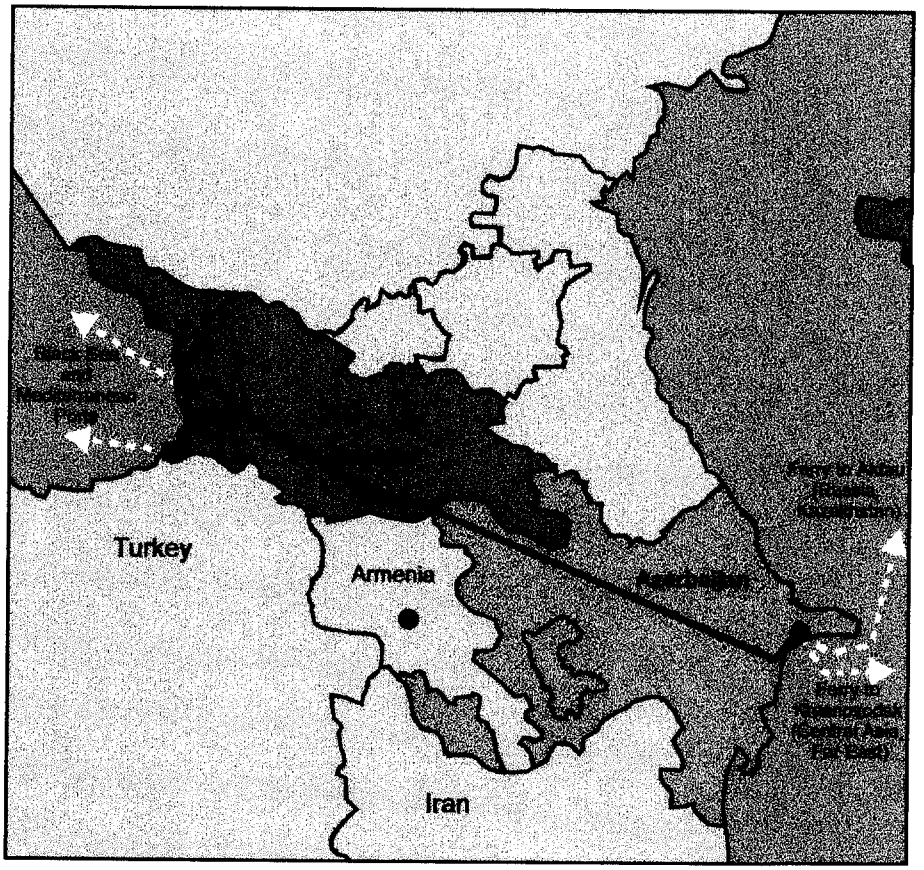
TRACECA

**Infrastructure Maintenance 1**
**-**
**Railways**
**Pre-Investment study and Pilot train**
**Baku - Tbilisi - Batumi/Poti**




# Project Progress Report

## Annexes 1 - 4

**September 1996**

# Annex 1

# Traffic Volume Forecast

Baku, Tbilisi, Berlin - August 1996

# Table of Contents

# List of Tables

# List of Figures

# List of Appendices

# *Traffic volume forecast*

## 0 Introduction

After coordination with the final recipients during the inception phase, the task for Module A was extended to include not only the planned prefeasibility study for the railway line of Baku - Tbilisi - Poti/Batumi but also the preparation of documents acceptable to banks for selected investment projects. In order to be able to draw up such documents acceptable to banks, the assessment of the financial situation of the entire railways of the country is necessary. That is why it was indispensable to draw up also a forecast regarding the performance development of the entire railways, over and above the originally planned traffic volume forecast.

Further more, the final recipients expressed special interest in the most detailed forecast on the development of freight traffic. Attention focuses especially on future potentials for transit traffic along the mentioned corridor. Within the scope of the material and time resources available, the investigation of the development of foreign trade and traffic relations between the Central Asian republics of the former Soviet Union was further pursued.

Apart from the general problems in drawing up a forecast for traffic development under the current political and economic conditions in the region, explained in the following point, there were additional difficulties due to existing problems in making available the necessary statistical reference data. The official statistics of both countries are undergoing a period of change or of reconstruction. Whereas relatively detailed internal statistical data on the development of traffic could be made available by the Azerbaijani Railways, the Georgian Railways have not got available such detailed data.

Unfortunately, there were no details on road traffic in either country, neither for total traffic nor cross-border traffic.

The very informative Azerbaijani statistics on foreign trade offered an important basis for drawing up the forecast. Furthermore, national foreign trade statistics of Western European and Central Asian countries as well as of the CIS were included in the investigations.

Due to the data availability described above, assumptions or own calculations were necessary in many cases to work on. These cases are explained in detail in the following.

It is planned to coordinate the results of the forecast of goods traffic with the experts of the Azerbaijani and Georgian railways during the further course of the project. Thus, there may be amendments and corrections on this material, to a limited extent.

# 1 Methodology

Traditional mathematical and statistical methods of traffic forecasts, normally used under West European conditions, do not apply to the prognosis of traffic flows under the current situation in East European countries. These methods would lead to very imprecise results, under the conditions prevailing in the successor states to the former Soviet Union, at the moment. The most important reasons, which make a different methodological approach necessary, are:

- The disintegration of the Soviet Union and the transition from the centrally planned economy to market economy structures have led to thoroughgoing structural changes in politics and the economy;

- The traditional economic, trade and clearing relations between the former Soviet republics have more or less all collapsed. The trade relations of the republics investigated are currently undergoing a completely new geographical and structural orientation;

- The former strong central influence on the role of the individual modes of transport led to a state approved modal split, which is now being influenced more and more by the conditions prevailing on the market;

- There is no detailed statistical data base on production, trade and traffic. Existing data is partly incomplete or the information is severely limited. Statistical time rows for the previous period of time are without informative value due to the considerable structural amendments or the changed statistical registration methods.

Due to the reasons mentioned, a methodology was applied in drawing up the traffic volume forecast, tailor-made for the conditions of the East European reform states.

This special methodology of the Consultant includes the following main elements:

The most important initial item to be analysed for assessing the future traffic volume is the development of the main economic indices, especially the gross domestic product (GDP). The assumption is that there is a close connection between the development of the GDP and the total traffic volume of a country, which has been extensively proved by analogue investigations in various European countries and for different periods of time.

The development of selected branches of the economy, which are of special importance for the traffic volume of the railways, have been assessed in detail to further verify the forecast.
These are above all the oil processing industry, the chemical industry, the non-ferrous and ferrous metallurgy, the building materials industry as well as agriculture, for the respective period of investigation.

The foreign trade of the two countries is of special significance for the traffic volume of the railway traffic between Georgia and Azerbaijan, especially on the Baku - Tbilisi - Poti/Batumi line. The future development was scrutinised in a detailed assessment.

The possible development of the mentioned factors is depicted in two scenarios, an optimistic and a pessimistic one.

Percentage rates were deducted for the development of the transport volume in the mentioned railway traffic for the period up to 2015, divided according to domestic traffic, export, import, transit and that in the respective two scenarios. The statistical data for 1995 served as reference figures.

Based on this total development, the transport volume of the investigated line was assessed according to the same method, divided up into main sections of the line. The individual investigations and assessments are depicted in detail in the following.

# 2 Development of GDP

The assessment of the possible development of the gross national product, as one of the most important economic indices, was conducted with the help of an analysis of the economic and political situation, based on selected important factors such as

- political stability,
- climate for investment,
- situation of the national economy,
- stability of the money value / availability of foreign currency,
- foreign trade as well as
- the stage of the reform process.

Furthermore, similar investigations conducted by the World Bank, the IMF and the World Food Program were included in the assessment.

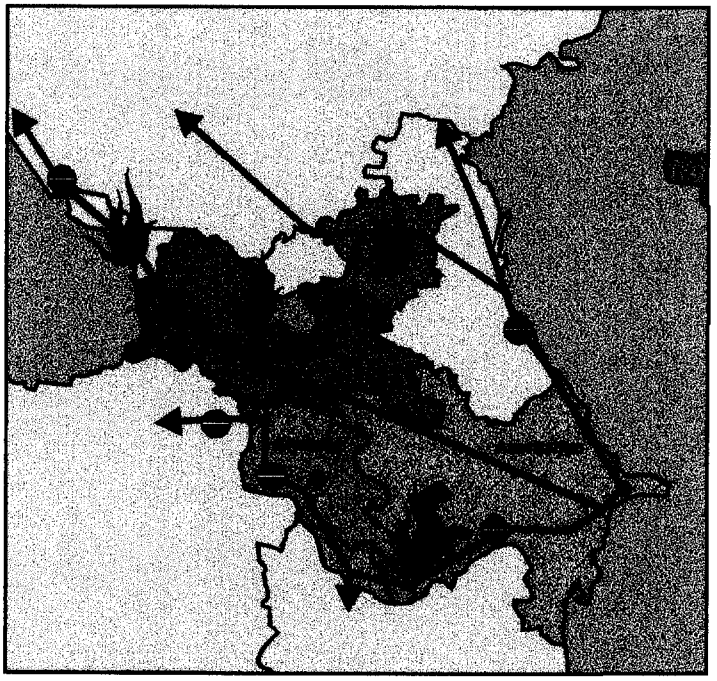
As the calculation of the GDP is conducted very differently in the individual countries, and especially the statistical reference figures in the two republics are relatively unreliable at present, this investigation was carried out without using absolute figures for the GDP. The assessment was drawn up on the basis of the annual percentage of change, using the year 1989 as the year of reference.

The width and breadth of a possible development is depicted in an optimistic and a pessimistic scenario.
Under the current political and economic conditions in the region of the Caucasus, any attempt at preparing forecasts on future economic developments is characterised by large insecurity.

## 2.1 Political situation

At the moment, the entire region of the Caucasus is covered with manifold flash-points of conflicts (comp. Fig. 2.1).

**Fig. 2.1: Political situation in the region of the Caucasus**



National, ethnic and religious disputes, often connected with military confrontations, have led to a severe impairment of the economic situation in the region. The existing, historically grown transport system is especially badly affected, above all the inter-regional and international rail links. Such important lines as Baku - Nakhichevan - Dshulfa - Iran, Baku - Yalama - Russia or Tbilisi - Sukhumi - Russia have been either completely closed down or strongly restricted due to the political conflicts.

The future political situation in the region will influence the further economic situation in Azerbaijan and Georgia decisively and thus the situation of the railways.

***Azerbaijan***

The political situation inside Azerbaijan seems to be relatively stable at the moment. In November 1995, a parliament was elected for the first time since independence. At the same time, a new constitution was adopted.
The problem of Nagorno-Karabakh and the continuous occupation of Azerbaijani territory by Armenian troops will play an important role in the further political and economic development of the country. At the moment, a solution of the conflict is hard to asses, especially as regards the time schedule. There are first indicators which signal readiness for a negotiated settlement, if need be through mediation by a third party.

***Georgia***

Religious and ethnic conflicts and nationalistic sentiments have led to serious civil disturbances in several areas of the country.
The political situation inside the country has stabilised following the election of E. Shevardnadse as President. The interior order was re-established. Nevertheless, there is still an internal potential of conflict, which should not be underestimated, even today. The further political stabilisation, especially the solving of the problems of Abkhazia, South Ossetia and Adsharia will influence decisively the future economic situation of the country.

One can say for both countries that the interior political situation of the next years will be influenced decisively by the economic one. The current difficult economic state of the two countries, the effects of the transition to market economy structures

on the population, e.g. rising unemployment, may well lead to social conflicts and thus to a destabilisation of the political situation inside the country.

## 2.2 Macro-economic development

With the beginning of the '90s, thoroughgoing changes started to take place in the economies of the Caucasian republics. The transition from the centrally planned economy of the Soviet Union to market economy structures began. The reform process inaugurated was accompanied by strong symptoms of crisis in all Central and East European countries, affecting every part of the national economy. The economic slumps were especially drastic in the smaller republics of the former Soviet Union. Due to their high degree of dependence on deliveries to and from other republics, especially of raw materials and supplied parts, the breakdown of traditional trade and production relations aggravated the already extreme symptoms of crisis.

***Azerbaijan***

The economic decline of Azerbaijan started at the beginning of the '90s. Until 1995, the GDP dropped to about a third of the 1989 level. The situation was especially bad in the years of 1992 to 1994 with an annual fall of the GDP by more than 20 per cent. The downward trend in the economy has not been halted in 1996, but it did slow down as of 1995. Great hopes for stopping the decline of the GDP are linked to the start of oil production at the new off-shore oil fields as of 1997.

