubai, USD 6,000 from Istanbul.
 - per wagon from USD 4,000 to 5,000 (from Europe through Russia).
 - by road: average tariff per truck: USD 9-10,000.
- to Tashkent,
 - average tariff per container 20' from Europe through Northern route is USD 5,000
Bandar Abbas-Tashkent: USD 3,000
 - average price per container 40': USD 8,000
Bandar Abbas-Tashkent: USD 3,500
 - per wagon: USD 5,000 (from Europe through Russia).
 - by road: average tariff per truck: USD 12-13,000

1.3.5 Comments made by the users

- in Almaty, main concerns are the insecurity of Traceca corridor (mostly during the Caucasus transit), quoted 5 times, then the preference for a transit through, if using Traceca route, port of Aktau (quoted 4 times), as the route via Tashkent is too complicated and even expensive (several borders, thus customs controls and long negotiations with different foreign railways).

1. ANALYSIS OF THE EXISTING SITUATION

- in Tashkent, main concerns are the too long transit time through the Northern route (problem quoted 4 times) then that the service offered at port of Poti is poor (transshipment, handling facilities).

1.3.6 Conclusions

The main findings from this investigation are the following:

- most companies interviewed are forwarding agents. They trade mainly with Western Europe but also with Turkey and the Mediterranean Basin countries;
- main commodities imported are high value products such as foodstuff, alcohol, tobacco, clothes, equipment, etc. This explains why containers and even trucks are already used. However the poor availability of containers and of efficient multimodal terminal facilities is a recurrent problem;
- cotton, metal, ores are the first commodities exported;
- the northern route is the most frequently used as forwarders have long time established their habits in the crossed countries (Russia, etc.);
- pricing roughly comprises between \$ 4,500 (container 20' or wagon) to \$ 8,000 (container 40') and up to \$ 10,000-13,000 (trucks) from Europe to Almaty and Tashkent, via the northern route;
- transit times are at minimum of 2 weeks (exceptional) by truck to 4 weeks by rail;
- other routes are the Traceca corridor (mainly for large companies with high volumes) and transit through ports of Bandar Abbas and Dubai;
- most companies are currently disappointed with transport services offered between Europe and Central Asia. They particularly face too long delivery times, with frequent delays, expensive tariffs and a poor service (handling, storage, warehousing facilities, efficient wagons tracing, etc.);
- because of high excise duties and heavy deposits recently put on alcohol and tobacco using the Northern route, the Traceca corridor becomes of interest.
- but the Traceca corridor is often regarded as being unsafe (transit through Caucasus) and rather expensive, with an unreliable Caspian Sea crossing and a poor service in Poti. Furthermore the complicated transit through Central Asia, with many borders to cross, drive several companies interviewed to intend passing through Aktau when the foreseen rehabilitation works are completed.

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1.4 COMPETITION'S OFFER

1.4.1 Road competition

Road transport was, during the Soviet period, totally under state control, with dedicated fleets of lorries for each commodity or market segment. Though wholly private road companies are emerging, a big part of domestic road traffic is still made by state companies, or at least by joint ventures using Soviet designed cars.

For road domestic transport rather small tonnage is carried (10 tonnes per unit) with an average distance run scarcely exceeding 300 km, (the longest quoted trip in Uzbekistan being from Tashkent to Nukus:1,100 km). For international transport, the progressive change to a market led economy already drive clients to ship higher value, light consumer products, requiring reliability, speed and door to door services on ever longer distances by means of modern lorries loading up to about 14-18 tonnes (the volume being often split up into 2 units of 8 tonnes each).

No comprehensive market share statistics are available, especially for traffic hauled on the Traceca corridor, but it can be estimated that domestic and furthermore international road competition is still relatively limited to a few per cent of total transport. It has been quoted by a forwarder interviewed in Tashkent that total road transport in Uzbekistan amounted up to about 800,000 tonnes in 1996, that is 2% of the volume carried by rail (out of which one quarter was performed by «Uzavtotrans», a state joint-stock Company). Representatives of the Ministry of Transport met in Almaty confirmed that domestic road market share was probably below 2% in 1995.

Rail will probably continue to be the major carrier on Traceca route for a while because of:

- the persistence of bulk commodities hauled on long distances;
- the limited size of current fleets of lorries, still mainly composed of low productive Soviet units;
- the low density and sometimes poor condition of the road network;

However, for what regards higher value light products (consumer goods, alcohol, tobacco, clothes, etc. imported from Europe), which is the natural market for road transport (but on which the railways should also focus), the market share is certainly different. The Marketing Manager of Kazakh Railways in Almaty assumes that at least 20% of the imports to Kazakhstan (quite all imported high value goods) have shifted to road competition. Road import to all CAC countries is said to represent about 8% of total imported volumes when export by road accounts for a mere 1%. Transport by lorry is certainly more expensive than by rail, but the client can take advantage of shorter trip times by road (2 weeks from Germany to Almaty in some cases, with a door to door delivery, against 1 month by rail) which allows a better turnover of stocks and capital.

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This was confirmed when the Consultant experienced the Caspian Sea ferry crossing on the 25 September 1997. 8 trucks (out of 22 wagons) were loaded on the ferry boat at the port of Turkmenbashi, among which 7 were of modern European standard (semi trailers with either Man, Volvo, Daf or Mercedes tractors), all of Turkish nationality (the 8th lorry was a smaller Kamas unit, of Soviet origin). The Turkish drivers were interviewed and quoted they were steadily trading between Turkey and Kazakhstan, importing textile to Almaty with a return trip made of edible oil and cotton. Rate was said to be of about USD 6000 per way. This rate has been confirmed during the interviews performed in Tashkent and Almaty (see hereabove point 1.3 which provides with extensive comparison between rail and road prices and journey times on different routes).

1.4.2 Competition from other rail corridors

The Traceca corridor linking the Black Sea ports to Kazakhstan and even China and the Pacific cost is competing with:

- the Northern corridor getting from Central Asia to Poland, the Baltic States and a part of Scandinavia and Germany, through either Russia, Belarussia or Ukraine via Brest. This route is mainly used by Uzbekistan, Kyrgystan and Kazakhstan.
- the Southern corridor leading to the Persian Gulf (Iran via Sarakhs and the port of Bandar Abbas), and to India or Turkey;
- the Central Western corridor connecting Central Asia and Caucasus to Western Europe through Ukraine or Russia.

The Southern transit through Tashkent-Turkmenbashi-Baku might also soon compete with the Northern leg of the Traceca corridor through port of Aktau.

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1.5 STRENGTHS AND WEAKNESSES OF THE TRACECA ROUTE

1.5.1 *Strengths of the Traceca corridor*

- despite a recent drop of traffic, Traceca railways still haul considerable tonnage and play a major role in Central Asia and Caucasus (CAC) economies;
- distances on the Traceca corridor are long enough to make rail transport profitable (rail distance between Almaty and Poti accounts for about 4000 km.);
- CAC countries are ideally located at the cross road of huge existing and potential outlets, the European, Asian, Russian and Indian markets;
- CAC countries' economies are likely to develop, with increased international exchanges, thus offering new opportunities to all modes of transport, including rail;
- there is enough capacity (infrastructure and rolling stock) currently left to face an increase in transport demand;
- the Traceca corridor constitutes an interesting transit alternative, the shortest one for promising transport between Western Europe and Central Asia (currently amounting up to about 20% of total Traceca traffic). This transport might further develop due to a possible reorientation of trade between CAC countries and Russia, in favour of Europe;
- it is also the natural link between Europe and East Asia through Druzhba border. Export in wagons through Druzhba already accounted for almost 1.3 million tonnes in 1996 (fertilisers, etc.) and import for about 80,000 tonnes (chemicals).
- it is a proper answer to the possible partial closure of other routes or trade limitations because of security problems or sudden increases in transit taxes in some countries (this is the case for excises on alcohol set through Russia from the start of 1997);
- there is a premise of co-operation, though still insufficient, between local railways (essentially Caucasian and Turkmenistan/Uzbekistan's, that have recently signed the Sarakhs agreement to promote rail transport on their lines);
- freight forwarders (either railways owned or private ones) able to negotiate special discounts on tariffs and to propose high quality integrated services, have a positive intervention, that partly offsets the lack of marketing skills in CAC railways.

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1.5.2 Weaknesses of the Traceca corridor

- there is no direct trainload services that would, thanks to massification, contribute to better profitability of rail transport.
- freight operation is not rational. There are no traffic schedules and trains are started only when the required number of wagons able to fit the specified length or weight of the train is reached;
- the transport of traditional bulk commodities in CAC countries is likely to progressively decrease. Higher value commodities, locally produced or imported, will be hauled in Traceca countries with less tonnage shipped, which is in favour of road transport;
- a wild road competition is emerging, local or international, winning over new markets from rail;
- multimodal traffic is underdeveloped, partly because of insufficient modern container infrastructure and commercialisation. However combined transport is the relevant solution to answer to transshipments (notably because of different track gauge or maritime transport) and to door to door requirements;
- the fleet of wagons is not diversified enough. Modern specialised rail units able to carry higher value cargo (pressure discharge, tarpaulin covered wagons, etc.) are lacking;
- the present unbalanced import/export traffic ruins the possibility of operating economically both ferry lines and rail terminals;
- the transit via numerous CAC countries multiply customs taxes and administrative procedures, thus delays at the border. The crossing of some troubled areas subject to civil war, are also a liability for the clients;
- the limited capacity at ports on either Caspian or Black Sea (ferry boats, handling facilities, warehousing, etc.), though investments are planned, currently hampers the possible development of rail transport;
- the use of the Traceca route is regarded to be rather costly by the clients when the estimated profitability of its operation for the railway seems to be questionable;
- there is no commercial consideration for the clients (the obligation to plan the consignments is too rigid, wagons' tracing is not reliable). Furthermore poor information on traffic flows (absence of statistics/forecasts databases), on competition's offer and insufficient skills in marketing and modern management methods stem the development of a sound-market oriented freight transport policy;

2. DEFINITION OF THE NEW SERVICE

2. DEFINITION OF THE NEW SERVICE

2. DEFINITION OF THE NEW SERVICE

The best way to incite Traceca railways to contribute to develop international traffic and to promote the corridor is to launch an outstanding service meeting the clients' and operators' (railways, forwarders, terminals operators, etc.) requirements in terms of quality, pricing policy and profitability.

The new service must be carefully designed with utmost attention paid to:

- the identification of the market sectors:
 - commodities to be hauled;
 - areas to be served;
 - estimation of existing traffic;
 - evaluation of reachable potential.

- the transport specifications
 - characteristics of the new service;
 - suggestions for improving operation.

- the commercial means
 - business development.
 - pricing strategy;

2.1 IDENTIFICATION OF MARKET SECTORS

There are basically two categories of markets for transport:

- the captive markets, already using a peculiar transport means, for various reasons (political, economical, nature of cargo, etc.).
The new Traceca service is not interested in this type of market.

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- the free markets, following the rules of sound transport competition.
The new service aims at gaining traffic over this type of market.

Market sectors to be identified are the ones in which Central Asia and Caucasus (CAC) railways can expect to perform to their strengths, to win business against competition and to operate profitably, selecting appropriate cargo on promising geographical zones.