In agriculture and industry it seems as if the trough has been reached and soon there could be a slow start of an upward trend. In selected areas, there were first increases in production in 1996.
The economic symptoms of crisis were aggravated further through the military conflict over Nagorno-Karabakh as well as the more or less complete breakdown of the trade and payment transactions with the countries of the former Soviet Union.

Apart from the development of the oil industry, the boosting of further branches of the economy (e.g. chemical industry in Sumgait, mechanical engineering), the extension of the services sector as well as the re-structuring of agriculture are necessary for a balanced development of the Azerbaijani economy.

The reform process in Azerbaijan has made only relatively slow progress up until now. Structural reforms of the economy have only been tackled hesitantly. The privatisation process only started slowly in 1995. A law on privatisation was passed. However, legislation still requires serious revision. Up until now, the development of the private sector has been hampered through the lack of respective legal prerequisites. The small privatisation has started slowly. The privatisation of medium-sized and large industrial companies is to be started in 1996.

***Georgia***

In Georgia, too, the GDP dropped continuously in the period between 1989 to 1995, and in 1995 it was at about 35 per cent of the 1989 level. There was a deterioration of the economic situation, especially in 1992/93, in connection with internal political problems.
The economic state of Georgia is influenced decisively by the energy situation in the country. Over the past years, bottlenecks in the energy supply of the economy, traffic and the public led to an additional decrease in production.

The economic decline of the country slowed down the first time in 1995. In 1996, there is a standstill or a slight upward movement in individual branches of the economy.

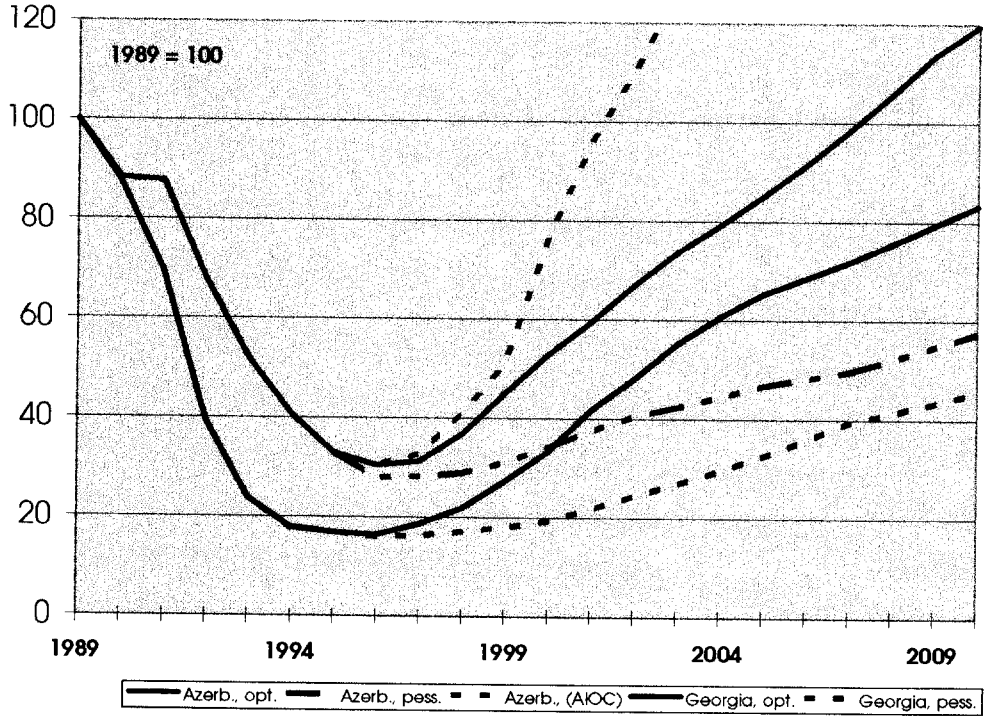
The following framework conditions formed the basis for the assessment of the future development of the GDP:

| optimistic scenario | pessimistic scenario |
|---|---|
| ***Political situation***: | |
| ❒ the internal political situation in the two countries will remain stable, democratic conditions will be secured;<br>❒ there will be no internal unrest due to social problems;<br>❒ the conflicts of Abkhazia and South Ossetia as well as Nagorno-Karabakh will be dissolved by the year 2000 so that they will not influence the economic development negatively any longer;<br>❒ the situation in Chechnya will stabilise to such an extent up to the year 2000 that international railway transports will not be hampered anymore;<br>❒ the inter-state relations in the region (Azerbaijan-Armenia, relations to Russia) will normalise; | ❒ socio-economic conflicts will burden the internal stability, making more difficult a continuous, consistent policy of reform;<br>❒ the national conflicts (Abkhazia, South Ossetia) as well as the conflict of Nagorno-Karabakh will not be resolved until the year 2000, so that the economic development, especially the transport links, will be influenced negatively further;<br>❒ due to sustained tensions in Chechnya, important international transit links will continue to be interrupted; |
| ***Development of the national economy:***<br>***Azerbaijan***<br>❒ The international consortium for oil production will start operations as scheduled in 1997; production will be extended to 35 million t/a up to 2010;<br>❒ national companies will be included to a growing degree in the delivery/service in connection with the oil production;<br>❒ the national oil processing capacities will be reconstructed or developed speedily and supplied with crude oil in the scope of the max. capacity;<br>❒ there will be a short term development of the industrial complex in Sumgait with international aid; chemical and metallurgical industries will develop into a further important eco- | ❒ various problems will lead to a delay in the scheduled start of oil production through the international consortium, the 'early oil' will be delayed and only produced as of the end of 1997;<br>❒ due to quality and other problems, national companies will only be included to a limited extent in the delivery and service in connection with the oil production;<br>❒ delays in the reconstruction of the oil processing plant will lead to capacity losses in the medium term;<br>❒ the existing oil processing capacities will not be used to their full capacity; |

| | |
|---|---|
| nomic pillar of the country;<br>❒ the speedy development of the oil industry will lead to an upswing of the economy in the other branches, especially the processing industry;<br>❒ favourable framework conditions and the development of the oil industry will lead to rising international investments, also in other branches of the economy; | ❒ hesitant international commitment will lead to a delay in developing the industrial complex of Sumgait;<br>❒ international investments will remain limited to the oil sector more or less, the speed of growth in the other branches of the processing industry will tail behind significantly; |
| ***Georgia***<br>❒ the problems in energy supply of the country will be resolved in the short term;<br>❒ branches of industry which work on the basis of domestic raw materials will be developed at an exceptional speed (non-ferrous and ferrous metallurgy, building materials industry);<br>❒ using the existing potential of skilled workers, the branches of the high-value processing industry will be developed, especially;<br>❒ income from international transit transports will lead to further impulses for the economic development of the country<br>❒ the rising, intensive use of the rich domestic raw materials will lead to a stronger economic upswing until the years 2000 | ❒ the problems of energy supply cannot be solved satisfactorily in the medium term and will lead to further obstruction of industrial production;<br>❒ existing domestic raw materials will be exported at a relatively low level of processing, the own processing industry develops with insufficient speed;<br>❒ drain of highly qualified domestic workforce, as the own processing industries will only develop slowly;<br>❒ lacking income from international transit transports will limit the investment possibilities of the country severely; |
| ***Policy of reform***<br>❒ the course of reforms in the direction of the market economy will be continued unerringly;<br>❒ the restructuring process of the national economy will be accelerated in both countries;<br>❒ the privatisation of medium-sized and large companies will continue;<br>❒ the existing financial system will be strengthened and the financial discipline will improve;<br>❒ the missing legal conditions will be established as soon as possible; | ❒ hesitant steps towards the market economy, sustained strong central state influence will hamper economic development;<br>❒ continuing problems in privatising the economy, especially the medium-sized and larger companies;<br>❒ lacking legal prerequisites and conditions will lead to a reserved commitment of international firms; |

Based on the framework conditions outlined above, the following scenarios are imaginable for the development of the gross domestic product of Azerbaijan and Georgia:

**Fig. 2.2: Development of the GDP in Azerbaijan and Georgia**




- The trough of the economic development will be reached in both countries by 1996, at a very low level as compared to 1989;

- The future development of the GDP in Azerbaijan will be determined decisively by the oil sector, thus, the development possibilities have been depicted with and without the activity of the international consortium;

- Thanks to the steeply increasing oil production in future, strong growth impulses will result also for the other economic areas, that is why the forecast growth rates are much higher than in Georgia;

- Due to the very low reference level, the forecast growth rates are much higher during the first years and decrease markedly later on;

- An increased economic growth in Georgia will be sparked off by the intensive use of domestic raw material resources up to the year 2000.

# 3 Development of main branches of national economy

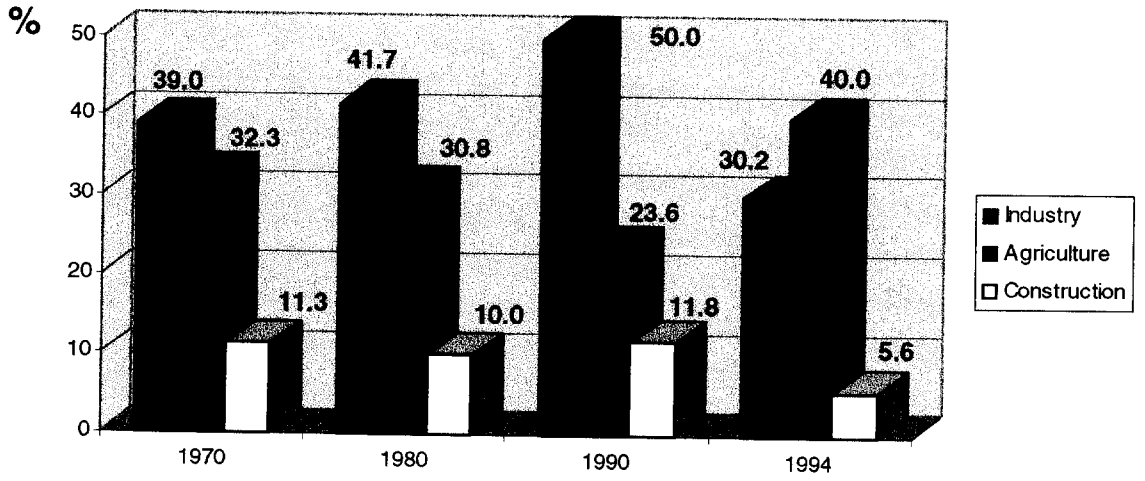
## 3.1 Output of industry

In the following, the branches of industry are scrutinised closely for Azerbaijan and Georgia, which are of significance for the development of the national economy on the one hand and for the future traffic volume on the other hand. At the centre of attention, there are the possible future potentials for rail transport on the line of Baku - Tbilisi -Poti/Batumi. This is also the view under which the territorial distribution of the main industrial locations is conducted.

***Azerbaijan***

The share of industrial production in the produced national income of Azerbaijan has dropped constantly over the past years:

**Fig. 3.1: Share of industrial branches in the produced national income of Azerbaijan**



The main industrial locations of Azerbaijan are distributed very irregularly across the territory of the country. The most important region by far is the Apsheron peninsula with Baku and the industrial complex of Sumgait, which concentrate some 60 per cent of the country's industrial production., The second most important industrial region is the area around Gyandsha, where some 10 per cent of industrial production of the country is located (comp. Fig. 3.2).

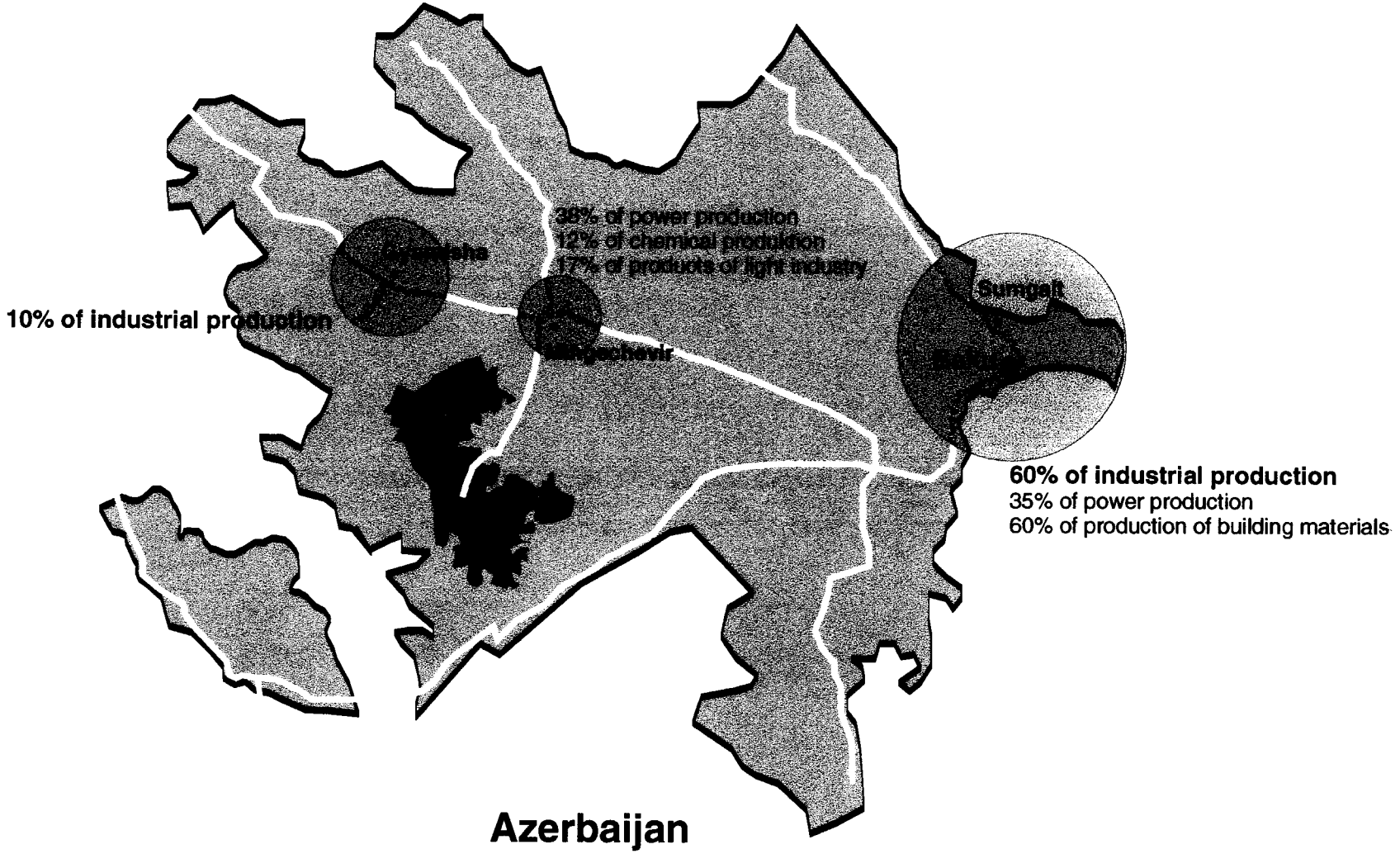
Oil production and processing is the most important branch of industry in Azerbaijan. Ever since 1990, oil production has dropped, it was reduced from 12.5 million tons (1990) to 9.6 million tons (1994). This decrease is due mainly to a reduction of the on-shore production.

In 1994, a contract between Azerbaijan and an international consortium was signed on the exploitation of the off-shore oil springs in the area of Baku. The consortium will start producing the so-called 'early oil' in 1997. Oil production is to reach 35 million tons a year in 2010.

Azerbaijan has got oil refineries in Baku. Their processing capacities were 24 million tons per year in 1990 and meanwhile they have dropped to about 14 million tons. Even this reduced capacity is not being used to the full at the moment, as there is not enough crude oil for processing.

Apart from oil production and processing, the development of the economic zone of Sumgait is of special importance for the economic rise of the country. The chemical

## Fig. 3.2: Main Industrial Centres




(as per 1994/95)

industry is a leading branch of industry in Sumgait. With the help of foreign investors, the modernisation of the plants is planned, especially with the aim of increasing the share of final products.

***Georgia***

It is especially those branches constituting an important export potential, on the basis of processing domestic raw materials, which play an important part in the economic policy of the country.
This includes first of all the metallurgical industry. There is a stabilisation of the development to be seen in this industry at the moment. A growth of exceptional rates is planned for the coming years.
The chemical industry (Rustavi) and the oil processing industry (Batumi) are further industries of priority.

## 3.2 Agricultural production

There are favourable natural prerequisites for agricultural production in both countries, due to the climatic conditions.
At the moment, agriculture both in Azerbaijan and Georgia is experiencing a deep crisis. Drastic slumps in agricultural production over the past years are due especially to the following causes:

- internal unrest and wars
- disappearance of traditional markets in the other former Soviet republics
- scarcity or drastic rise in the price of the means of agricultural production

In the medium-term, the agriculture of the two countries will produce mainly for the own requirements. One cannot expect any significant export potential from this area (with the exception of cotton and special products such as tea, tobacco, citrus fruit).

# 4 Development of Foreign Trade

## 4.1 Main tendencies for trade turnover

With the disintegration of the former Soviet Union, the foreign trade relations of Azerbaijan and Georgia also experienced thoroughgoing changes. The economic symptoms of crisis, especially the decline of industrial and agricultural production, have led to a sharp drop both in exports as well as imports.

In the past, the volume and direction of goods flows were determined above all by a strong specialisation of production, which led to a high degree of dependence on raw materials deliveries and the mutual supply of goods in process and intermediate products. Thus, the more or less complete collapse of the trade and payment transactions with the countries of the former Soviet Union is another decisive factor for the radical changes in the foreign trade relations of the Caucasian republics.

Both in Azerbaijan and Georgia as well as in the Central Asian republics of the former Soviet Union, there is currently a geographical re-orientation of the international trade relations. What is characteristic for these new geographical structures is a more or less strong decline in the goods exchange with the former Soviet republics, especially with Russia, and a growing share of Western industrial states. Iran and Turkey play a special role in the foreign trade of Azerbaijan and Georgia.

## 4.2 Foreign trade of Azerbaijan

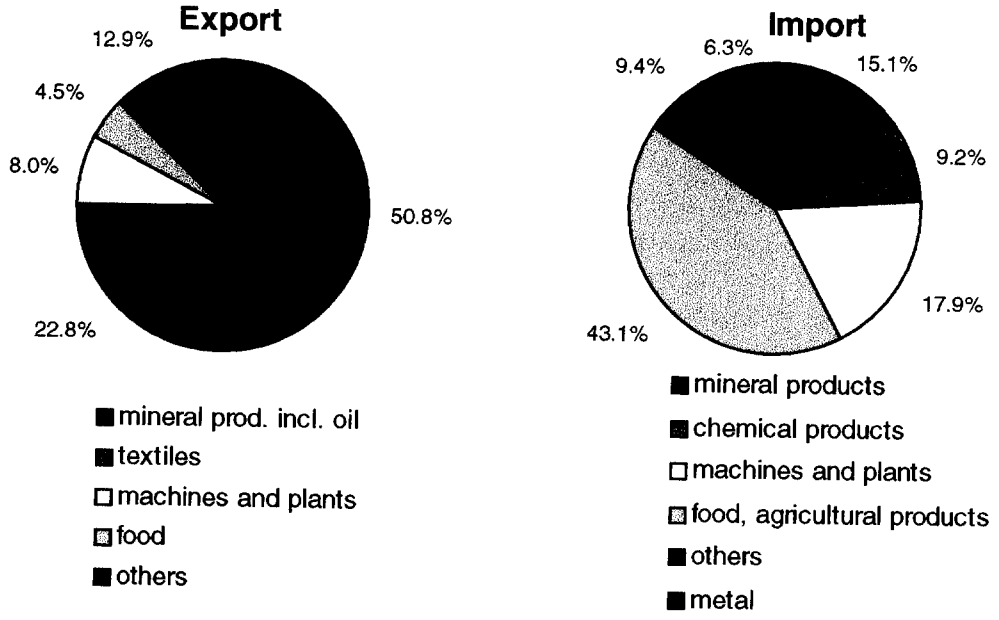
In connection with the conflicts in the Caucasus, a drastic decline in the foreign trade turnover of Azerbaijan started in 1988. A further strong reduction in the following years was due mainly to the disintegration of the former Soviet Union and the economic crisis starting at the beginning of the '90s.

In 1995, some 26 per cent of the goods produced in Azerbaijan were exported. About 22 per cent of the goods consumed in the country were imported. Thus there is a relatively high degree of foreign trade activity.

The main proportion of the Azerbaijani exports is made up of the products of the oil processing industry. In 1994, they constituted some 35 per cent of the entire exports, in 1995 the share rose to more than 50 %. Products of the textile industry were the second most important item with 18 and 23 per cent respectively. The metallurgical products made up 16 and 3 per cent.

The goods structure of the Azerbaijani foreign trade (on value basis) is depicted in the following chart. A detailed overview is contained in Appendix 4.1.

**Fig. 4.1: Goods structure of the Azerbaijani foreign trade in 1995 (in % of total value)**




From the transport point of view, an assessment of the volume of foreign trade flows is interesting. The extraordinarily high share of products from the oil processing industry is especially striking when looking at the forwarded amount of goods. In 1995, they made up roughly 80 per cent of the goods exported in total. The following table contains the most important export items of Azerbaijan. A detailed overview is shown in Appendix 4.2.

**Table 4.1: Important export items of Azerbaijani foreign trade**

*[in tons]*

| Type of goods | 1994 | 1995 |
|---|---|---|
| petrochemical products | 1,819,108 | 2,190,481 |
| metallurgical products | 348,783 | 45,073 |
| Bentonit | 147,488 | 68,258 |
| cotton | 78,286 | 75,992 |
| chemical products | 74,590 | 45,427 |
| agricultural products, food. | 70,873 | 37,945 |

Food and agricultural products made up the largest share of Azerbaijani imports in 1995.

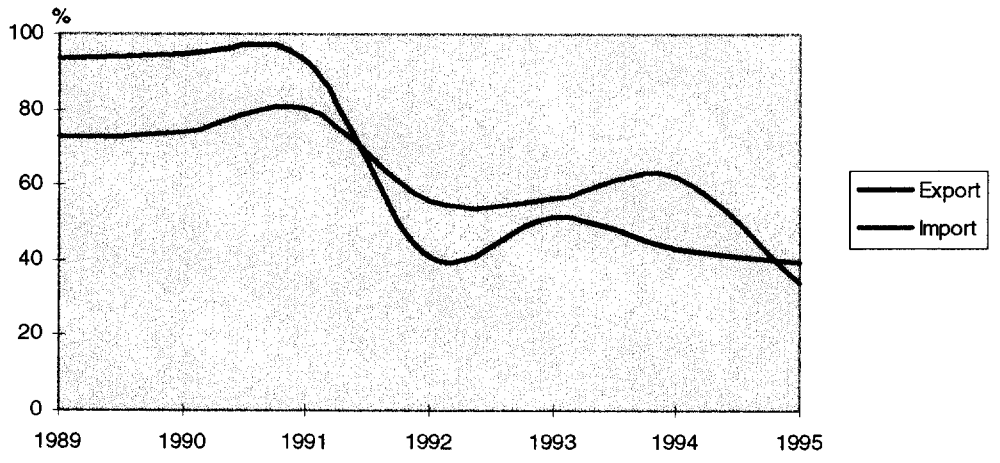
**Table 4.2: Main import items of Azerbaijani foreign trade**

*[in tons]*

| Type of goods | 1994 | 1995 |
|---|---|---|
| food | 93,535 | 207,874 |
| cereals | 291,993 | 112,553 |
| sugar | 46,495 | 104,186 |
| building materials | 9,766 | 153,049 |
| cement | 83,007 | 91,295 |
| metallurgical products | 334,432 | 55,772 |

A new orientation of the Azerbaijani foreign trade started with the beginning of the '90s. The geographical structure of the exports and imports has changed radically over the past few years. The development is characterised by a sharp drop in the share of the countries of the former Soviet Union. Whereas the share of those countries in the export of 1990 still made up 94.9 per cent and in the import 73.8 per cent, it dropped to 39.6 per cent in export and 34.2 per cent in import, in 1995. (comp. Appendix 4.3).