2.1.1 Commodity selection

The cargo to be hauled on the new Traceca service should ideally have the following characteristics:

- ⇒ relatively high value, so as to be able to pay the price of an improved rail service;
- ⇒ hauled on distances long enough to compete efficiently with road;
- ⇒ available in significant volumes;
- ⇒ currently transported either by trucks or on routes other than Traceca, to avoid shifting from current rail services to the new one. However to help starting the new service successfully, it can be admitted that a part of existing rail traffic on Traceca route might be diverted on this new service;
- ⇒ easy to handle as handling, warehousing, distributions facilities are currently scarce;
- ⇒ non seasonal, to avoid over sized means only for a short period (fleet of wagons, handling facilities, etc.);
- ⇒ more sensitive to transport reliability than to speed.

2.1.2 Areas to be served

The Traceca corridor aims at offering improved transport possibilities to Caucasus and Central Asia countries, especially for trade with Europe and the Mediterranean Basin and possibly with more remote locations such as Eastern Asia.

2.1.2.1 The European and Mediterranean markets

The Northern part of Europe (Western Russia, Baltic countries, Scandinavia) is more favourably served by the Northern corridor running from Central Asia through Russia,

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Belarussia or Ukraine.

Thus the European market on which the Traceca corridor must focus is rather:

- ⇒ Western Europe comprising France, Belgium, Luxembourg, Western part of Germany, Netherlands, Denmark;
- ⇒ Southern Europe: Spain, Portugal, Italy, Greece, partly Former Yugoslavia, Bulgaria, Albania, with a look to North African trade;
- ⇒ Central Europe with Switzerland, Austria, Hungary, Slovak Republic;
- ⇒ Northern Europe, with UK and Ireland.

2.1.2.2 The Traceca countries market

2.1.2.2.1 Selection of Traceca countries market

Railway transport is characterised by the importance of fixed costs compared with variable costs. The longest the distance run, the more profitable proves to be the new service.

Consequently, as a first step, traffic with the most remote and promising Central Asia countries should be seek, i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and possibly Turkmenistan.

2.1.2.2.2 Europe/Central Asia current trade

Table 20: traffic between Central Asia and Europe - All commodities, all modes. 1995 (1996 for Uzbekistan). In tonnes.

| Countries | Import | % total | Export | % total |
|--------------|------------------|------------|------------------|------------|
| Kazakhstan | 291,001 | 17.1 | 2,332,974 | 53.3 |
| Kyrgyzstan | 69,074 | 4.0 | 14,574 | 0.3 |
| Tajikistan | 80,615 | 4.8 | 224,017 | 5.1 |
| Turkmenistan | 87,891 | 5.2 | 1,278,606 | 29.2 |
| Uzbekistan | 1,173,052 | 68.9 | 529,249 | 12.1 |
| Total | 1,701,633 | 100 | 4,379,420 | 100 |

Source: Regional Traffic Forecasting Model study

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Table 21: traffic between Central Asia and Europe - All commodities, rail and road. 1995. In (tonnes)

| Countries / mode | Import | | | | Export | | | |
|------------------|---------|------|--------|------|-----------|------|--------|------|
| | Rail | % | Road | % | Rail | % | Road | % |
| Kazakhstan | 253,555 | 87.1 | 29,049 | 9.9 | 2,281,151 | 97.7 | 5,052 | 0.2 |
| Kyrkyzstan | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Tajikistan | 73,779 | 91.5 | 6,836 | 8.4 | 224,017 | 100 | 0 | 0 |
| Turkmenistan | 39,049 | 48.3 | 6,704 | 8.2 | 89,446 | 6.8 | 17,909 | 1.3 |
| Uzbekistan | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

Source: Regional Traffic Forecasting Model study

Rail is a major carrier for trade with European countries, accounting even for about 90% of import and 100% of export for Kazakhstan:

As shown in above tables, import from Europe to Central Asia account for 1.7 million tonnes, export for almost 4.4 million tonnes. Uzbekistan is by far the first trading partner with Europe for imports (over 68%). Kazakhstan, then Turkmenistan and Uzbekistan are the 3 main exporters to Europe (95% of total export). For these reasons, the Traceca route must serve in priority, as a first step, during the testing phase of the pilot project:

- ⇒ Kazakhstan;
- ⇒ Uzbekistan;
- ⇒ and possibly Kyrgyzstan, Tajikistan and Turkmenistan.

2.1.3 Estimation of existing traffic (for selected commodities and areas)

2.1.3.1 Data on traffic statistics and forecasts

No updated reliable database currently exists on international transport flows.

The only available large-scale data source for statistics on freight transport in Traceca countries, based on year 1995 results (1996 for Georgia and Uzbekistan) was, in October 1997, the «Regional Traffic Database and Forecasting Model» study. The model used in this study is based on customs statistics. It includes all major road, rail and sea routes within each of the eight Traceca countries (19 «oblasts»), together with secondary links.

Unfortunately the Regional Traffic Database study was still on process end of 1997 and no complete statistics nor forecasts were available.

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Data on international traffic, per modes, commodities, and per origin-destination zones has not been yet aggregated and published in CAC countries mostly because, when of the former Soviet Union, all transport information was regarded as highly strategic and confidential.

Thus it proved highly difficult to try to supplement this study, from existing sources (other studies, railways files) or from discussion with local partners (railways, forwarders).

Consequently, as quite all statistics data used in this study come from the « Regional Database » study, complete accuracy and integrity of information cannot be wholly certified, the more than the market considered is rather broad.

2.1.3.2 Commodity selection

The « Regional Database » study splits up the cargo internationally hauled in the Traceca countries into the 21 following commodity groups:

Table 22: list of main commodity groups selected in the Regional Database study.

| Code | Denomination of commodity group |
|------|---|
| 01 | Cattle- Products of animal origin |
| 02 | Products of vegetal origin |
| 03 | Fat and oil of animal origin |
| 04 | Finished food-stuffs |
| 05 | Mineral products |
| 06 | Products of chemical industry |
| 07 | Plastics and its wares (rubber and rubber wares) |
| 08 | Leather raw materials (leather, fur, etc.) |
| 09 | Wood and its wares |
| 10 | Paper and its wares |
| 11 | Textiles and its wares |
| 12 | Clothing (shoes, etc.) |
| 13 | Wares from stones (gypsum, etc.) |
| 14 | Precious and semi precious stones, precious metal |
| 15 | Non precious metal and its wares |
| 16 | Machinery, equipment and mechanisms |
| 17 | Road, air and water vehicles |
| 18 | Devices and appliances |
| 19 | Arms, ammunitions, spare parts and accessories |
| 20 | Other manufactured goods |
| 21 | Art products |

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According to the « commodity selection » made at above point 2.1.1, the commodities to be selected from this list, as fulfilling the best the screening are:

Table 23: list of commodities selected for the study (with codes)

| | | | |
|----|----------------------------|---|-------------------------------------|
| 02 | ducts of vegetal origin | 1 | tiles and its wares |
| 04 | cessed food-stuffs | 2 | thing |
| 06 | ducts of chemical industry | 4 | cious, semi precious stones, metals |
| 07 | stics and its wares | 6 | chinery, equipment, mechanisms |
| 08 | ther raw materials | 8 | ices and appliances |
| 09 | od and its wares | 0 | er manufactured goods |
| 10 | er and its wares | | |

2.1.3.3 Countries and zones selection

The Regional Database study shares the traffic flows according to transport directions (import, export), and world wide trading zones. These zones have been split up into 46 countries or group of countries.

Only Europe and Central Asia are considered in this study as being the natural markets for the Traceca corridor.

Traffic between CAC countries and Northern Africa, on the Mediterranean Basin, is nowadays quite inexistant.

2.1.3.3.1 Europe

In the Regional Database study, Europe has been divided into 6 groups of countries.

Out of these 6 groups, 4 are retained as they correspond more or less to our pre-selection (point 2.12.1 above)

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Table 24: list of European zones (with codes and countries) selected for the study

| | |
|----|---|
| 34 | North Western Europe (France, Belgium, Luxembourg, Germany, Netherlands, Denmark) |
| 35 | Southern Europe (Italy, Greece, Spain, Portugal, Former Yugoslavia, Bulgaria, Albania) |
| 36 | Central Europe (Austria, Hungary, Slovak Republic, Switzerland) |
| 39 | Northern Europe (Norway, UK, Ireland, Iceland) |

2.1.3.3.2 Central Asia:

The Central Asia countries to be retained are:

Table 25: list of Central Asia countries retained for the study (with codes)

| | | | |
|---|------------|----|--------------|
| 1 | Tajikistan | 12 | Turkmenistan |
| 4 | Kyrgyzstan | 15 | Kazakhstan |
| 7 | Uzbekistan | | |

2.1.3.4 Main commodities traded between Europe and Central Asia countries

2.1.3.4.1 Imports from selected areas in Europe to selected Central Asia countries

Hereunder table shows the tonnage of the selected commodities imported from the 4 retained European zones to the 5 Central Asia countries.

Table 26: imports from Europe . Selected commodities flows (tonnes)

| country commod. | 2 vegetals | 4 food-stuff | 6 chemi. | 7 plastics | 8 leath | 9 wood | 10 paper | 11 textiles | 12 cloth. | 14 sto | 16 equip. | 18 dev | 20 others | % gd. total |
|--------------------|---------------|-----------------|-------------|---------------|------------|-----------|-------------|----------------|--------------|-----------|--------------|-----------|--------------|----------------|
| 15-Kaz | 6,882 | 117,358 | 16,959 | 2,918 | 75 | 1,412 | 6,595 | 3,171 | 798 | 0 | 24,312 | 415 | 3,533 | 12.7 |
| 4-Kyr | 53,852 | 5,016 | 1,790 | 0 | 0 | 91 | 146 | 125 | 2 | 0 | 599 | 0 | 342 | 4.3 |
| 1-Taj | 59,473 | 6,623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.6 |
| 12-Tur | 10,736 | 6,185 | 1,961 | 252 | 0 | 51 | 66 | 455 | 40 | 0 | 2,406 | 0 | 9,458 | 2.2 |
| 7-Uzb | 934,869 | 132,891 | 12,084 | 6,919 | 104 | 452 | 4,176 | 3,381 | 230 | 0 | 4,678 | 428 | 4,843 | 76.2 |
| Total | 1,065,812 | 268,073 | 32,794 | 10,089 | 179 | 2,006 | 10,983 | 7,732 | 1,070 | 0 | 31,995 | 843 | 18,176 | 100 |
| Gd tot | 1,449,752 | | | | | | | | | | | | | |
| % gd tot. | 73.5 | 18.6 | 2.3 | 0.7 | 0 | 0.1 | 0.7 | 0.5 | 0 | 0 | 2.3 | 0 | 1.3 | 100 |

Source: Regional Traffic Forecasting Model study

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From this table it can be noted that:

- imports of selected commodities represent about 1,450 million tonnes;
- total imports from non Traceca countries (all commodities, all countries) amounting up to 13,536 million tonnes, the selected commodities imported from the 4 European zones represent 10.7% of total imports;
- imports from selected European countries (all commodities) represent a total of 1,701 million tonnes. The selected commodities represent 85% of this amount;
- first country for imports from Europe is by far:
 - Uzbekistan (76.2% of total imports);
 - then Kazakhstan (12.7 %).
- major categories of imported commodities to Central Asia are:
 - products of vegetal origin (73.5%),
Most of which (88%) are dispatched to Uzbekistan.
 - processed food products (18.6%),
They are mainly destined to Uzbekistan (50%) and Kazakhstan (44%).
 - products of chemical industry (2.3%)
51% go to Kazakhstan and 37% to Uzbekistan.
 - machinery, equipment (2.3%)
76% go to Kazakhstan.