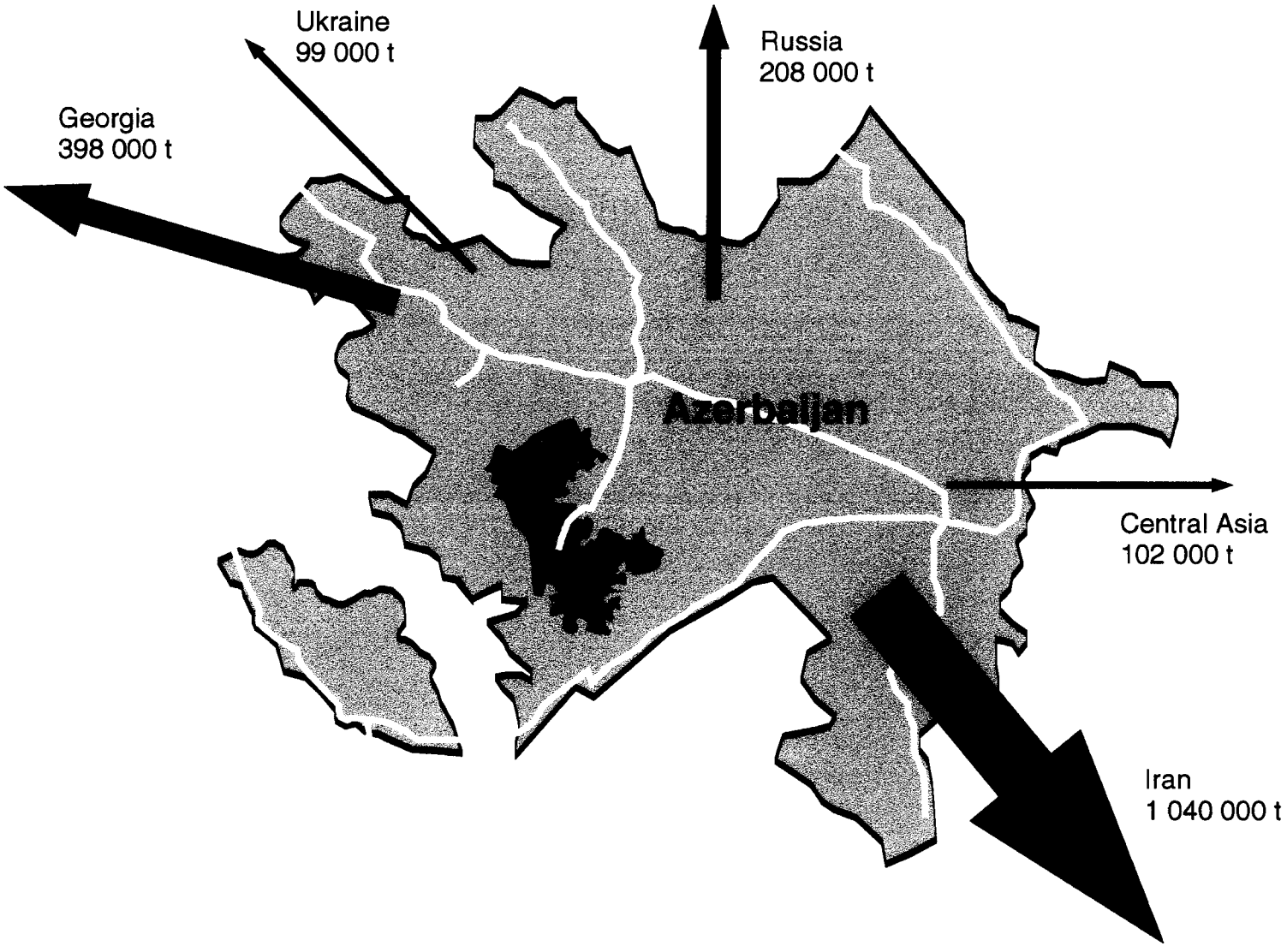
**Fig. 4.2: CIS share in Azerbaijani foreign trade**
[in % of total value]



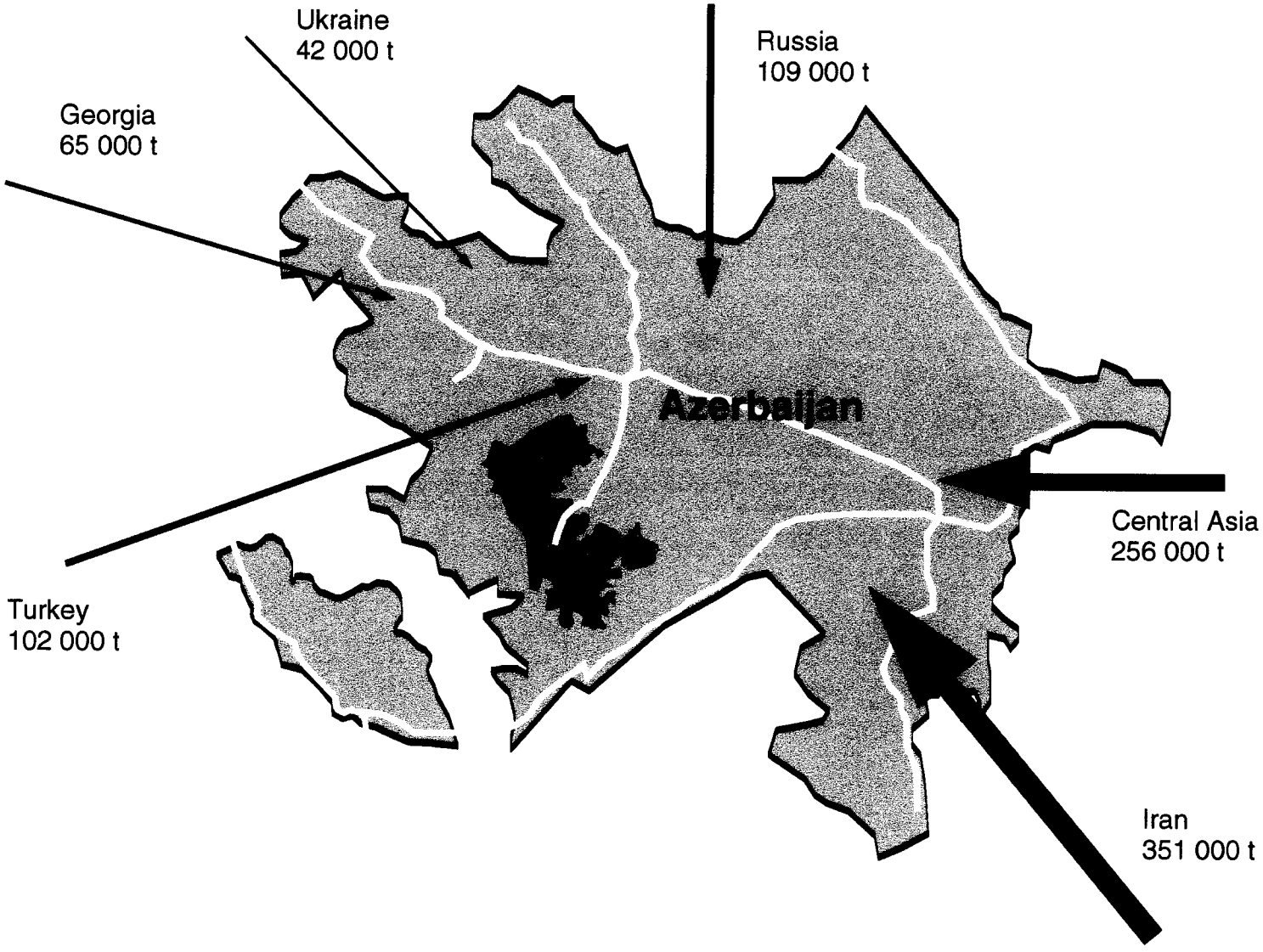
Iran and Turkey have taken on a growing importance for Azerbaijani foreign trade in the last few years. The share of Iran in Azerbaijan's exports was just under 30 per cent in 1995 and in the case of imports the share stood at 12 per cent. Turkey achieved a 21 per cent share in Azerbaijan's imports in 1995.

Looking at the amounts exported and imported one should also consider the geographical structure of foreign trade. Looking at it from this angle, the current dominating role of Iran, with a share of more than 40 per cent of the export and about 30 per cent on the import (1995), becomes especially clear. The geographical structure of the imports and exports is depicted in Figures 4.3 and 4.4. Appendix 4.4 contains a detailed overview.

## Fig. 4.3 Exports of Azerbaijan 1995

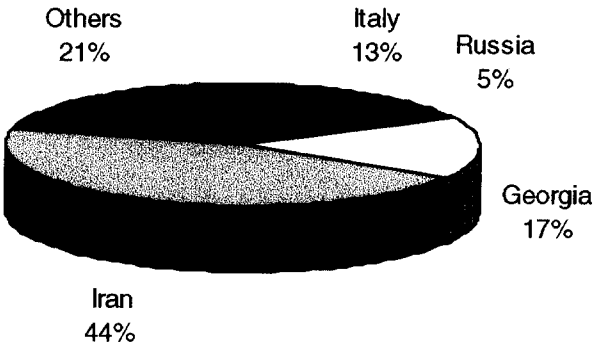


## Fig. 4.4 Imports of Azerbaijan 1995



The products of the oil processing industry are of extraordinary significance for the foreign trade of Azerbaijan as well as for railway transports.
Altogether, Azerbaijan exported 2.19 million tons of petrochemical products in 1995, which was about 20 per cent more than the previous year.
Iran was the largest importer of Azerbaijani petrochemical products with 1.045 million tons in 1994 and 0.976 million tons in 1995. Georgia was the second largest recipient in 1995 with 0.346 million tons. The share of the CIS countries stood at about 30 per cent (comp. Appendix 4.5).

**Fig. 4.5: Main importers of Azerbaijani petrochemical products (1995)**



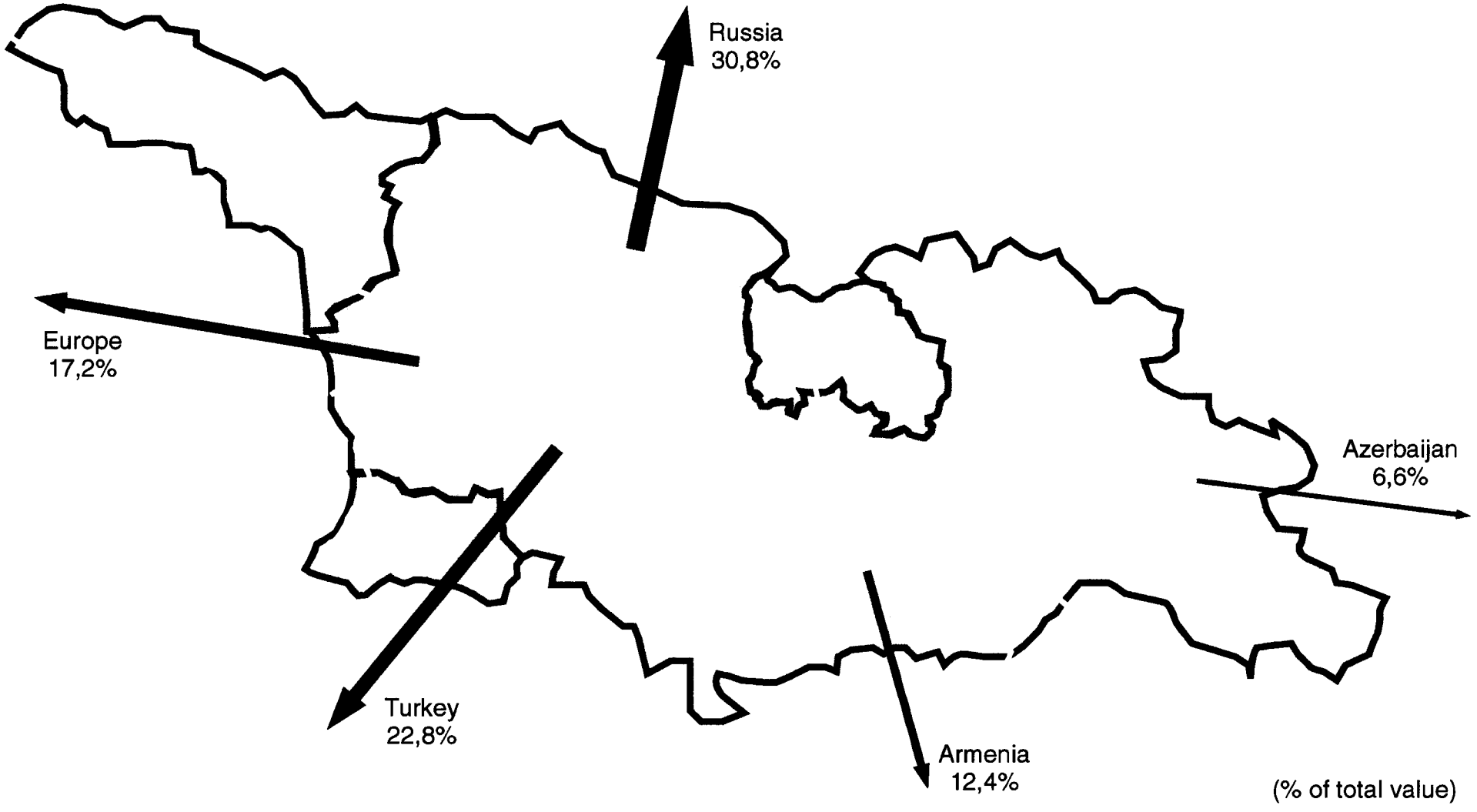

## 4.3 Foreign trade of Georgia

Foreign trade played an important role in the Georgian economy. In 1990, the imports of the country amounted to 41 per cent of the GDP, and the exports corresponded with 46 per cent.
Georgia was highly dependent on exchange relations with the other republics, within the economic system of the former Soviet Union.
The largest part of the raw materials and semi-finished products for further processing were imported. And the countries of the former Soviet Union were the main market for the products of the relatively highly specialised national industry and agricul-

ture. Thus, the effects of the collapse of the economic, trade and payment relations within the former Soviet Union were especially negative for Georgia.
At the moment, the share of CIS countries in Georgian foreign trade is still relatively high. In 1992, the CIS still had a share of 96.3 per cent of Georgian exports and it was 96.8 per cent in the case of imports (comp. Appendix 4.6).
In 1995, the CIS share in the foreign trade turnover was still more than 50 per cent. At the moment, Russia and Turkmenistan of the CIS represent the main trade partners of Georgia, followed by Turkey, Bulgaria and Romania, all three bordering on the Black Sea. Figures 4.5 and 4.6 show the main trade flows from and to Georgia.

Those branches of industry producing on the basis of domestic raw materials, such as non-ferrous and ferrous metallurgy, the chemical and the petrochemical industries, the building materials industry as well as agriculture, play a vital role in Georgia's exports. Imports focus much on fuels as well as agricultural products and food (comp. Appendix 4.7). The goods structure of Georgian foreign trade is depicted in the following graphs:

## Fig. 4.5 Main export partners of Georgia in 1995



## Fig. 4.6 Main import partners of Georgia in 1995

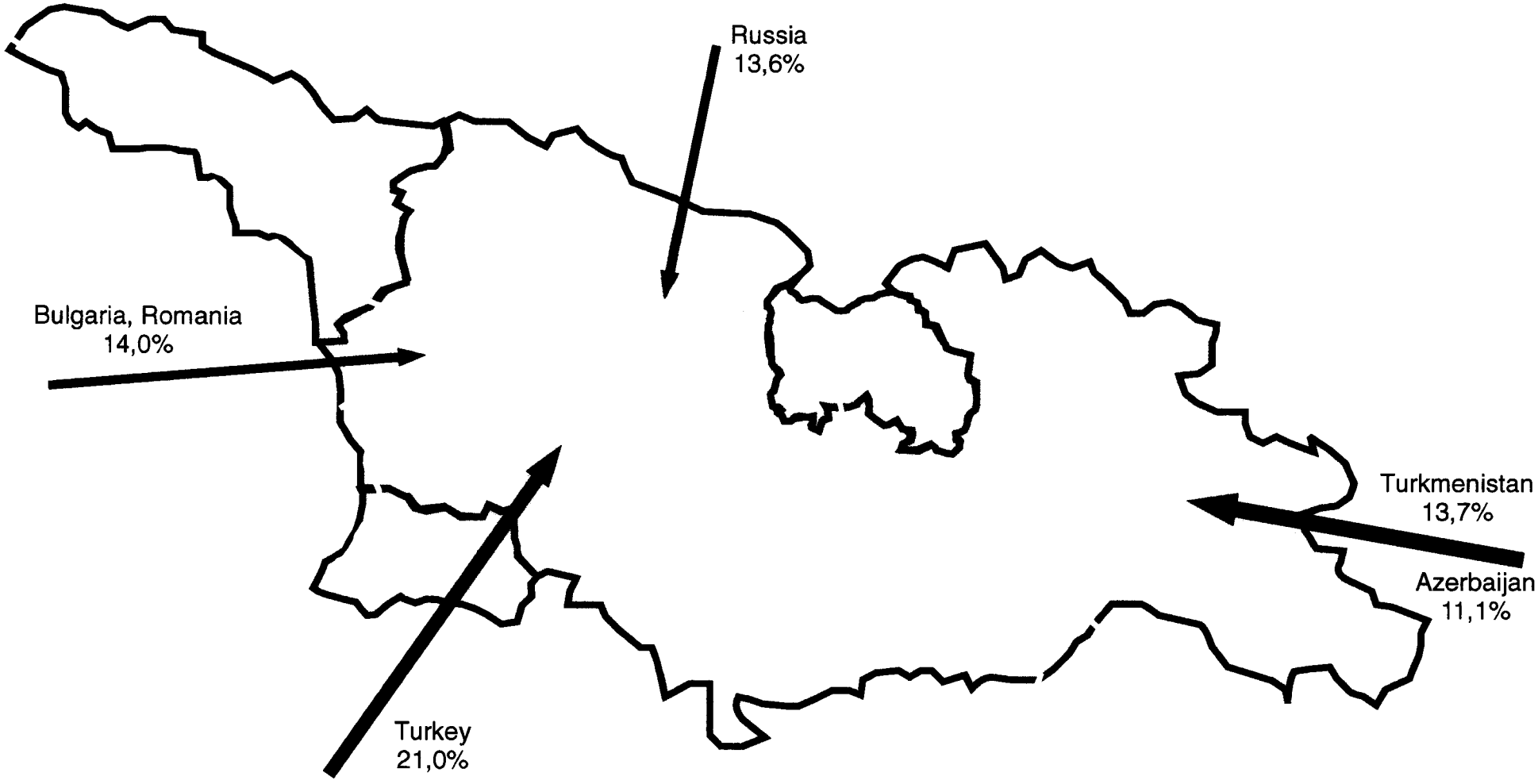
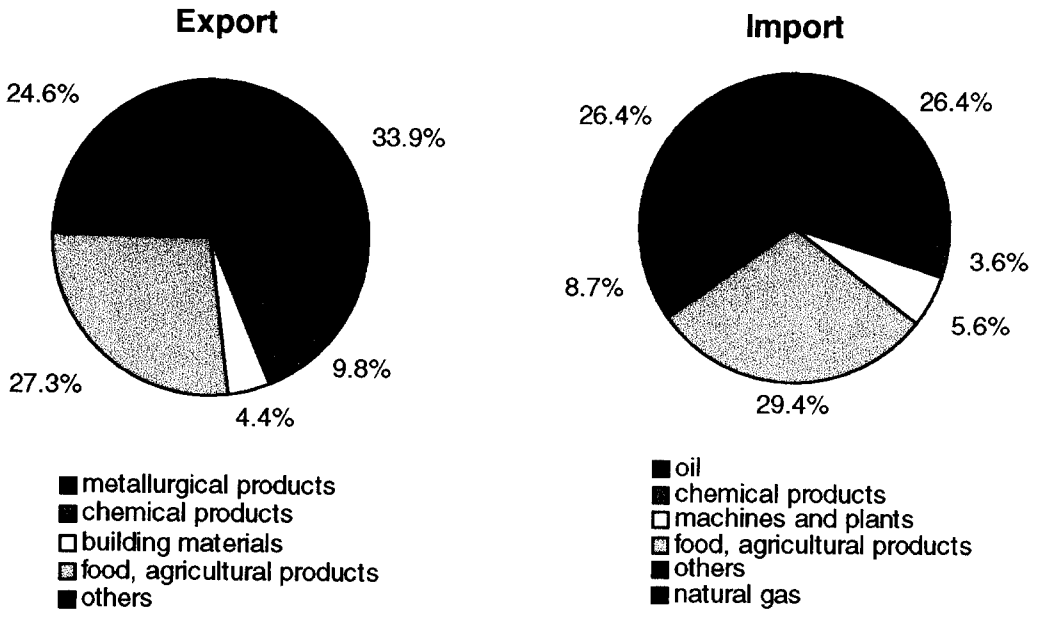


**Fig. 4.7: Goods structure of Georgian foreign trade, 1995**
(in % of total value)




The bilateral exchange of goods between Azerbaijan and Georgia has special significance for the rail traffic in the investigated corridor of Baku - Tbilisi - Poti/Batumi. The most important types of goods of the mutual imports and exports are listed in Appendix 4.8. The share of petrochemical products in the export of Azerbaijan stood at 80 per cent (based on volume) in 1995. Nitrogen fertiliser makes up the main part of Georgian exports (approx. 32 per cent), metallurgical products rank second (approx. 26 per cent) and then come mineral building materials (approx. 18 per cent).

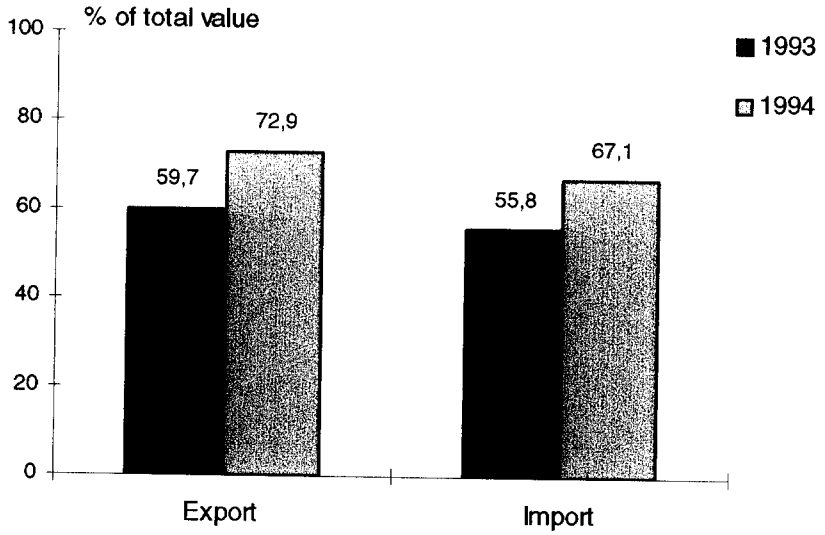
## 4.4 Foreign trade of Central Asian republics

Foreign trade with the Central Asian republics of the former Soviet Union represents an important potential for transit transports on the Trans-Caucasian Railway.

Uzbekistan and Turkmenistan are the most important dispatch and recipient countries in this region.

A geographical re-orientation of the foreign trade relations has also taken place in the Central Asian countries over the past years. The proportion of European partners in the exchange of goods with Uzbekistan has risen sharply over the past few years.

**Fig. 4.8: Share of European countries in the foreign trade of Uzbekistan**




Turkey is another trade partner of growing importance.

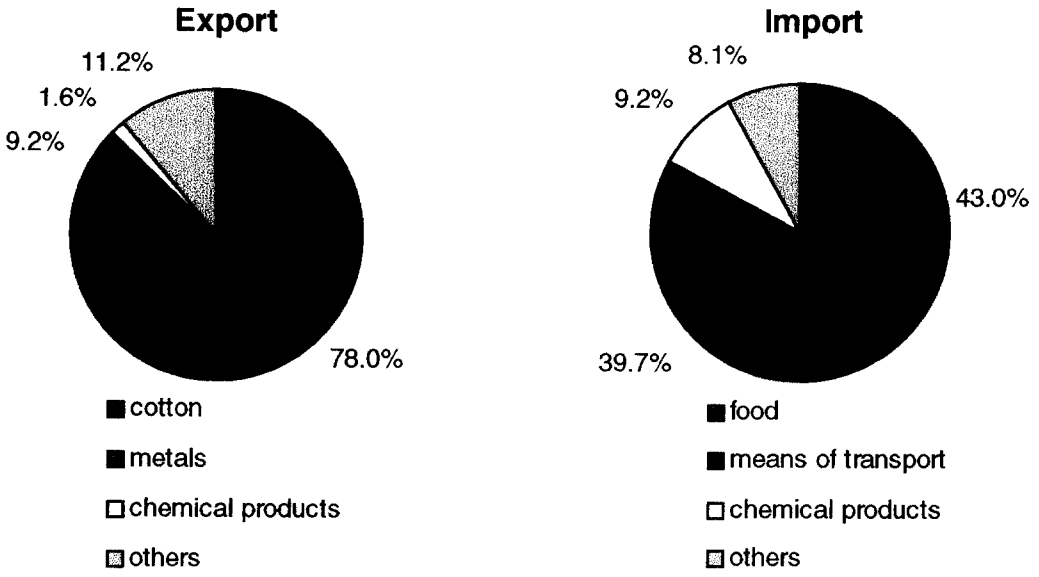
The foreign trade turnover of Uzbekistan with countries outside the CIS has increased steadily in the last few years. In 1994, exports rose by 14 per cent and imports by 19 per cent, as compared to the previous year. In the first six months of 1995, the growth of exports was about 50 per cent and of imports it was 39 per cent.

The goods structure of Uzbek exports is still very one-sided at the moment. The share of cotton was 78 per cent of the total exports of the country in the first half of

1995, non-ferrous and ferrous metals made up 9.2 per cent and chemical products 1.6 per cent.