A more detailed analysis of traffic flows, per European zone of provenance, is made in appendix 4.

The conclusion of this analysis is shown in hereunder table:

Table 27: main import flows from Europe to selected Central Asia countries (in tonnes)-1995

| Provenance | Destination | Commodity | Tonnage | Total (tonnes) | % commodity |
|----------------------|-------------|-------------|------------------|----------------|-------------|
| North Western Europe | Uzbekistan | vegetals | 540,000 | 627,000 | 86 |
| | | food-stuffs | 87,000 | | 14 |
| Central Europe | Uzbekistan | vegetals | 365,000 | 394,000 | 93 |
| | | food-stuffs | 29,000 | | 7 |
| Total | | | 1,021,000 | | |

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2.1.3.4.2 Exports from CAC countries to Europe

The following table shows the exported tonnage of selected commodities from the 5 Central Asia countries to selected areas in Europe:

Table 28: exports to Europe. Selected commodities flows - (tonnes).

| country/ commod. | 2 vegetals | 4 food-st. | 6 chemi. | 7 plastics | 8 leath | 9 wood | 10 paper | 11 textiles | 12 cloth. | 14 sto | 16 equip. | 18 dev | 20 others | % gd. total |
|---------------------|---------------|---------------|-------------|---------------|------------|-----------|-------------|----------------|--------------|-----------|--------------|-----------|--------------|----------------|
| 15-Kaz | 15,479 | 2,563 | 25,917 | 3,044 | 2,747 | 263 | 16 | 9,042 | 4 | 41 | 362 | 20 | 55 | 9.2 |
| 4-Kyr | 4 | 28 | 261 | 0 | 0 | 2,030 | 60 | 4,772 | 0 | 0 | 14 | 0 | 948 | 1.2 |
| 1-Taj | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,213 | 0 | 0 | 0 | 0 | 0 | 6.8 |
| 12-Tur | 697 | 0 | 121 | 0 | 97 | 0 | 0 | 95,319 | 0 | 0 | 0 | 0 | 0 | 14.8 |
| 7-Uzb | 555 | 10,172 | 9,653 | 0 | 9 | 0 | 501 | 422,510 | 0 | 0 | 156 | 2 | 0 | 68.0 |
| Total | 16,735 | 12,763 | 35,952 | 3,044 | 2,853 | 2,293 | 577 | 575,856 | 4 | 41 | 532 | 22 | 1,003 | 100 |
| Gd total | 651,675 | | | | | | | | | | | | | |
| % gd tot. | 2.5 | 1.9 | 5.6 | 0.6 | 0.4 | 0.4 | 0 | 88.4 | 0 | 0 | 0 | 0 | 0.2 | 100 |

Source: Regional Traffic Forecasting Model study

This table shows that:

- exports of selected commodities to Europe represent about 652,000 tonnes;
- total exports to non Traceca countries (all commodities, all countries) amounting up to 37,865 million tonnes (out of which 70% are exports from Kazakhstan to Russia and Belarussia), the selected commodities exported to the 4 European zones represent only 1.7% of total imports;
- exports to the selected European countries (all commodities) represent a total of about 4,380 million tonnes. The selected commodities account for 14.9% of this amount;
- traffic is unbalanced as:
 - exports account only for 31 % of exchanges between Central Asia and the 4 European zones, for selected commodities;
 - selected commodities represent about 15% of exports when 85% of imports.
- first country for exports to Europe is:
 - Uzbekistan (68% of total exports) ;
 - then Turkmenistan (14.8%).
- major categories of exported commodities to Europe are:

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- textile, mainly cotton (88.4%),
Most of which (73%) comes from Uzbekistan, then Turkmenistan (16%).
- products of chemical industry (5.6%),
They are mainly coming from Kazakhstan (72%).
- products of vegetal origin (2.5%)
92% comes from Kazakhstan.
- processed food-stuffs (1.9%)
80% comes from Uzbekistan.

A more detailed analysis of traffic flows, per European zone of destination, is made in appendix 5.

The conclusion of this analysis is shown in hereunder table:

Table 29: main export flows from CAC countries to Europe - 1995

| Provenance | Destination | Commodity | Tonnage | Total (tonnes) | % commodity |
|--------------|--------------------------|------------------------------------|--------------------------|----------------|---------------|
| Uzbekistan | Central Europe | textile chemical | 177,000 8,500 | 185,500 | 95.4 4.6 |
| | North Western. Europe | textile foodstuff | 135,000 10,000 | 145,000 | 93 7 |
| Turkmenistan | Central Europe | textile | 60,000 | 60,000 | 100 |
| Tajikistan | Central Europe | textile | 30,000 | 30,000 | 100 |
| Kazakhstan | Central Europe | vegetals chemicals | 11,000 9,500 | 20,500 | 54 46 |
| | North Western Europe | chemicals vegetals foodstuff | 11,000 3,500 1,500 | 16,000 | 69 22 9 |
| Total | | | 457,000 | | |

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2.1.4 Evaluation of the reachable traffic on the Traceca corridor.

The new service on the Traceca route must be launched with the optimal probability of success, that is with the utmost caution paid to both operational and commercial aspects.

It means that, during the testing period, say about the 6 first months of operation, the traffic should be as balanced as possible on both ways to avoid troubles in operating the Turkmenbashi-Baku ferry line and limit the number of empty wagons awaiting at terminals or in ports.

During the testing phase of the pilot project, the expedition and destination Traceca zones must be, as a first step, concentrated so as to ease operation. This will be possible only limiting too long feeding transports coming from other locations and that would cause disturbances because of bad connections with the new service.

From the study conducted in the previous paragraph (2.1.3), it can be deduced that:

- total transport potential on the Traceca corridor is wide enough (traffic from North/Western and Central Europe to Uzbekistan accounts for over 1.2 million tonnes, and more than 450,000 tonnes on the other way). There is consequently some room for a sound rail service;
- the potential is highly unbalanced as exports account for not even 40% of imports. It should be, in a first stage, more or less balanced;
- road transport, especially on very long distances, should not represent a great danger, at least in the near future and for not too high value cargo, for an efficient rail service on the Traceca corridor;
- products from vegetal origin, which consist mainly of cereals carried either in bulk or in bag, represent the lion share with almost 90% of imports from Europe. However this traffic has been mainly due to temporary reasons in 1996, as Russia could not meet the exceptional Uzbekistan shortage in wheat;

It is considered that no more than 5% of this potential might continue to be imported from Europe in the future, that is about 40,000 tonnes from Europe to Central Asia and a maximum of 1,000 tonnes from Kazakhstan to Europe (a big part being already hauled through the Northern corridor). Furthermore it does not seem wise to attract too whacking volumes to the new service during its testing phase;

- processed foodstuffs are quite a well targeted product for the new service as they are not too much season sensitive and require more transport reliability than speed.

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Out of the 116,000 tonnes of processed foodstuffs from Northern/Western Central Europe, it is assumed that 50% may be transported by the new Traceca service, as road competition is more fierce for this kind of cargo. This represents about 60,000 tonnes dispatched to Uzbekistan and 5,000 tonnes from Uzbekistan and Kazakhstan to North Western Europe;

- chemical products can also, for the same reasons, be hauled up to about 50% of potential by the new service, that is about 6,500 tonnes hauled per year from Uzbekistan to Central Europe;

50% of transport of chemicals from Kazakhstan to North Western/Central Europe might use the Traceca corridor (about 10,000 tonnes).

- For textile, (mostly cotton fibre) which is the main commodity, transported usually in 200 kg. bales, from Central Asia to Europe, no more than 20% of total volume (80,000 tonnes) might use the new service, in a first step. Even if Europe is one of the main importer of Uzbek cotton, the major part is getting through other routes, for example via the port of Riga in Latvia, partly because storage facilities and cotton processing equipment at the port of Poti are either undersized and unsafe, or do not even exist.

However the project of a cotton's terminal to be implemented in a few years in Bukhara might drive to revise, if realised, this assumption.

According to the above hypothesis the following table can be drawn up:

Table 30: selection of commodities/volumes reachable by the new service

| imports from Europe | | | | exports to Europe | | | |
|---------------------|-------------|------------|----------------|-------------------|-------------|------------|---------------|
| destination | commodity | % selected | tonnes | provenance | commodity | % selected | tonnes |
| Uzbekistan | vegetals | 5% | 40,000 | Kazakhstan | vegetals | 5% | 1,000 |
| Uzbekistan | food-stuffs | 50% | 60,000 | Uzbe/Kazak | food-stuffs | 50% | 6,000 |
| | | | | Uzbekistan | chemicals | 50% | 6,500 |
| | | | | Uzb/Tur/Ta | textiles | 20% | 80,000 |
| Total | | | 100,000 | Total | | | 93,500 |

The tonnage both ways is almost balanced. Export and import are mainly concentrated in Uzbekistan, which will facilitate the operation of the new service:

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- On the basis of 280 working days (about 40 weeks) per year, this traffic represents :
 - for imports, a volume of about 2,500 net tonnes per week and
 - for exports a volume of about 2,400 net tonnes per week.

Commodities which have not been selected for the new Traceca service, mainly poorer value bulk cargo, will continue to use the basic current rail service on the Traceca corridor.

2.2 TRANSPORT SPECIFICATIONS

2.2.1 Characteristics of the new service

2.2.1.1 Operation as a block trains service

Freight trains currently leave without any planned timetable, only when they are full, that is when the maximum trailing load and length are reached. Furthermore they stop at each marshalling yard for new train formation. This kind of operation cannot suit any longer the requirements of a modern transport system asking for speed, safety and reliability.

The new Traceca service must consequently be operated more efficiently through a direct block trains service so as :

- to increase the rapidity of transport, at least up to an average commercial speed of 30 kph, thus to reduce the total transport time;
- to avoid en route shuntings, wagons loading and unloading and train formation, which are source of delay and damages to vehicles and cargo;
- to be able to guarantee the transport offer (time departure and arrival);
- to lower the cost of transportation thanks to a better productivity due to massification;

It must be stressed that, in order to guarantee transport offer and time to the clients, direct block trains must be operated on a scheduled basis, with fixed departure/arrival days and times, whether the maximum loads and lengths are reached or not. According to the estimation of reachable traffic (point 2.1.4 above) , this regular service can be run once a

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week during the testing phase, both ways (from Poti and Tashkent).

2.2.1.2 Selection of the starting-arrival rail freight yards

The gathering and dispatching of the wagons part of the new block trains service must be performed in high-capacity well equipped marshalling yards located at each extremity of the Traceca corridor, in areas able to provide with sufficient volumes of relatively high value goods.