The share of food in imports was 43 per cent, 40 per cent of all imports were means of transport and 9 per cent chemical products.

**Fig. 4.9: Goods structure of the Uzbek foreign trade in the first six months of 1995 (in % of total value)**




Due to the rich deposits, raw materials will continue to play an important role in the Uzbek export business. Up to the year 2000, for instance, the country's oil production is to be increased to 10 million tons per year. Uzbekistan is among the 10 largest natural gas producers in the world. Raw materials for the building material industry constitute a further important export potential.

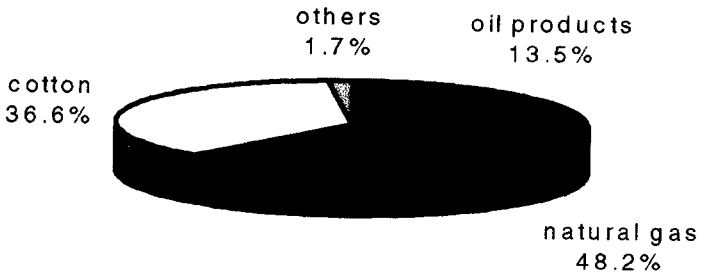
However, Uzbekistan is undertaking efforts to increase the share of processed products in the exports, too. There are chances to accomplish this aim especially in the light industry. At the moment, only some 15 per cent of the cotton grown in the

country is also processed there, this share is to rise to at least 25 per cent up to the year 2000.

The European countries play a growing role also in the foreign trade of Turkmenistan. Their share in the exports of the country was 63.9 per cent in 1994, and 55.4 per cent in imports. Turkey is a main trading partner for Turkmenistan, too. Their share in the exports of the country was 21 per cent over the above quoted period, and Turkey had a share of 11.6 per cent in Turkmenistan's imports.

Similarly to Uzbekistan, the exports of Turkmenistan are determined largely by unprocessed raw materials:

**Fig. 4.10: Goods structure of Turkmenistan's exports, 1993 (in % of total value)**



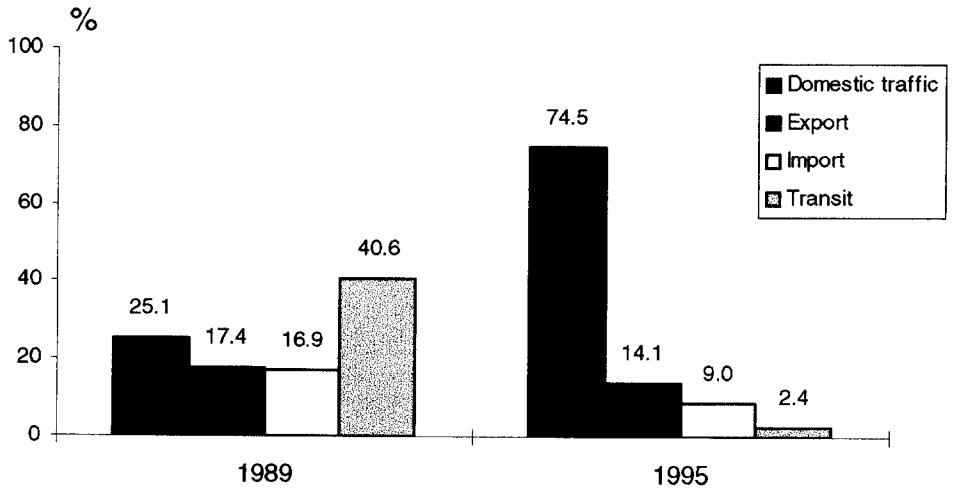
# 5 Current situation in railway freight transport

## 5.1 Azerbaijan

The volume of Azerbaijan's rail transport dropped from 91.4 million tons in 1989 to a mere 9.1 million tons in 1995. This corresponds with a decrease to 9.9 per cent. The transport performance, during the same period, dropped from 41.9 thousand million tkm to 2.4 thousand million tkm, i.e. to a mere 5.8 per cent. This even more significant reduction in the transport performance is due to a decisive shortening of the average transport distances. The average transport distance of 458 km in 1989 decreased to 265 km in 1995, because the main transport corridors to the north (Yalama - Russia) as well as to the south (Nakichevan - Dshulfa - Iran) were closed down.

The transport flows of the Azerbaijani Railways have changed markedly, due to the political development in the region, above all, but also because of the collapse of the economic and trade system of the former Soviet Union. For instance, transit transports in 1989 still constituted a share of 40.6 per cent of the entire transport volume. In 1995, it only made up a proportion of 2.4 per cent. The share of exports and imports, too, was reduced drastically. This led to the situation that the domestic transport had a share of 74.5 per cent in 1995 as compared to 25.1 per cent in 1989, even though the absolute transport volume of domestic transports went back by nearly 70 per cent during this period (comp. Appendix 5.1).

**Fig. 5.1: Structure of Azerbaijan's railway transports (transport volume)**



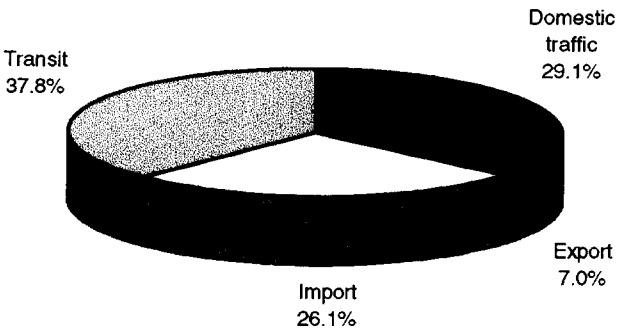

Products of the oil processing industry constituted the main part or 76.1 per cent of freight transport of the Azerbaijani Railways in 1995, cotton materials made up some 12.2 per cent.

## 5.2 Georgia

In Georgia there is a similar development in railway freight transports as compared to Azerbaijan. The entire transport volume dropped from 36.2 million tons in 1988 to 4.7 million tons in 1995, this corresponds with a reduction to 13.0 per cent. The transport performance decreased from 12.6 thousand million tkm in 1988 to only 1.2 thousand million tkm in 1995, i.e. to 9.9 per cent (comp. Appendix 5.2).

The share of transit transports of 37.8 per cent in the total volume of transports, in 1995, was relatively high as compared to Azerbaijan. On the other hand, the share of domestic transports was only 29.1 per cent:

**Fig. 5.2 Structure of Georgia's railway transports 1995 (transport volume)**




## 5.3 Rail freight transportation in the Baku - Tbilisi - Batumi/Poti corridor

The Trans-Caucasian Railway line from Baku at the Caspian Sea, via Tbilisi to the Black Sea ports of Poti and Batumi is by far the most important axis for both countries at the moment. The significance of this line has even increased because of the blocking of important international links, due to political tensions in the region (comp. Fig. 2.1). The Azerbaijani Railways cater for about 90 per cent of the entire transport performance on the Baku - Beyuk Kyassik line. The Georgian Railways conduct about 75 per cent of their transports in the corridor of Tbilisi - Batumi/Poti, at the moment.

In order to assess the future transport potentials on this line as exactly as possible, the transport corridor was divided up into individual main sections first:

- Baku - Gyandsha
- Gyandsha - border of Azerbaijan/Georgia - Tbilisi

- Tbilisi - Batumi
- Tbilisi - Poti

Then, the transport flows on the individual sections of the line were split up into their main components:

- domestic traffic
- exports and imports of Azerbaijan
- exports and imports of Georgia
- transit traffic

The current situation resulting for 1995 has been compiled for the East-West direction in Fig. 5.3 and for the West-East direction in Fig. 5.4. The detailed figures are contained in Appendices 5.3 and 5.4.

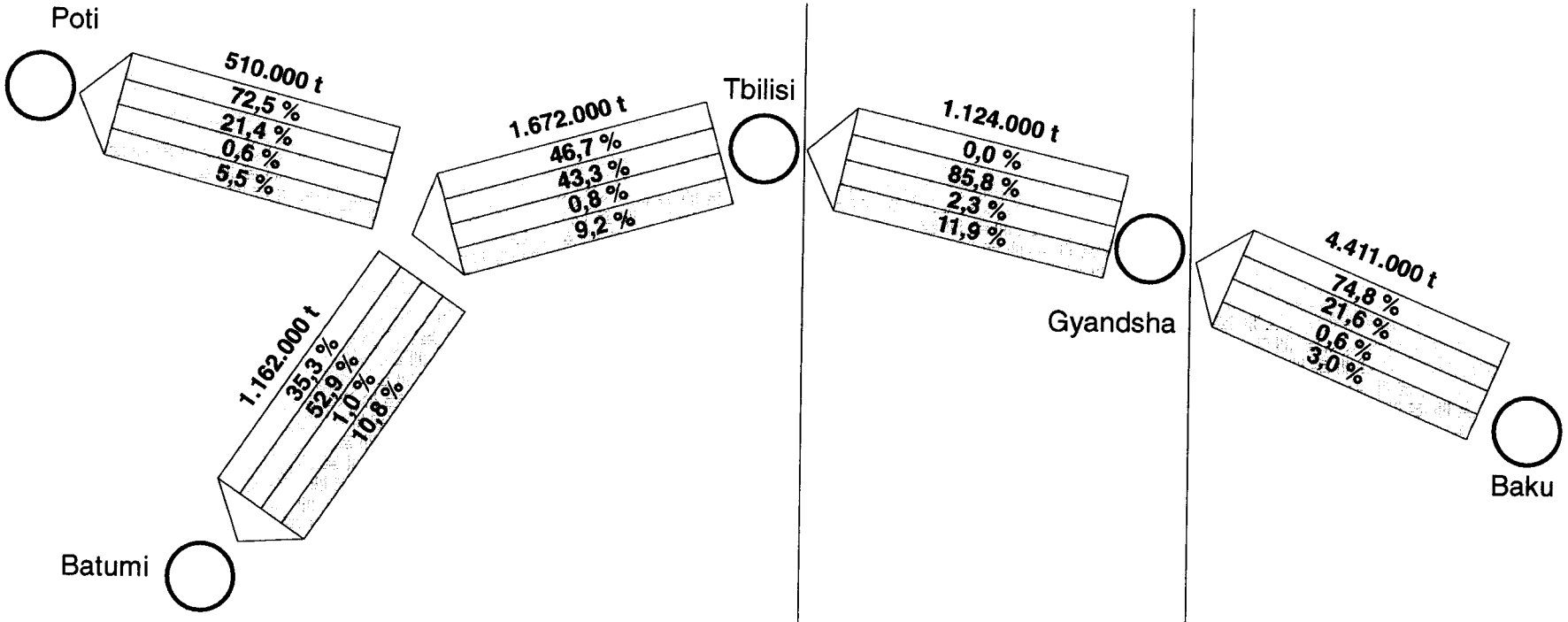
As there was either incomplete or no statistical data for some of the line sections as well as certain parts of the freight flow, often own calculations or assumptions as regards volume, structure and direction of the transports had to be applied. Thus, detailed explanations are required for each of the transport flows in the following:

***Domestic traffic:***

The transported volumes on the section of Baku - Gyandsha and vice versa were calculated for the domestic traffic of **Azerbaijan** on the basis of existing statistical data on transport performance. The volumes depicted for the entire section represent an average figure. The burden on the respective line section is contained in Fig. 5.5.

The domestic traffic of Azerbaijan quoted, in Figures 5.3 and 5.4 respectively, includes Azerbaijani imports (in East-West direction) and exports (in West-East direction), whose share in the total volume is insignificant, however.