Most of the current selected traffic either originates or is bound to Uzbekistan (see above table 30). The Traceca route links Uzbekistan and Black Sea ports through Turkmenbashi and Baku, as there is at present no ferry boat service at the port of Aktau.

The block trains terminal must consequently, at least during the testing phase of the Project, be located in Uzbekistan, near to Tashkent, which, as the capital, is the major economic centre.

The most appropriate yards that the Consultant visited are :

- both for wagons or containers traffic: Shumilova (with the possibility to use the services of the forwarder Shostrans);
- for covered warehousing facilities: Tavarnayo, which is also located by Tashkent.

When the project of upgrading the freight terminal in Bukhara is implemented, this yard might also be used, either as a complementary terminal (especially for cotton's export) or as the main yard in Uzbekistan, with feeding trains to or from this point.

Other significant traffic may originate from other provenance or bound to other destination, (mainly, according to above table 30, in Uzbekistan or Kazakhstan, Turkmenistan, Tajikistan). It will be approached to or dispatched from Tashkent by regional feeding trains, named «zborgne », that are operated every day.

Having visited the ports located on the Black Sea, the Consultant considers that the some facilities, though currently insufficient, suiting approximately the new service, may be found at present in Poti, the more than some upgrading is foreseen.

Thus the new service should, as a first step, during the testing phase, operate direct block trains, once a week, between Tashkent and Poti, through Turkmenbashi and Baku, with the possibility to complete with (or dispatch) the freight from (to) other locations by means of regional feeding trains.

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2.2.1.3 Technical characteristics of the block trains

According to the estimated volume of traffic that the new service could gain (table 30) and the characteristics of the wagons used (table 4), the new block train service running weekly on the Traceca route would theoretically have the following composition :

2.2.1.3.1 imports

- Both foodstuff (main commodity carried) and vegetals are dense enough a cargo to allow at least an average 45 tonnes load per covered wagon (coefficient 1.05), that is $2,500 \text{ t.} / 45 \text{ t.} = \underline{56 \text{ wagons per week}}$.

Total length : 56 wgs x 13.4 m x 1.05 : 788 metres.

Cargo weight : 45 t. x 56 wgs : 2,520 t.

Gross weight: 23 tonnes per wagon dead load x 56 wagons: 1,288 tonnes.

Total gross weight : 3,800 tonnes.

- In case of 20 foot containers that can be loaded up to an average 13 tonnes, a total of 193 containers are needed loaded on 97 flat wagons (2 containers per wg, coefficient 1.05).

Total length: : 97 wagons x 13.4 x 1.05 m. : 1,365 m.

Cargo weight : 193 x 13 t. : 2,509 t.

Gross weight of the wagons: 97 x 22 t. : 2,134 t.

Gross weight of containers: 193 x 3.5 t. : 675.5 t.

Total gross weight : 5,318 t.

2.2.1.3.2 exports

- For textiles (85% of the cargo), a minimum of 35 tonnes can be loaded per wagon. From the total 2,400 tonnes weekly hauled, textiles (2,000 tonnes) require 57 covered wagons .

Remaining cargo, vegetals, foodstuffs and chemicals, accounting for about 400 tonnes and that can be loaded up to 45 tonnes per wagon, 9 covered wagons are required.

Total theoretical number of wagons (provided that the cargo mix keeps balanced throughout the year) per week is 66 units.

Total length : 66 wgs x 13.4 m x 1.05 : 929 m.

Cargo weight : 35t. x 57 + 45 t. x 9 : 2,400 t.

Gross weight: 23 t. x 66 wagons : 1,518 t.

Total gross weight : 3,900 t.

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- In case of 20 foot containers that can be loaded up to an average 10 tonnes for textiles and 13 tonnes for other goods, a total of 200 containers are needed for textiles plus 31 for other cargo, that is a total of 231 containers, hauled on 116 flat wagons.

| | |
|--|------------|
| Total length: : 116 x 13.4 x 1.05 m. | : 1,632 m. |
| Cargo weight : 200 x 10 + 31 x 13 t. | : 2,403 t. |
| Gross weight of the wagons: 116 x 22 t. | : 2,552 t. |
| Gross weight of containers: 231 x 3.5 t. | : 808.5 t. |
| Total gross weight | : 5,760 t. |

On the Central Asia transit, between Tashkent and Turkmenbashi, the maximum gross weight of 3,800 tonnes, when on the Caucasus transit, between Baku and Poti, it is limited to 2,500 tonnes. On the Caspian Sea crossing a maximum of 28 wagon-units can be carried on the boats per trip, that is a maximum length of 750 m.

Under the previous assumptions, and with the technical limits put on the Traceca route, the weekly train operation should theoretically be the following :

- On the Central Asia section (Tashkent-Turkmenbashi), for both import and export :
 - if only covered wagons are hauled, one block-train path is required per week;
 - if only containers are carried, two block-train paths are required per week.
- On Turkmenbashi-Poti , for both import and export :
 - if only covered wagons are hauled, two block-train paths are required per week;
 - if only containers are carried, four block trains paths are required.

This means that the block trains operated on the Central Asia section are cut in two parts on the Caspian Sea and Caucasus sections to meet the technical limits.

The two parts of the block train are joined or split at Turkmenbashi, respectively for imports and exports, which supposes some spare sidings located near by the ferry terminal.

This requires a proper tracing of the wagons, especially on the Caucasus leg, with the two

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parts of the block trains hauled according to carefully scheduled paths, within the same day.

It is reminded that all these figures, particularly volumes potentials, are only theoretical estimations, as they have been drawn up using the only database available in 1997, and comprising figures related to year 1995 (1996 in some cases).

According to the previous assumptions the following table can be drawn up :

Table 31: characteristics of the block trains service to be operated on the Traceca corridor.

| Units | imports (length/tonnages) | exports (length/tonnages) |
|--------------------|---------------------------|---------------------------|
| wagons | length : 788 m | length : 929 m |
| | net weight : 2,500 t | net weight : 2,400 t |
| | gross weight : 3,800 t | gross weight : 3,900 t |
| containers 20 foot | length : 1,365 m | length : 1,632 m |
| | net weight : 2,500 t | net weight : 2,400 t |
| | gr. wght cont : 675 t | gr.wght cont. : 810 t |
| | gr.wght wags : 2,310 t | gr. wght wag. : 2,650 t |
| | gr.wght train : 5,485 t | gr.wght.train : 5,860 t |

2.2.2 Suggestions for improving operation

2.2.2.1 Major technical problems to be met

Some technical problems, stressed in hereunder table, currently hamper the sound operation of the Traceca route and must be worked out quickly.

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Table 32: current operation of Traceca route. List of the major technical problems to be worked out (September 1997).

| Sections/ technical characteristics | Druzhba/ Poti | Almaty/ Poti | Bukhara/ Poti | Tashkent/ Poti | Baku/ Turkm. |
|--------------------------------------|------------------|-----------------|------------------|-------------------|-----------------|
| distances (km) | 4,871 | 4,010 | 2,432 | 2,974 | 310 |
| transport time (h) | 152 | 132 | 72 | 92 | 14 |
| technical speed (kph) | 31 | 30 | 33 | 32 | 22 |
| technical stops (h) | 78 | 68 | 58 | 60 | 36 |
| total transport time (h) | 230 | 200 | 134 | 152 | 50 |
| commercial speed (kph) | 21 | 20 | 18 | 19 | 6 |
| transport time / technical stops (%) | 35 | 35 | 43 | 39 | 72 |

This table shows that 3 main factors generate important disruptions :

- too numerous technical stops (they represent from 35% to 72% of the time lost, out of the total transport time);
- a relatively poor technical speed (between 20 and 30 kph);
- a long, unreliable ferry crossing (14 hours minimum to cross the Caspian Sea)

2.2.2.2 Reduction of technical stops

Various factors (unadapted engines' rosters, long borders crossings, etc.) cause technical stops, which are the biggest problems hampering a sound operation of the Traceca route, but they can relatively easily be reduced. Apart from shortening the total transport time, the reduction of the technical stops allows a better reliability of the transport and security of the cargo. It is estimated that, in a first step, the « total transport time / technical stops duration » ratio can be cut from 35% - 70% down to 25% without any significant investment, only implementing some simple recommendations.

2.2.2.2.1 Engines' rosters optimisation

Within the same network the direct block trains must be hauled from border to border by the same locomotive. This means that only one engine must be used on the sections Almaty-Tshengueldy, Tshengueldy-Tashkent (for the possible traffic going to or coming from Tashkent), Tashkent-Farap and Farap-Turkmenbashi (assuming that foreseen electrification works are over).

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2.2.2.2.2 Drivers' teams relief improvement

The drivers must relay after having completed a full driving cycle, having a rest in properly fit out railways residences at the place where they take over, before starting a new shift.

2.2.2.2.3 Wagons' tracing reinforcement

A proper follow up of the new service throughout the Traceca corridor, and especially at ports, must be implemented by all involved railways, to be able to inform the clients on scheduled departure-arrival of wagons or containers at freight terminals. But as long as efficient telecommunication systems are not put into service, the current outdated information systems must be completed by data centralised at the dispatching centres of each railways. This enables, in case of incident, to obtain systematically, more quickly and with a better reliability all information regarding the operation of the new service.

2.2.2.2.4 Proper technical monitoring

Direct block trains must no longer stop at marshalling yards for technical controls. These controls must anyhow be significantly decreased and systematised at obligatory stops (notably at borders). Automatic hot boxes checking, where exists, must be rehabilitated.

To restrict technical stops, a fleet of rolling stock in good state (locomotives, wagons and containers) must be dedicated to the new service and operated as a pool. Empty wagons are either returned quickly or preferably parked in yards located at each extremity (Poti and Tashkent), which supposes large enough sidings.

According to above points 2.1.4 and 2.2.1.3, the average fleet of wagon to be dedicated to the Traceca block train service should be at least, as a first step, of about 150 wagons both ways, and even up to 200 wagons, taking into account empty wagons' stocks.

A fleet of locomotives (and teams of drivers) should also be assigned to the new service on each network.

As wagons and locomotives, though their number is not yet clearly known in all Traceca networks, are already probably in excess, no specific investment is needed for the rolling stock, neither in conventional wagons nor in flat wagons for container hauls.

However it must be stressed that 20 foot containers fleets, owned by railways, shipping companies or road carriers, are rather in a poor state and should be renewed.

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Clients must be incited to invest in modern private wagons or containers (notably through tariff rebates) for particular cargo requiring special units

2.2.2.2.5 Reduction of delays at borders' crossings

To ease the circulation of the block trains, especially when crossing the borders, stops must be avoided as often as possible or limited to the minimum (change of locomotives and staff when strictly necessary). Agreements between implicated railways should rule the possibility of inter-penetration of tractive stock and driving teams when technically possible.

The 4 minutes per axle delay required for implementing all the necessary checking at the border are sufficient and can even be further cut. It is however wiser, in a first time, to open common check points between 2 States at the border to assure all technical, administrative and customs procedures. This is effective at Tshengueldy (between Uzbekistan and Kazakhstan) but not between Uzbekistan and Turkmenistan where the two checking points (Farap and Charju), apart from only a few kilometres, must be twinned.