# Fig. 5.3: West-bound traffic 1995



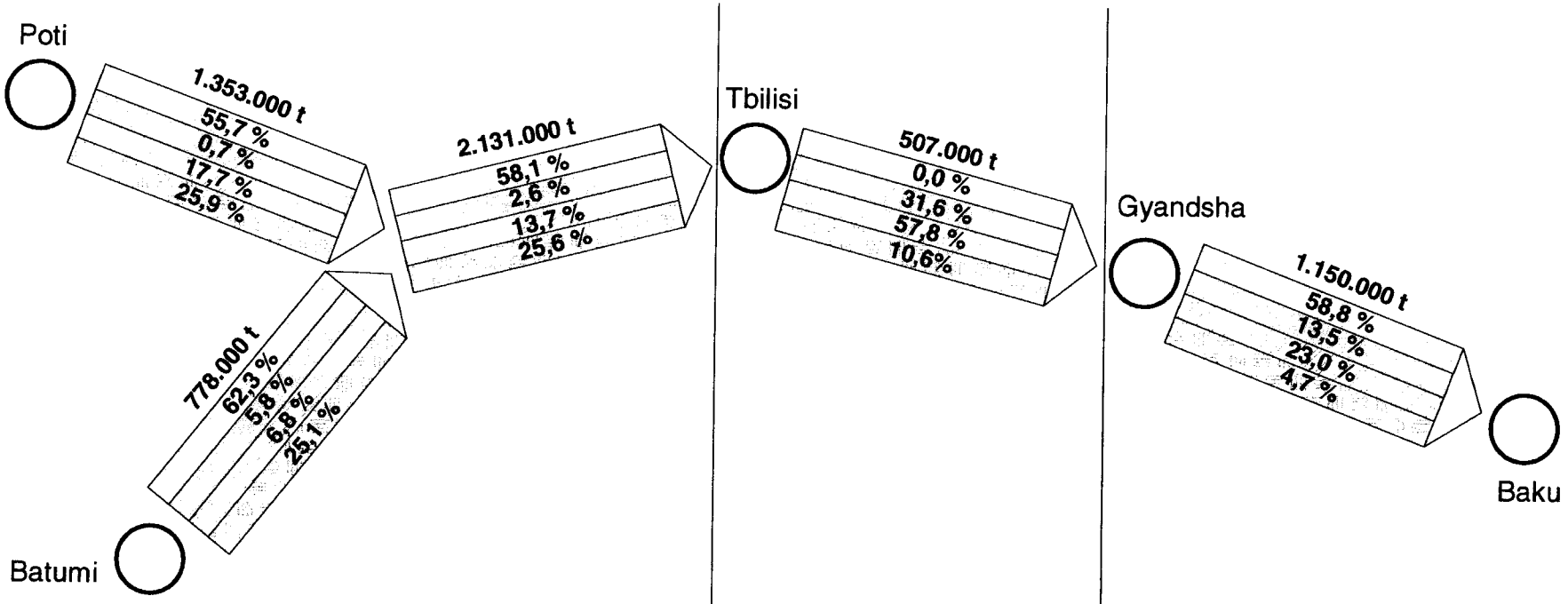

| Tbilisi-Poti | Tbilisi-Batumi | Gyandsha-Tbilisi | Baku-Gyandsha | |
|---|---|---|---|---|
| 370.000 t [2] | 410.000 t [2] | 0 t | 3.299.000 t [1] | Domestic traffic |
| 109.000 t | 615.000 t | 964.000 t | 952.000 t | Exports Azerbaijan |
| 3.000 t | 11.000 t | 26.000 t | 26.000 t | Imports Georgia |
| 28.000 t | 126.000 t | 134.000 t | 134.000 t | Transit |

[1] incl. Azeri imports

[2] incl. Georgian exports

aserbe31.cdr

# Fig. 5.4: East-bound traffic 1995



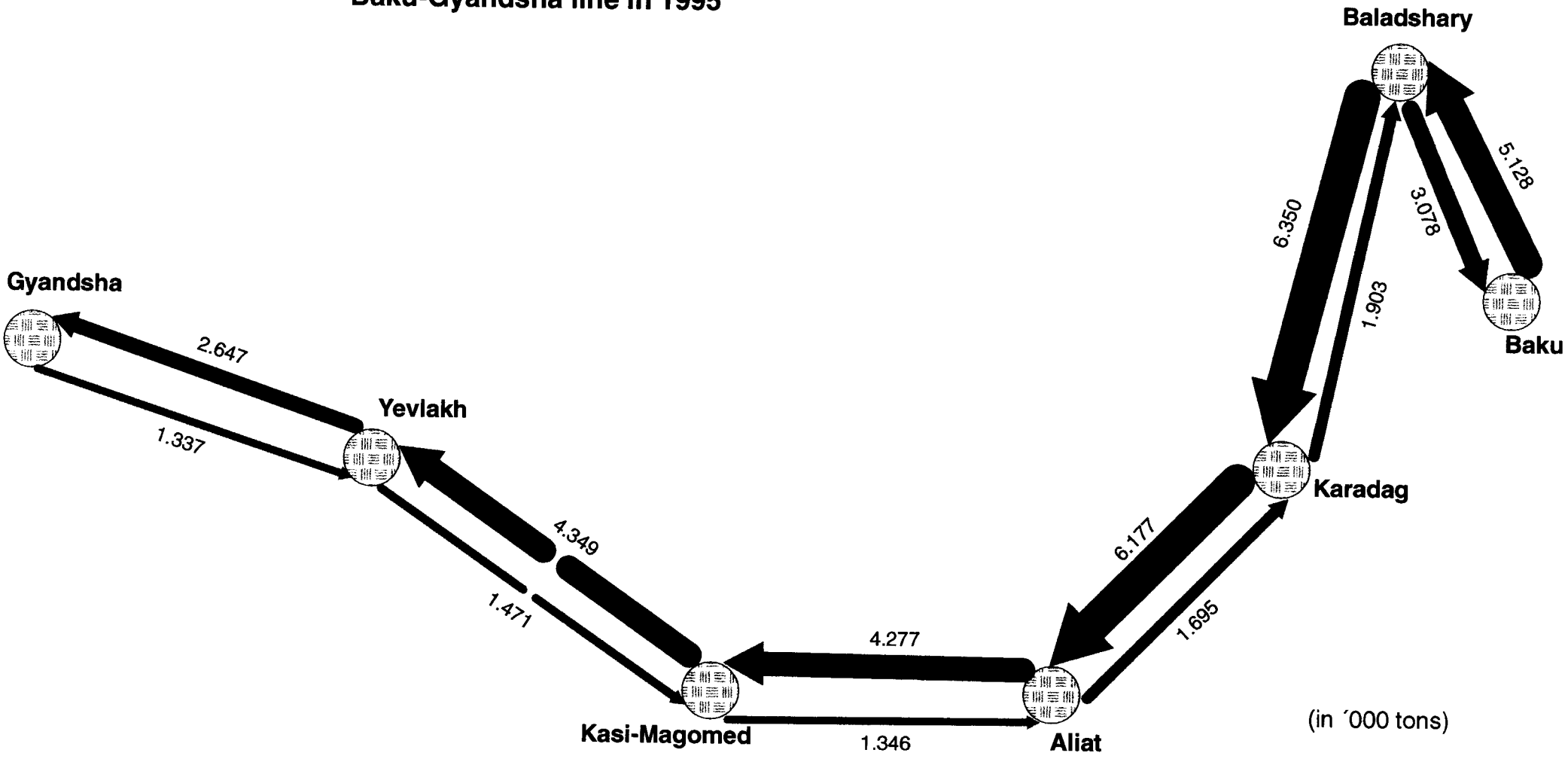

| Poti-Tbilisii | Batumi-Tbilisi | Tbilisi-Gyandsha | Gyandsha-Baku | |
|---|---|---|---|---|
| 753.000 t [1] | 485.000 t [1] | 0 t | 676.000 t [2] | Domestic traffic |
| 10.000 t | 45.000 t | 160.000 t | 155.000 t | Exports Georgia |
| 240.000 t | 53.000 t | 293.000 t | 265.000 t | Imports Azerbaijan |
| 350.000 t | 195.000 t | 54.000 t | 54.000 t | Transit |

[1] incl. Georgian imports

[2] incl. Azeri exports

aserbe41.cdr

**Fig. 5.5:** **Transport volume on the Baku-Gyandsha line in 1995**



The strong disparity of the freight flows in domestic traffic is striking. The transports in the western direction are more than four-fold that of the transports in the opposite direction.

Unfortunately, there is no statistical data on the structure of goods being transported in domestic traffic on the quoted section of the line. However, one may assume that it was mainly petrochemical products which were transported in the western direction, whereas in the eastern direction it was above all mineral building materials and other raw materials which were transported from the Gyandsha and Yevlakh area.

Domestic traffic on the section of Gyandsha - border were neglected due to their insignificant volume.

Unfortunately, there was no statistical data on domestic traffic in **Georgia,** relating to the line. It was assumed that some 75 per cent of the 1.37 million tons total transport volume of domestic traffic were forwarded on the Tbilisi - Batumi/Poti section. The volume resulting from this assumption was allocated, according to their significance, to the individual recipient and dispatch areas on the Tbilisi - Poti and Tbilisi - Batumi sections and the respective direction (East-West/West-East).

Domestic traffic in the East-West direction contains Georgian exports, and the transports in the opposite direction Georgian imports.

*Exports and imports of Azerbaijan and Georgia*

For clarification of the terms, one has to say that the Azerbaijani exports in the East-West direction also contain the exports to Georgia, Georgian imports, on the other hand, are imports from third countries in transit through Azerbaijan.
In the opposite direction, the Georgian exports contain the exports of the country to Azerbaijan. Azerbaijani imports are those from third countries in transit via the ports of Poti and Batumi.

According to existing statistics of the Azerbaijani Railways, the cross-border railway traffic (without transits) via the Beyuk-Kyassik border crossing point in 1995 was as follows:

**Tab. 5.1: Cross-border railway traffic between Azerbaijan and Georgia**

| Type of goods | Azerbaijani Export | | Azerbaijani Import | |
|---|---|---|---|---|
| | tons | % | tons | % |
| *Total* | *963,801* | *100.0* | *45,2813* | *100.0* |
| petrochemical products | 941,958 | 97.7 | 5,106 | 1.1 |
| coal, coke | | | | |
| ore | | | 62,125 | 13.7 |
| ferrous metals | | | 17,290 | 3.8 |
| timber | | | | |
| mineral building materials | 1,499 | 0.2 | 12,698 | 2.8 |
| cement | 65 | 0.0 | 491 | 0.1 |
| mineral fertiliser | | | 18,693 | 4.1 |
| cereals | | | 315,335 | 69.9 |
| others | 20,279 | 2.1 | 21,075 | 4.7 |

Note: Data provided by Azerbaijani Railways for 1995, without transits

Unfortunately, the statistics do not show the destination country for Azerbaijani exports nor the country of origin for the imports. However, one may assume that some 400,000 t of the exports were destined for Georgia and approx. 65,000 t of the imports came from Georgia (comp. Appendix 4.8). The remaining volume was foreign trade traffic of Azerbaijan, transported in transit through Georgia.

Table 5.1 shows clearly that the Azerbaijani exports by rail were absolutely dominated by the item of petrochemical products in 1995. In the imports, two thirds were made up by cereals.

In 1995, some 75 per cent of the Azerbaijani exports transported by rail went via the Beyuk-Kyassik border crossing point. Even though there is no exact statistical data, one may assume that the Azerbaijani exports were split between the ports of Batumi and Poti at a ratio of 85:15. This is deduced from the structure of the goods exported by Azerbaijan (Batumi as the oil port and refinery location).

56 % of Azerbaijani imports in rail traffic came into the country via the Beyuk-Kyassik border crossing point. Due to the structure of the goods, one may deduce that the imports via the Black Sea ports were split between Poti and Batumi at a ratio 80:20 (Poti as the most important port for general cargo and cereals).

Due to the geographical structure of Georgian foreign trade, one may assume that some 50 per cent of the exports and some 30 per cent of Georgia's imports (in rail traffic) was conducted through the Beyuk-Kyassik border crossing point.

### *Transit traffic*

Transit traffic in this case means transports, which run through *both* countries in transit, thus they do not contain foreign trade transports of either country.

According to statistical data of the Azerbaijani Railways, the transit transports via the Beyuk-Kyassik border crossing point in 1995, were composed as follows:

**Tab. 5.2: Transit transports via Beyuk-Kyassik border crossing point, 1995**

| Type of goods | East-West direction | | West-East direction | |
|---|---|---|---|---|
| | tons | % | tons | % |
| *total* | *159,835* | *100.0* | *54,185* | *100.0* |
| petrochemical products | 135,862 | 85.0 | 381 | 0.7 |
| coal, coke | 915 | 0.6 | | |
| ore | 65 | 0.0 | 1,686 | 3.1 |
| ferrous metals | 3,588 | 2.3 | 25,031 | 46.2 |
| timber | 963 | 0.6 | 105 | 0.2 |
| mineral building materials | 4,542 | 2.8 | 1,441 | 2.6 |
| cement | 3,651 | 2.3 | | |
| mineral fertiliser | | | | |
| cereals | 3,804 | 2.4 | 420 | 0.8 |
| others | 6,445 | 4.0 | 25,121 | 46.4 |

The transit transports on the Azerbaijani side are distributed as follows:

**Tab. 5.3: Origin/destination of transit transports via Beyuk-Kyassik**

| Origin/Destination | East-West direction | | West-East direction | |
|---|---|---|---|---|
| | tons | % | tons | % |
| **total** | **159,835** | | **54,185** | |
| Baku - ferry | 136,541 | 85.4 | 13,814 | 25.5 |
| Yalama - (Russia) | 23,294 | 14.6 | 36,785 | 67.9 |
| Astara - (Iran) | | | 3,588 | 6.6 |

There are no exact statistical details for the transit flows on the Georgian side. Thus, the following own assessments were drawn up:

The westbound transit transports are split between the ports of Batumi and Poti at a ratio of 80:20, based on the structure of the type of goods. As of Tbilisi, there is a smaller volume from Armenia and a similarly small proportion branches from Tbilisi in the direction of Armenia.