The speeding up of the customs formalities for the lorries at Turkmenbashi and Baku will allow a quicker exit of the wagons parked behind the lorries, on the ferry boat.

More generally the harmonisation of the international trade usages and the simplification of the administrative procedures will alleviate the problems currently met when crossing Traceca states borders (see point 1.2.4.5 above).

2.2.2.2.6 Simplification of internal procedures

Internal procedures must be simplified within Traceca railways, especially for what regards the process of the documentation attached to the wagons, which is often a cause of important delays as a wagon cannot leave the yard if corresponding documents cannot be sorted. A computerisation, or at least a better organisation of this process, should help saving time.

As a conclusion, the mere reduction of the «total transport time / technical stops duration» ratio from 35% - 70% to 25%, as mentioned here above, would allow the following time savings on the Traceca corridor :

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Table 33: impact of the reduction of the « transport time/ technical stops » ratio to 25%.

| Sections/ technical characteristics | Druzhba/ Poti | Almaty/ Poti | Bukhara/ Poti | Tashken/ Poti |
|---|------------------|-----------------|------------------|------------------|
| distances (km) | 4,871 | 4,010 | 2,432 | 2,974 |
| total stops' times before improvement (h) | 78 | 68 | 58 | 60 |
| total transport time (h) | 230 | 200 | 134 | 152 |
| transport time / technical stops (%) | 25 | 25 | 25 | 25 |
| total stops' times after improvement (h) | 55 | 48 | 33 | 38 |
| time savings (h) | 21 | 20 | 25 | 22 |

A total of 22 hours (about one day) can be saved on the section Tashkent to Poti, without any significant heavy investment. It can be estimated that these savings can even be further increased with some experience.

2.2.2.3 Improvement of the technical speed

Though the average technical speeds currently run on the Traceca route are not basically insufficient, they can be improved. Deceleration and acceleration induce, apart from the slow down itself, time losses that can be estimated up to respectively 2 et 4 minutes. Thus the technical speed of trains can be increased by 10 kph by suppressing 50 % of the slow downs imposed on the Traceca corridor. This removal can be achieved within about one year and without heavy investments, only using different and modern maintenance methods.

A speed increase of 10 kph on the section Almaty - Turkmenbashi drives to significant times savings as shown in thereafter table (on the section Baku-Poti the existing « Trans Caucasian Logistic Express » service timetable has been used without any alteration).

Table 34: impact of a 10 kph technical speed increase on total transport time.

| Sections/ technical characteristics | Druzhba/ Turkm. | Almaty/ Turkm. | Bukhara/ Turkm. | Tashkent/ Turkm. |
|---|--------------------|-------------------|--------------------|---------------------|
| distances (km) | 3,713 | 2,852 | 1,276 | 1,816 |
| previous transport time (h) / speed (kph) | 108/34 | 78/35 | 33/38 | 48/39 |
| new technical speed after improvement (kph) | 44 | 45 | 48 | 49 |
| new transport time (h) | 90 | 69 | 26 | 11 |
| time savings (h) | 18 | 9 | 7 | 37 |

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An increase of the technical speed by only 10 kph provides a time saving of 37 hours that is about 1.5 day on Tashkent-Turkmenbashi. In addition to the time saved, the suppression of the slow downs will also improve the operation's regularity and safety.

2.2.2.4 Impact of both reducing technical stops and increasing technical speed

The combination of both a reduction of technical stops (point 2.2.2.2.5) with an increase in the technical speed (point 2.2.2.3) gives the following improvements in transport times:

Table 35: impact of reducing technical stops and increasing technical speed.

| Sections/ technical characteristics | Druzhba/ Poti | Almaty/ Poti | Bukhara/ Poti | Tashkent/ Poti |
|-------------------------------------|------------------|-----------------|------------------|-------------------|
| distances (km) | 4,871 | 4,010 | 2,432 | 2,974 |
| time savings (h) | 39 | 29 | 32 | 33 |
| new transport time (h) | 191 | 171 | 102 | 119 |
| commercial speed (kph) | 25 | 23 | 24 | 25 |

On Tashkent-Poti the total time saved amounts up to 33 hours that is about 1.3 day (with the operation on the section Baku-Poti kept unchanged). This result shows that significant time savings can be made shortly and without huge investments.

According to the previous table, the total transport time for the new direct block train service between Tashkent and Poti can, in a first step, be estimated up to 119 hours that is about a minimum of 5 days.

To be competitive with rail transport through the Northern corridor, the additional transport time between Poti and North-Western Europe (maritime crossing and land transport in Europe) should not exceed 2 to 3 weeks. To be competitive with road transport, the maritime and land legs transport times between Poti and Europe should not exceed 1 to 1.5 week (see point 1.3.3 above).

This supposes regular and fast maritime services between Europe and Poti connected to efficient rail hauls in Europe.

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2.2.2.5 Improvement of the ferry crossings

The Caspian Sea ferry crossing as been described at above points 1.2.3.12 and 1.2.3.13. It represents the major weak point on the Traceca corridor. Different actions could better the operation of this ferry line.

2.2.2.5.1 A better co-ordination railways / Caspian Sea Shipping Company

As other routes are competing (or are likely to compete) with the southern leg of the Traceca corridor (mainly the future crossing through the port of Aktau), the monopoly of the Caspian Sea Shipping Company (CSC) is not to last without significant structural changes.

Improvement in the performances and above all in the traffic regularity are compulsory, which supposes a tight co-operation between Turkmen/Azeri railways and the CSC. This means that both the railways and CSC, after having agreed on the priorities to be set, must work to improve the regularity of the crossings and the preparation of the trains to speed up the loading and unloading of the wagons.

Once official agreements are signed, assigning clear responsibilities to each part, branch offices in Baku and Turkmenbashi must work together, if possible in the same building, to plan, organise and co-ordinate the crossings.

2.2.2.5.2 Short term technical measures, without heavy investments

A set of short term measures must be quickly implemented among which :

- put up a sound telephone network between CSC offices in Baku and Turkmenbashi and replacing the current outdated radiogram system (Morse). As telephone communications are rather poor, satellite phones would facilitate exchanges between railways and CSC officers at both ports;
- install common offices at ports;
- renew the lighting of the Turkmenbashi channel so as to allow night movements and accelerate the manoeuvres;
- improve the service for passengers using the ferry boat to restore the image of the railways and the CSC (information on departure and arrival times, accelerate customs procedures).

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2.2.2.5.3 Technical measures with heavy investments

The expected development of the traffic requires huge investments, notably:

- an increase in both the number and capacity of the boats, up to 60 wagons, to allow full block trains crossings;
- an increase in the power of the boats, to be able to face bad weather conditions;
- a modernisation of the terminal facilities at the port of Poti (with proper handling, parking and storage facilities).

As long as new bigger boats are not purchased, the cutting of the direct block trains in two parts at either Turkmenbashi or Baku is unavoidable causing significant perturbations in the regularity and reliability of the new service, particularly for connections with maritime lines at Poti.

The question whether the direct block trains, after being cut for the Caspian Sea crossing should rather be formed again with the first part waiting for the second, that is with a minimum time lost of 24 hours, or sent in two different parts, the second with an unknown timetable, will have to be answered.

It is stressed again that if the installations of the freight terminal at Poti are not properly and shortly upgraded, the wagons may be awaiting for long and costly loading or unloading, with a risk that the cargo may be spoiled.

2.3 COMMERCIAL MEANS

2.3.1 Business development

2.3.1.1 Traceca railways must turn to a market oriented management

Traceca States are progressively turning to open market economies, where the clients can easily compare transport services and select the most appropriate without being any longer supposed to adapt to railways' operational constraints.

The Traceca railways are currently deprived of any effective commercial skills. In the increasingly competitive context they must implement a marketing approach in order to:

- know the present characteristics of transport services (from both railways and

2. DEFINITION OF THE NEW SERVICE

competition) and identify the needs of the clients, through market research;

- define which services could be implemented (rates and performances) and assess their financial and technical feasibility;
- develop adequate pricing strategies and commercialisation plans;

This supposes :

- a proper organisation of their freight business, with a clear segmentation per activity and a management by units, that are responsible for their means and results;
- the hiring of a strong professional sales and commercial teams able to compete on the market place and to assure a sound promotion of the service and monitoring of the contracts;
- the setting up of efficient cost and information systems so as to measure the profitability of their activities and the evolution of main management parameters.

2.3.1.2 The new Traceca service must be operated by an independent structure

The Traceca railways can hardly manage alone the new train service as :

- the turn of the railways services to a market led organisation takes some time, when the new direct block train service should be launched shortly to avoid that competition increases further its market share;
- even benefiting from an outstanding commercial structure, the marketing of the new service involves several partners (railways and other terminals and transport operators) and clients scattered not only throughout the Traceca countries, but even far abroad.

Consequently the new transport service must be operated by a development company managing its operation and commercialisation from end to end, in the Traceca countries as well as abroad.

The Traceca railways are responsible for the sale and provision of traction to the development company. The Caspian Sea Shipping Company provides crossings to the wagons.

However the success of the new service hinges mainly on the full support of the various Traceca authorities and main economic actors. This support will be more effective if these

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partners back the launch of the new service through an **International Commission**.

2.3.1.3 Role of the International Commission

Political support from all involved Traceca countries is of utmost importance. An International Commission, comprising representatives from various Ministries, railways and shipping companies, (possibly from major forwarders and clients), must be created as soon as possible to ease the launch of the new service and facilitate its monitoring.

This body supports and accelerates the elaboration and signature of international agreements aiming at simplifying and harmonising the administrative, operational and customs formalities that may differ from one country to another.

This helps minimising the delays currently occurring at the border or en route due to administrative (transport documents), technical (change of locomotive, of team, etc.), customs, phyto-sanitary, pricing, etc. problems.

The International Commission meets several times a year, in different Traceca countries, to supervise the results of the block train service and propose solutions to any problem met from the last meeting.

2.3.1.4 Role, structure and means of the development company

2.3.1.4.1 Role

The development company operates and commercialises a fully integrated transport service between the Traceca countries (in a first step mainly Central Asia countries such as Uzbekistan and Kazakstan) and other markets (essentially Europe), using faster through train connections between Tashkent and Poti.

The company markets the new service to clients working in different fields and established either in Traceca countries or abroad. The company buys rail traction from and entrust the Traceca railways with the wagons. The company also book and buys in advance room on the ferry-boats through the Caspian Sea, possibly on other crossings between Europe and Poti. The clients book room for their wagons to be put on the block train to the company, which has itself booked train paths and corresponding traction to the railways.

The company books orders in advance from the clients asking for room to place their wagons on the block train. As a forwarder the company provides all transport related services (including customs clearance, door-to-door delivery, warehousing, tracing of the cargo, maritime shipments, etc.), but only for a selected list of commodities (or possibly for clients that accept to pay the price for the new service).

Other bulk goods, out of the scope of activity of the company are, as before, hauled by the current basic train service. All negotiations conducted and contracts signed between the

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development company and the clients are over the counter transactions.

To build up its service the company must co-operate with one or several partners, scattered in different countries, among which :

- railways companies (in Traceca countries and possibly in Europe, at the other end of the transport);
- customs administrations;
- road transport operators (for door to door services);
- freight forwarders;
- wagons or container leasing companies;
- shipping companies;
- etc.

The company defines the planning process of the new service (review of current trends, analysis of strengths, weaknesses, opportunities, including capital investment, forecasts of traffic thus of revenue and expenditure and elaboration of the medium long term strategy).

The planning process will lead to the drawing up of the annual budget of the new service, which revenues mainly arise from selling transport services and costs from buying rail traction and transport related services. The company will distribute the profit made from the operation of the new service to its partners according to rules that must be predefined.

2.3.1.4.2 Structure

The structure of the development company must be decided quickly, with approbation of the International Commission. The company may be operated as a joint venture with capital shared between Central Asia-Caucasus and European interests.

The company works as an exclusive agent of the Traceca railways. Its Board comprises representatives of each main partner (local and European forwarders, Traceca railways, etc.). The identity of the partners, the capital share, the type of company and other legal aspects must be discussed further with implicated parties.

2.3.1.4.3 Means

The development company must be manned with high level top management and staff, all international transport specialists skilled in forwarding activities. The sales force, on one side, negotiates with selected clients asking for provision of transport on the Traceca route, on the other side with the Railways representatives and all other providers contributing to the furniture of the service.

Contracts are signed ruling the relationships between the company and the clients and between the company and the providers of services.

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The company issues a general transportation regulation specifying all the obligations and commitments of the company and the clients and ruling transport peculiarities.

The clients requiring room on the block train service must book it in advance (with sufficient notice) so that the company can plan the composition of the block train(s). This composition is communicated to the railways for the furniture of corresponding traction means.

When the technical capacity of a train is exceeded, the railways must provide the company with the nearest available train path(s) enabling to start at once another block train. These spare train paths are scheduled in advance in the transport plans discussed and elaborated jointly by the company and the railways at the beginning of each new service.

In case the railway cannot provide, for any reason, the spare train path(s), or the locomotive(s), it must indemnify the company as foreseen in the contract.

The company operates from its main office, located in one Traceca country. Branch offices are opened where required, especially in Europe, to keep in touch with foreign clients and transport services providers.

The company works using modern technologies (computers, efficient communication means and management tools, cost and accounting systems, etc.). The company may operate with its own equipment (wagons, containers and all other kinds of facilities) or rather hire them, when need be, from the railways or other suppliers. It is in close contact with the railways (and other providers) to obtain all relevant information to inform the clients on the follow up of their cargo.

The promotion of the new service is made through various ways (publicity in specialised publications, lobbying by transport decision makers and important firms) in Traceca countries as well as abroad.

To keep the loyalty of customers, rebates are granted for important volumes of traffic entrusted to the block train service. Transport times from end to end should also be guaranteed with partial reimbursing of the transport fare in case of significant delay.

2.3.1.5 Role of the railways

A small team of international railway transport specialists, from various activities (operation, traction, tariffs, etc.), clearly separated from the Railways operation or financial functions, is set up in each Traceca railway. This team is the interface between the railway and the company for all technical or commercial problems that might arise.

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The members of the team will progressively acquire, through their daily co-operation with specialists of the company, some knowledge of the market, of management and other skills required to provide outstanding transport services.

Each Traceca railway involved in the block train service furnishes traction to the development company. At the start of each year traction pricing policy is discussed between the company and the railways. This supposes that the railways perfectly know their costs, that is have set up efficient costing systems.

The railways must also deliver all data regarding the block trains' operation (departure, arrivals times, en route stops with justification, etc.) to the company, that it can proceed to evaluations, controls and inform its clients. With that intention, modern information systems should equip not only the company but also the railways.

The railways set up transport plans for the block trains in co-ordination with the development company that knows the market's expectations. These transport plans are part of the contract signed between the company and the railways and encompass all trains' paths (regular and additional) dedicated to the operation of the block train service, as well as the traction means provided by the railways. The transport plan takes account of the Caspian Sea crossing (possibly of other maritime shipments at Poti) for proper trains-boats connections. The contracts also include wagons hiring from the railways (a fleet of wagons and locomotives, operated as a pool, is dedicated to the block train service) and other kinds of services (warehousing, handlings, etc.).

When providing services to the company, the railways must no longer apply rigid rules such as penalties in case of orders' cancellation, and increase significantly the time granted for unloading operations. More generally the railways must show flexibility and commercial concern when transacting with the company, if they want to get themselves some benefits from the new service.

2.3.2 Pricing strategy

The best pricing policy is the one that proposes:

- the simplest and cheapest pricing for the client;
- the best possible contribution for the operator;

2.3.2.1 Traction pricing

The development company buys traction to the railways. The traction pricing unit corresponds to the use of one scheduled train path, dedicated for the operation of the block train. The traction pricing may be modulated, higher traction pricing being required for more busy (but the current low traffic on Traceca lines do not justify this measure at

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present), or supplementary, or non scheduled train paths.

The railways should sell the traction to the company at least in level with their costs (provided that they know it). A rough estimation of the per-ton cost for rail transport has been made at above point 1.2.4.3 on the section Druzbha-Poti. This cost comprises between \$ 98 and \$ 112 for 1997, that is an average cost of \$ 105 per ton. On the Tashkent-Poti section (2,974 km instead of 4,871 km for Druzbha-Poti), and for a block train of about 4,000 tonnes maximum gross weight, the cost would be about \$ 197,000.

Thus the railways should sell the traction of a block train between Tashkent and Poti at about \$ 200,000 minimum, to cover their cost, without any profit (value 1997).

The distribution of the revenues between each railway must be discussed and stated in advance in contracts signed between the development company and each railway. The revenue split should be made according to the percentage of the total distance run in transit on each network. However the Traceca railways placed at each end of the transport (including Azeri and Turkmen railways, for Turkmenbashi and Baku) could be granted some per cents in addition to their share, to compensate additional costs met at the departure and receiving yards (handlings, parking, etc.).

All additional services provided by the railways are also invoiced to the company.

2.3.2.2 Transport pricing

The company sells room on the block train to the clients. There is no need for a published tariff as transactions between the company and its clients are made over the counter.

However contracts are signed for periods long enough (one year minimum) to insure the client that room is spared on the trains according to its needs. A subscription system is also proposed to steady clients granting them some discount (these clients must however provide the company with sound traffic forecasts for the coming period).

Transport pricing is estimated according to the length of the wagons handed over by the client, the transport pricing unit corresponding to the length of one « basic » wagon in Traceca railways (that is the 14 metres-coefficient 1, most common covered wagon).

The maximum length of trains on the Traceca railways is, at least on the Central Asia section, of about 1000 metres, that is 71 « basic » wagon-units. It is considered that on the Caspian Sea and the Caucasus transits the new Traceca service is operated as a whole, even if the block trains must be cut in two parts for technical reasons.

With a minimum traction pricing of \$ 200,000 to be paid to the railways from Tashkent to Poti (corresponding to their cost, see 2.3.2.1 above), the cost for the company is at least

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\$ 2,816 for a « basic » wagon (this rate includes the Caspian Sea crossing).

The company should consequently sell the room for one « basic » wagon (open, covered, etc.) in the block train service between Tashkent and Poti at least about \$ 2,900 per unit.

Longer wagons, mainly reefer units, are charged higher price (with application of coefficient 1.5 for example). Specially heavy cargo, that might pose problems according to the maximum weight of the trains on the Traceca route, may also be priced at higher rates. These peculiarities are stipulated in the general transport regulations issued by the company for the sake of its clients.

Ancillary services such as feeding or delivery transports, either by rail or road, handling facilities, warehousing, customs clearance, wagons hiring, etc. are charged in addition.

Transport rates are proposed to the clients bearing in mind the road competition prices on the same route and transport rates on other corridors between Traceca countries and Europe.

The average per wagon transport price between Tashkent and Europe, through the Northern corridor, is about \$ 5,000 (point 1.3.4 above). Considering that the per wagon « cost » on the Tashkent-Poti section amounts up to \$ 2,900, \$ 2,100 are left to pay the maritime and land legs between Poti and Europe.

However transport fares are changing very quickly as it is said that a the price of wagon hauled via the Northern route may be negotiated, end of 1997, well below \$ 5,000. This means that the new Traceca service will be competitive only if cheap prices are granted, on all sections, land and maritime ones.

To complete the comparison with competitive routes, it must be reminded that the transport time through the Northern corridor is generally of 4 weeks. The transport time between Tashkent and Poti can be reduced to about 5 days (point 2.2.2.4). Thus a maximum of 3 weeks are left to haul the cargo between Poti and Europe, which supposes regular shipments and fast crossings between Poti and European ports.

APPENDICES

APPENDIX 1

APPENDIX 1

1. Triage de Shumilovo

Tout le trafic depuis et à destination de l'Orient passe par ce triage.

Description :

Ce triage comporte 3 faisceaux

- faisceau de réception avec 9 voies dont la longueur moyenne utile est de 900 m, la plus longue faisant 1080 m., la plus courte 684 m,
- faisceau de triage avec 21 voies dont la longueur moyenne utile est de 850m, la plus longue faisant 1 006 m., la plus courte 613 m,
- faisceau de départ avec 8 voies dont la longueur moyenne utile est de 850m., la plus longue faisant 957 m., la plus courte 850 m,

Délai théorique de formation des trains:

- sur le faisceau de réception : 20 à 30 mn
- sur le faisceau de triage 3 heures minimum, sur ces voies les trains en court de formation attendent d'avoir un nombre de wagons équivalent à 57 unités pour être dirigé au faisceau de départ.
- faisceau de départ attente de 30 à 40 mn pour l'attelage, les contrôles techniques.

Le jour de la visite les voies n'étaient pas surchargées de wagons et le temps d'attente pour avoir un train complet était aux dires de l'aiguilleur de 12 heures.

Le système de freinage automatique sur la butte du faisceau de triage est en réparation depuis déjà 4 ans. Une partie du matériel est à pied d'oeuvre depuis un certain temps, mais la réparation n'est pas programmée avant un certain temps. L'enrayage se fait manuellement.

La cour des débords est composée de 5 voies de longueur moyenne utile de 700m qui permettent le déchargement des conteneurs avec 2 portiques à rail de 20 tonnes

L'ensemble des voies est dans un état d'entretien satisfaisant.

APPENDIX 1

2. Chantier mécanisé de Shosh-Trans

La société Shosh-Trans est une société anonyme créée en 1995 et composée de :

- chemins de fer (majoritaire)
- Transrail (CH)
- Trans-Sib (russe)

Sa vocation de transport est avant tout le transport par conteneurs bien qu'elle fasse également du transport en vrac ou qu'elle fasse du ramassage chez le client pour faire sur leur entrepôt des conteneurs de 40 pieds. Il s'agit avant tout de coton et les centres de ramassage seraient

- Kidjand (provenance d'Ouzbekistan)
- Toïtepa (provenance du Tadjikistan)

Ils ont 3 succursales : Boukhara, St Markande et Fergana.

Pour les acheminements ils utilisent principalement le corridor Nord.

Il traite actuellement de 20 à 25 wagons par semaine. Il faut 24 heures pour les opérations de douane. Ce chantier fait partie intégrante du triage de Shumilovo auquel il est relié par un embranchement.

La desserte est assurée par les C.F., le matin pour les arrivées et le soir pour les départs, et à la demande en cas d'encombrement des voies.

Description du chantier :

Cour fermée par une robuste clôture de fer. Longueur utile = 650 m, largeur = 80 m 2 voies de longueur 450 m. Les conteneurs sont stockés sur une aire goudronnée de 9000 m² sur 4 rangées.

Stockage couvert : 2 entrepôts de 30m x 12 m en dur, plate-forme intérieure en cours de goudronnage.

APPENDIX 1

Engins de manutention :

- 2 grues porte-conteneurs mobile de 40 tonnes Boss (2 ans d'age) une est en cours de réparation,
- 2 portiques sur rail de 30 tonnes fraîchement repeints de marque Kavaz,
- 20 tracteurs type Kavaz,*
- 10 chariots élévateurs Bosh de 1,5 tonnes du début d'année,

*** le compte est fait avec les 3 succursales**

Les activités de Shosh-Trans sont intimement liées au c.f.. Et même si la séparation est effective dans les statuts elle ne semble pas l'être dans le travail de tous les jours.

Le chantier est gardienné nuit et jour.

APPENDIX 1

3. Chantier couvert de Tavnay

Ce chantier est avant tout une cour de débords avec des magasins clos ayant sur leur longueur un quai de chargement et déchargement pour les wagons et sur l'autre longueur un quai de chargement et déchargement pour les camions.

Description du chantier :

Les bâtiments sont en dur d'une longueur de 200 m à 400 m sur 11m de large. Il y a 5 lignes de 2 bâtiments représentant au total 7 500 m². Sur chaque longueur tous les 20 mètres environ un portail en bois de 3 m de large; L'intérieur est éclairé et possède à une extrémité un bureau fermé. L'ensemble est en bon état.

Ce chantier est aussi spécialisé dans le petit conteneur de 3 à 5 tonnes et possède deux voies de 1 095 m environ ceinturant un emplacement pour le stockage et la manutention des conteneurs. Sur les 6 portiques seuls deux fonctionnent (3,5 et 10 tonnes)

Les voies d'accès ne sont pas électrifiées; la desserte à lieu tous les soirs à 20h. Shumilovo est situé à environ ½ heures de trajet par fer.

Ce chantier est gardienné par une milice des C.F. complétée par des rondes de la police officielle.

Partie commerciale : le service commercial dépendrait du service marchandise elle comprend surtout :

- signature des contrats pour chargement et déchargement
- transports routiers pour finaliser le transport faits par une filiale « abto-kombinat »
- location des entrepôts 95,72 cym / m² / mois

La chute du trafic et un certain report perceptible du trafic sur la route a conduit les C.F. à des actions publicitaires à la télé et dans les journaux au printemps 97.

Actuellement Daewoo reçoit de 1500 à 2 000 tonnes par an, mais pas d'expédition.

Engins de manutention :

- 3 locos de manoeuvre
- 6 portiques de 6 tonnes (seul 2 fonctionnent)
- 2 grues mobiles Maz sur camion de 6 tonnes
- 4 chariots élévateurs de 5 tonnes

APPENDIX 1

4. Triage de Boukhara

Ce triage comporte 3 faisceaux

- faisceau de réception avec 9 voies dont la longueur moyenne utile est de 850m, la plus longue faisant 1060 m., la plus courte 842 m,
- faisceau de triage avec 20 voies dont la longueur moyenne utile est de 875m, la plus longue faisant 1 115 m., la plus courte 819 m,

Actuellement un appel d'offres est en cours pour le réaménagement du site et notamment le terminal conteneur.

APPENDIX 2

APPENDIX 2

INTERVIEWS PERFORMED IN ALMATY

(April 1997)

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|---------------|--|--|-----------|--------------------------|-------------|---|
| Ferrostal | Metal trading (Import) | 10 containers 20' / 1996 Germany/Kazak. via Russia | - | 4500 per container 20' | FOB | Unsafe transit through Russia |
| Shell | Lubricant producer (Import) | 1200 t. in container / 1996 UK-Belgium/Kazak. via Russia | 4 weeks | 4500 per container | FOB | Long transit customs in Belarus |
| Itochu | Construction material trading (Import) | 10000 t. Cont. 20' / 1996 Germany/Kazak. via Russia | - | 4500 per container 20' | CIF | Transit through Russia too expensive |
| Klöckner | Textile/metal processing (Import) | 570 t. in container 20' / 1996 Germany/Kazak. via Russia | - | 4000 per container 20' | CIF | Traceca corridor unsafe |
| Asutor | Wool trading (Import) | 3 cont. 20' on trucks / 1996 Germany/Bishkek via Russia | - | 3-5000 per container 20' | - | Long customs procedures/ expensive transit via Russia |
| Nakutrans | Forwarder/food, equipment (Import) | wgs. from Germany via Russia | - | 4200 per wagon | - | - |
| Newtech | Telecom equipment trading (Import) | 2 cont. 20' in 1996 from Europe via Russia | 2-3 weeks | 4-5000 per container 20' | destination | - |
| Kametec | Metal, equipment trading (Import) | 10000 t. / wgs 1996 from Europe via Russia | 3-4 weeks | 4-5000 per wagon | FOB | seeks security and cheap transport |
| Newco trading | Metal trading (Export) | 7000 t. / wgs / 1996 Karaganda/Semipalatinsk / Petropavlovsk to Europe via Riga/Tallin/Chop - Russia | - | 4-5000 per wagon | FOB | Traceca corridor considered unsafe and expensive |

APPENDIX 2

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|------------------------|---|--|------------------------------|-------------------------------------|------------|---|
| Sea-Land | Transport (Import-Export all commodities) | Import: 1118 TEU Export: 42 TEU / 1996 - All transits | Rotterdam-Almaty: 3 weeks | 4650 per cont. 20' Rotterdam/Almaty | All kinds | - |
| Kitt | Transport (Import all commod.) | 20000 t.wgs/1996 Europe via Riga /Russia | 3 weeks | 60 per ton in wagon | FOB | - |
| Lead and zinc Combinat | Metal trading (Export) | 80000 t. / wgs/1996 to Europe via Russia, Chop and Novossirsk | - | 73 per ton in wagon | - | Traceca route should use port of Aktau |
| Galaxym | Forwarder food/construction material (Import) | 5-8 cont. 20' per month (trucks) from Europe via Russia | - | 5000 cont.20' on trucks | - | - |
| Roland Multitrans | Forwarder bulk cargo: fertilizers, chemicals used for washing powder (Import) | 4-5000 t. per month (wgs.) from Europe via Russia | - | 5000 per wagon | FOB | Traceca route should use port of Aktau. Poti not well equipped |
| IC Company | Forwarder construction material, ore (Export) food (Import) | Wagons to Russia Containers 40' to Belgium via Brest - Russia | 4 weeks to Europe | 8000 per container 40' to Europe | FOB | Traceca route is considered unsafe (Caucasus). Poti not well equipped. |
| Accept | Forwarder alcohols, food (Import) | wagons or containers 20' on trucks from Europe through Russia (via Chop) | 4 weeks | 6000 per wagon | FOB | Traceca route is considered unsafe (Caucasus) and expensive (Turkmen transit) |

APPENDIX 2

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|------------|---|--|---|---|------------|---|
| Butya | Trade clothes, food, household appliances (Import) | 25 trucks per year (clothes) via Brest, Russia to Kazak. Plane Istanbul-Almaty (clothes) Ferry from UK, Denmark to Riga-St. Petersburg / Russia / Kazak. | 8 days France-Almaty by trucks 3 weeks St. Petersburg-Almaty (trucks) Almaty (wagons) | 10000 France-Almaty (trucks via Russia) 8000 Istanbul-Almaty (trucks) 1000 per ton Istanbul-Almaty (plane) | - | Traceca corridor is complicated (too many borders), unsafe (Caucasus), with no performant service (cargo tracing) |
| Asia Trans | Forwarder metal (Export), food and materials (Import) | containers 20' to Finland via St. Petersburg Reefer trucks from Germany via Brest - Russia | 2-3 weeks Almaty-St. Petersburg (cont.) 3-4 weeks Germany to Kazak. (trucks) | 13800 reefer truck from Germany | - | Traceca route should use port of Aktau. Other wise unsafe and too many borders via Tashkent |
| AVT | Forwarder food, clothes, etc. from Belgium, Holland, Germany (Import) | trucks from Austria or containers 20' (on wgs) via Brest | 10 days by truck Austria/Almaty 25 days in wagons | 9500 truck Wien or Brno or Berlin/Almaty 11700 truck Milan-Almaty 3700 cont 20'/wg Wien-Almaty 4650 cont 20'/wg. Paris-Almaty | Ex- works | Seeks competitive fares |

APPENDIX 2

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|-------------------|---|--|---------------------------------------|--|-------------|---|
| Militzer & Muench | Forwarder food, clothes, chemicals from Europe (Import) | 50-100 containers 20' per month and 20-50 trucks from Germany, Holland all through Russia | 10 days by truck Germany-Almaty | 4500 per cont 20' (truck) Germany-Almaty 9000 per truck 80 m3 Germany-Almaty 10000 per truck Switzerland/ Chop/ Almaty | all | Traceca route hampered by capacity limits on Caspian Sea ferry. Turkmen transit expensive. |
| Unitrans | Forwarder all commodities (Import) | 10 cont. 40' (on truck) per month Dubai/Bandar Abbas/Almaty Istanbul/Almaty Frankfurt/Almaty | - | 4900 20' Dubai/Almaty 5400 40' Dubai/Almaty 5200 20' Istanbul/Almaty 6000 40' Istanbul/Almaty 9800 40' Frankfurt/Almaty (all on truck) | destination | - |

APPENDIX 3

APPENDIX 3

INTERVIEWS PERFORMED IN TASHKENT

April-September 1997

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|-----------------|---|--|--|--|------------|--|
| Aakie USA | Forwarder Food/electronics (Import) | 1.2 million USD import / year Cont. 20' from Germany, Holland via Russia, or from Hong Kong Cont. 40' on Iranian trucks from Bandar Abbas | 4 weeks from Europe 6-8 weeks from Asia | 5000 from Europe (20') 3500 from Bandar Abbas (40') | CIF | transit times too long |
| Atwood Richards | Forwarder Food, clothes (Import) | 28 cont. 40' /1996 from Europe (Le Havre + wg. via Russia to Kakaz/Uzbek.) 6 trucks from Greece | 4 weeks | 4600 cont. 40' from Europe 10000-12000 by truck from Greece | CIF | Unsafe transit through Russia |
| Badri's Global | Forwarder Food (Import) | 2.5 million USD / year wagons from Europe via Brest/Russia/Kazakhstan/ Uzbekistan (Shumilova) | 4 weeks | 5000 per wagon from Europe | CIF | Unsafe transit through Russia |
| Matador | Forwarder Tyres (Import) | 100 cont. 20' on wgs./96 from Slovakia via Chop or Brest/ Russia/Kaza/Uzb. (Shumilova) | 3 - 4 weeks | 2800-3000 (cont. 20') 6000 (truck with 2 containers) | CIF | Trip is expensive and too long |
| PVC | Forwarder Food (Import) | 2,5 million USD 300 cont. on wgs. / year Germany/Holland/Brest/ Belarus/Russ./Kazakhstan /Uzbekistan (Shumilova) | 3 weeks | 4000 per container 20' | CIF | Does no want to transit via ports: Bad experience through St. Peter. |

APPENDIX 3

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|--------------------------|--|--|---|---|------------|--|
| Roz | Forwarder Consumer goods (Import) | Per month : 10 cont. from Belg 10-15 cont. from Germany 100 trucks Germ. Poland 150 wgs from UK, Holland via Klaipeda/Russia/Kaza/Uzb (Shumilova) or via Odessa/Ukr./Rus/Kaza/Uzb. | - | 13000 to 26000 by truck | CIF | Transit time too long |
| Supreme International | Forwarder Food (Import) | 30 cont. + 25 wgs / 1996 Germany-Holland via Riga/Russia/Kazak./Uzbekist. | 4 weeks | 4000 per cont. 20' | CIF | - |
| Ya - Na | Forwarder Flour, oil, sugar (Import) | Containers 20' from Europe through Russia/Kazak/ Uzbek. | - | 3000 per cont. 20' | CIF | Transit time too long |
| Uzvneshtrans | Forwarder Wheat-USA Sugar-France, meat, Flour (Import) Cotton (Export : 20000 t. on Traceca route) | 2,5 million tons per year Mostly by Traceca route (State company obliged to use this route by a 1994 decree) | 4 weeks (single wg) on Traceca route to Poti | 65 per t./wg. 85 per t./cont 170 per t./truck on Tashkent-Poti | FOB | Bandar Abbas is preferred (Bad service at Poti) |
| Unitrans | Forwarder Food-Germany, tyres (Import) Cotton to France, etc, copper (Export) | 7000 cont. 20 & 40' per year from Europe via Russia to Uzbekistan, or via Bandar Abbas/Dubai or via Iran (Meshed) and Turkmenistan | 3 weeks Bandar Abbas- Tashkent | 3000 cont.20-40' Bandar Abbas- Tashkent | FOB | Security problems on the Traceca route, bad service at Poti and for the Caspian crossing |

APPENDIX 3

| Company | Business/Commodity | Traffic | Trip time | Price (USD) | Conditions | Observations |
|----------|---|---|---|---|------------|--|
| Reinhart | Cotton trade (Export) | 100000 t. per year Uzbek cotton export through Riga, Chop, to Germany, France, etc. Turkmen cotton through Bandar Abbas Container(/trucks) | 2 weeks to Riga | 120-140 per t. (cont. 20' to Europe) | CIF | Security problems on Traceca route. No reliable Caspian ferry crossing |
| Sea-Land | Transport Food (Import) Cotton (Export) | 50 cont. 20-40' per month Alcohol/tobacco import from Europe partly through the Traceca route to Uzbekistan. 100 cont. 40' per month Cotton export from Uzbekistan through Brest/Rotterdam + rail shuttle to Italy/Germany | 3 weeks Tashkent Rotterdam 26 hours shuttle train Rotterdam/Italy | 6000 20' Europe-Tashkent 8000 40' Europe-Tashkent (rail) 12-13000 Europe-Tashkent (truck) | CIF | Bad, expensive service at Poti (700 USD to load cont. on wgs). No regular shipping line But increased excises + huge deposits for alcohols/tobacco on Russian transit will force to use Traceca route |

APPENDIX 4

APPENDIX 4

ANALYSIS OF IMPORT FLOWS FROM SELECTED EUROPEAN AREAS TO SELECTED CENTRAL ASIA COUNTRIES

As shown in table....., the 2 major products imported from Europe to Central Asia (vegetals and processed food, represent 92% of total imports. The split between European provenance areas is the following :

1. Imports of vegetals

*Imports of vegetal products to Uzbekistan, Tajikistan and Kyrgyzstan -
European area of provenance - 1995.*

| Traceca destination / European area (%) | Uzbekistan | Tajikistan | Kyrgyzstan |
|--|------------|------------|------------|
| North Western Europe | 58.1 | 67.9 | 100 |
| Southern Europe | 2.4 | 0 | 0 |
| Central Europe | 38.9 | 28.3 | 0 |
| Northern Europe | 0.6 | 3.8 | 0 |

This table shows that :

- For products of vegetal origin, which is the first commodity imported to Central Asia (about 1,066 million tonnes), the most important European zones of provenance are:
 - North Western Europe (France, Belgium, Luxembourg, Germany, Netherlands, Denmark):
58 % goes to Uzbekistan (about 540,000 tonnes);
68 % goes to Tajikistan (about 40,000 tonnes);
100% goes to Kyrgyzstan (54,000 tonnes).
 - Central Europe (Austria, Hungary, Slovak Republic, Switzerland):
39 % goes to Uzbekistan (365,000 tonnes);
28 % goes to Tajikistan (17,000 tonnes).

APPENDIX 4

2. Imports of processed food-stuffs

Imports of processed food-stuffs products to Uzbekistan and Kazakhstan - European area of provenance - 1995.

| Traceca destination / European area (%) | Uzbekistan | Kazakhstan |
|---|------------|------------|
| North Western Europe | 65.8 | 20.9 |
| Southern Europe | 5.3 | 6.3 |
| Central Europe | 21.5 | 9.2 |
| Northern Europe | 7.4 | 63.6 |

It can be noted that :

- For processed food stuffs, second major flow of commodities dispatched to Central Asia (268,000 tonnes), the most important European zones of provenance are :
 - North Western Europe,
 - 66 goes % to Uzbekistan (87,000 tonnes);
 - 21 goes % to Kazakhstan (25,000 tonnes);
 - Central Europe
 - 21.5% goes to Uzbekistan (29,000 tonnes).
 - Northern Europe (Norway, UK, Ireland, Iceland)
 - 64 % goes to Kazakhstan (75,000 tonnes).

3. Conclusions

From previous figures it can be deduced that the main import flows are from :

- *North western Europe to Uzbekistan*

For products of vegetal origin (540,000 tonnes) and processed food-stuffs (87,000 tonnes).

Total: 627,000 tonnes i.e. 43% of total imports from Europe to Central Asia (all areas, all commodities).

- *Central Europe to Uzbekistan*

For vegetals (365,000 tonnes) and processed food-stuffs (29,000 tonnes).

Total : 394,000 tonnes (27% of total imports)

These flows account for about 70% of imports of selected commodities in Central Asia.

APPENDIX 5

APPENDIX 5

ANALYSIS OF EXPORT FLOWS FROM SELECTED CENTRAL ASIA COUNTRIES TO SELECTED EUROPEAN AREAS

As shown in table...., the 4 major products exported from Central Asia to Europe (textile, products of chemical industry, vegetables and processed food-stuffs), represent over 98% of total exports. The split between European areas of destination, per commodity, is the following :

1. Exports of textile

Export of textile. Main European areas of destination. 1995

| European area (%) | North Western Europe | Southern Europe | Central Europe | Northern Europe |
|-------------------|----------------------|-----------------|----------------|-----------------|
| Turkmenistan | 3.1 | 15.2 | 63.9 | 17.8 |
| Tajikistan | 11.8 | 10.8 | 68.2 | 9.2 |
| Uzbekistan | 32.1 | 7.8 | 41.8 | 18.3 |

This table shows that :

- For textile, which is the first commodity exported to selected zones of Europe (576,000 tonnes), the most important European zones of destination are :
 - from Uzbekistan
41.8% goes to Central Europe (Austria, Hungary, Slovak Republic, Switzerland) (about 177,000 tonnes);
32.1% goes to North Western Europe (France, Belgium, Luxembourg, Germany, Netherlands, Denmark) (135,000 tonnes).
 - from Turkmenistan
63.9% goes to Central Europe (60,000 tonnes).
 - from Tajikistan
68.2% goes to Central Europe (30,000 tonnes).

APPENDIX 5

2. Exports of chemicals

Exports of products of chemical industry. Main European destinations - 1995

| European area (%) | North Western Europe | Southern Europe | Central Europe | Northern Europe |
|-------------------|----------------------|-----------------|----------------|-----------------|
| Kazakhstan | 41.7 | 11.8 | 36.4 | 10.1 |
| Uzbekistan | 11.0 | 0 | 89 | 0 |

It can be noted that :

- For chemical products, second most important flow of commodities exported from Central Asia (36,000 tonnes), the most important European zones of destination are :
 - from Kazakhstan,
41.7% goes to North Western Europe (11,000 tonnes);
36.4% goes to Central Europe (9,500 tonnes).
 - from Uzbekistan
89% goes to Central Europe (8,500 tonnes);
(to North Western Europe, tonnage is insignificant:1,000 tonnes).

3. Exports of vegetals

Exports of vegetal products. Main European destinations - 1995

| European area (%) | North Western Europe | Southern Europe | Central Europe | Northern Europe |
|-------------------|----------------------|-----------------|----------------|-----------------|
| Kazakhstan | 21.8 | 1.5 | 67.9 | 8.8 |
| Turkmenistan | 71.0 | 0 | 29.0 | 0 |
| Uzbekistan | 100 | 0 | 0 | 0 |

It can be noted that :

- For vegetals, the main European zones of destination are :
 - from Kazakhstan,
67.9% goes to Central Europe (11,000 tonnes);
21.8% goes to North Western Europe (3,500 tonnes).
 - from Turkmenistan and Uzbekistan, exported tonnages are insignificant (500 tonnes each to North Western Europe).

APPENDIX 5

4. Exports of processed food-stuffs

Exports of processed food-stuffs. Main European destinations - 1995

| European area (%) | North Western Europe | Southern Europe | Central Europe | Northern Europe |
|-------------------|----------------------|-----------------|----------------|-----------------|
| Uzbekistan | 100 | 0 | 0 | 0 |
| Kazakhstan | 54.8 | 1.9 | 0 | 43.3 |

- For processed food-stuffs, the most important European zones of destination are
 - from Uzbekistan, 100% goes to North Western Europe (10,000 tonnes).
 - from Kazakhstan tonnage is insignificant (1,500 tonnes to North Western Europe).

5. Conclusions

From previous figures it can be deduced that the main export flows are from:

- **Uzbekistan to Central Europe**
*For textile (177,000 tonnes) and chemical products (8,500 tonnes)
Total: about 190,000 tonnes i.e. 30% of total imports from Europe to Central Asia (all areas, all commodities).*
- **Uzbekistan to North Western Europe**
*For textile (135,000 tonnes) and processed food-stuff (10,000 tonnes).
Total : 145,000 tonnes (22% of total imports)*
- **Turkmenistan to Central Europe**
For textile (60,000 tonnes, 10% of total exports)
- **Tajikistan to Central Europe**
For textile (30,000 tonnes, 5 % of total exports)
- **Kazakhstan to Central Europe**
*For vegetables (9,500 tonnes) and chemical products (9,500 tonnes)
Total : 20,500 tonnes (3 % of total exports)*
- **Kazakhstan to North Western Europe**
*For chemicals (11,000 tonnes), vegetables (3,500 tonnes) and finished food-stuff (1,500 tonnes).
Total : 16,000 tonnes (2.5% of total exports)*

These flows account for about 70% of exports of selected commodities from Central Asia.