The eastbound transit transports (including those for Armenia) are also channelled through the ports of Poti and Batumi at a ratio of 65:35, based on the structure of the type of goods. The share of the freight destined for Armenia currently stands at 90 per cent of the entire eastbound transit traffic through Georgia.

## 5.4 Competitive transport corridors

The utilisation of the Baku - Tbilisi - Batumi/Poti corridor for international transports is currently being determined to a great extent by the political situation in the region. Even though the future significance of this line, especially for transit transports, will depend greatly on how far other traditional transit corridors may be used again, one may assume that this corridor will gain in importance further.

In the following, the significance of the line is characterised for the various transport relations, as compared to competing transport corridors, defining especially the main regions for origin and destination areas.

***Azerbaijan's foreign trade***

Based on the developing geographical structure of Azerbaijani foreign trade, this corridor has meanwhile gained the decisive importance for international rail transports of the country. Azerbaijan's access to international sea ports is vital in this connection and the Black Sea ports of Poti and Batumi are by far the easiest to reach.

The main source areas for Azerbaijani exports and imports by rail are

- foreign trade with Georgia
- South East European countries Bulgaria, Romania, Greece
- Turkey
- Exports and imports to Western Europe and overseas via the ports of Poti and Batumi

Foreign trade transports from and to Russia by railway are more or less completely channelled through Yalama, under normal political conditions. This line is also very suitable for direct railway transports from and to Western and Northern Europe (e.g. via Brest or Cierna n.T.).

***Georgia***

After the normalisation of political conditions, foreign trade transports by rail between Georgia and Russia will be conducted more or less exclusively via Baku - Yalama as already in the past. Further source areas for exports and imports of Georgia via this line are:

- foreign trade transports from and to Turkmenistan, Uzbekistan, Kazakhstan
- transports to China and other Far Eastern countries
- transports to Iran (via Astara)

***Transits from and to Central Asia***

Access to the sea ports of Poti or Batumi is much more convenient for the two Central Asian countries of Turkmenistan and Uzbekistan than for instance via Novorossiysk or Bandar Abbas on the Persian Gulf, as the following distances for rail transports show:

| | | | |
|---|---|---|---|
| Tashkent | - | Poti | 3,094 km |
| Tashkent | - | Novorossiysk | 3,512 km |
| Tashkent | - | Bandar Abbas | 3,794 km |

| | | | |
|---|---|---|---|
| Ashkhabad | - | Poti | 1,810 km |
| Ashkhabad | - | Novorossiysk | 2,228 km |
| Ashkhabad | - | Bandar Abbas | 2,850 km |

The best suited transit corridor for rail transports from and to Kazakhstan is determined decisively by the geographical location of the origin/destination regions. The Poti / Batumi access to the sea is also favourable for the South and the South Eastern regions, and for the North and the North West of the country, the direct railway transport, in transit, to Russia or via the port of Novorossiysk offers advantages.

***Transits Europe - Far East***

The importance of the Trans-Caucasian railway line Baku - Tbilisi - Poti / Batumi for transits between Europe and the Far East is determined decisively by the development of the international ferry links across the Black and the Caspian Sea respectively. Possible efficient ferry links between Odessa and Poti or Poti and Constanta / Varna would increase the competitiveness of this corridor considerably.

Furthermore, this line will play a growing role in combined transport, e.g. for container traffic via the port of Poti with subsequent transport by rail from/to Azerbaijan, Armenia, Central Asia, Far East or also Iran.

## 5.5 Competitive transport modes / modal split

Railways played a decisive role in freight traffic under the conditions of the centrally planned economy of the former Soviet Union. This was true especially for transports over large distances. Even though the share of road transport in the total transport volume was very high (Georgia - 81.4 per cent, Azerbaijan - 69.6 per cent, both in 1990), the railways still covered the major part of the freight transport performance. The Georgian Railways, for instance, had a share of more than 80 per cent of the entire freight transport by land, with some 12.7 thousand million tkm.

It is without doubt that the significance of road transport will rise considerably under market economy conditions. On the other hand, one may assume, given the current structure of the goods and the average transport distances, that the railways will continue to play a dominant role, especially in international traffic. This is due, above all, to the high proportion of mass goods (e.g. petrochemical products, cotton, cereals, ore etc.)

The role of road transport will grow in forwarding high-value goods, both in export and import.

# 6 Scenarios for freight transport development

## 6.1 Total railway freight traffic

An assessment of the development of freight traffic in the entire network is required for evaluating the financial situation of the Azerbaijani and Georgian railways. The transport performance by the two railways is of significance as it constitutes an important reference figure for the calculations. In order to establish the transport performance, the future transport volume and the average transport distances were determined. The assessment was conducted in two scenarios, an optimistic and a pessimistic one, and to the time horizons of 2000, 2010 and 2015. The assessment of the transport volume of 1997 served as an interim step.
The future development was calculated separately for the individual components of railway freight traffic:

***Freight dispatch / domestic traffic:***

For to be able to calculate the dispatch volume in railway freight traffic, average annual growth rates were determined for the individual main types of goods, based on the overall economic development depicted in Point 2.2 and Point 3, for the respective time periods. In determining these growth rates, possible changes in the modal split of the transport modes were taken into consideration within the individual goods type groups (comp. Point 5.5)
The following applies to the domestic traffic volume:
domestic traffic = freight dispatch - export

***Export transports:***

The determination of the annual growth rates was based on the development of the goods structure, the geographical structure of foreign trade and the development of production / domestic requirements.
Possible changes in the modal split and the utilisation of other, competing transport corridors (comp. Point 5.4) were considered in dependence on the future geographical structure of foreign trade.

***Import transports:***

The future import volume was established with the help of the same calculation as for export.

***Transit traffic:***

The possible political development in the region and the usability of the transit corridors connected with it was considered as a decisive factor of influence for the future transit volume.
Furthermore the future economic development and the connected foreign trade development of the Central Asian republics (first of all Uzbekistan and Turkmenistan) were included in the assessment. The future geographical orientation of foreign trade in this region was also an important point in the assessment (comp. Point 4.4).
And the development of the foreign trade relations with Iran and Turkey were incorporated, as Azerbaijan and Georgia are important transit countries for both these states.

The transport performance identified for the respective period of time is made up of the total transport volume and the average transport distance.

The following basic assumptions were made for the two scenarios, in order to make the assessment:

## Azerbaijan:

| optimistic scenario | pessimistic scenario |
|---|---|
| ***Freight dispatch:*** | |
| ❒ the entire freight dispatch volume of the railways will decrease once more in 1996, but as of 1997, a continuous increase will start, the decline in 1996 (except for the petrochemical products) will average 12 per cent for most of the goods, the increase in 1997 will be about 5 per cent, and up to the year 2000, the freight dispatch will increase annually by about 12 to 15 per cent, after that the growth rate will slow down to 2 to 5 per cent; | ❒ the development in the pessimistic scenario differs only little from the optimistic one for most types of goods, and the growth rates are only insignificantly lower; |
| ❒ the production of petrochemical products is of decisive importance for the entire dispatch volume, following a small decrease in 1996 (-0.5 %), production will grow again as of 1997, and it will reach approx. 16 to 18 million t/a in 2000, and it will rise further up to 25 million t/a as of 2010; | ❒ the main differences between the two scenarios are determined by petrochemical products; following a decline in 1996 (-1%), production will pick up again as of 1997, but after 2000 will be 3 to 5 million tons/a lower than the level of the optimistic scenario; |
| ❒ there will be above average growth rates from 1997 on also in building materials (rich national raw material deposits, increasing demand); | ❒ especially for the item „other goods", the share of road transport will grow more rapidly, due to infrastructural problems of the railways; |
| ❒ with regard to the modal split, there will only be insignificant changes in the type of goods important for the railways (mass goods), road transport will grow significantly in the area of high-value goods; | |
| ❒ the share of exports to Iran (maritime traffic) is of decisive significance for the modal split as regards petrochemical products (see further down); | |

| | |
|---|---|
| ***Export transports:*** | |
| ❒ the amount of export transports will be determined mainly by the production level of petrochemical products, the volume produced over and above the level of national consumption (5 to 7 million t) will be exported; | ❒ due to a lower production level in petrochemical products and a continuing domestic need of the same magnitude, the amount of goods remaining for export will be reduced; |
| ❒ the share of countries in the Azerbaijani export for which a shipping through the Black Sea ports is favourable will increase; | ❒ a slightly rising share of the Central Asian countries in Azerbaijani exports, thus a smaller transport volume on the network of the Azerbaijani Railways; |
| ❒ the export of petrochemical products to Iran (maritime traffic share) will not increase further, and will rather drop as of 2000; | ❒ the same or a slightly growing share of exports of petrochemical products to Iran by sea; |
| ❒ due to the opening of the Nakhichevan/ Dshulfa line, exports to Iran will be forwarded in this corridor once more; | ❒ the line via Dshulfa will not be available for exports to Iran because of the sustained conflict around Nagorno-Karabakh; |
| ***Import transports:*** | |
| ❒ in contrast to the exports, imports will rise slightly also in 1996 and later on; | ❒ differences to the optimistic scenario result, above all, from to lower annual growth rates; |
| ❒ the food imports (food aid) will decrease; | ❒ because of the unsafe transportation conditions of the railways, equipment and other imports will be transported by road, more and more; |
| ❒ growing import volumes of equipment for oil production and other investment projects (e.g. Sumgait); | |
| ***Transit traffic:*** | |
| ❒ the optimistic scenario says that the important transit lines via Yalama to Russia and via Dshulfa to Iran will be available without restrictions again by the year 2000; | ❒ the political situation will only allow for a limited scope of transit traffic from and to Russia via Yalama, traffic via Dshulfa will continue not to be possible at all; |
| ❒ a volume of approx. 1.8 million t (in both directions) is assumed for the corridor Baku/ferry - Georgia in 2000, and an annual volume of approx. 2 million t (in both directions) for the Dshulfa/Iran route; | ❒ the transit traffic volume up to the year 2000 will be channelled more or less exclusively through the Baku/ferry - Georgia corridor; |
| ❒ already in 1996, the transit traffic via Baku/ferry will be about 200 kt above the 1995 level (cotton and petrochemical products from Central Asia, investment goods and food products to Central Asia); | ❒ all existing transit routes will be available without restrictions by 2010, however, the volume will then be lower than in the optimistic scenario, due to a meanwhile other orientation of important transit flows; |
| ***Average transport distance:*** | |
| ❒ the average transport distance will remain at the level of 1995 (265 km) up to 1997 and will then rise to 458 km by 2000; | |

## Georgia:

| optimistic scenario | pessimistic scenario |
|---|---|
| ***Freight dispatch:***<br>❒ the entire freight dispatch volume of the railways will rise by 5 % already in 1996, and there will be another 7 to 10 % increase in 1997;<br>❒ there will be an average growth of approx. 10 % up to the year 2000;<br>❒ there will be above average growth rates as of 1997 for products and raw materials of ferrous metallurgy;<br>❒ with regard to the modal split, there will only be little change in the type of goods important for the railways (mass goods), like in Azerbaijan, road transport will see considerable increases in high-value goods; | ❒ the development in the pessimistic scenario differs only a little from the optimistic one for most types of goods, and the growth rates are only insignificantly lower;<br>❒ especially for the item „other goods", the share of road transport will grow more rapidly due to infrastructural problems of the railways; |
| ***Export transports:***<br>❒ export transports will develop similarly in both scenarios, coupled with the volume of the entire freight traffic; | |
| ***Import transports:***<br>❒ import transports will decrease significantly with the reduction of cereals supplies (food aid) in 1996 and 1997;<br>❒ commercial imports will develop with similar growth rates as the exports; | |
| ***Transit traffic:***<br>❒ transit transports through Georgia will be determined mainly by exports of petrochemical products from Azerbaijan as well as by transits from and to Central Asia and Armenia, and the same assumptions apply as established for Azerbaijan above; | |
| ***Average transport distance:***<br>❒ the average transport distance in both scenarios will be 270 km in 1997 and will rise to 340 km as of the year 2000. | |

Based on the framework conditions described above, the following total transport volumes and transport performance result for the forecast period:

***Azerbaijan:***

**Tab. 6.1: Transport volume of the Azerbaijani Railways up to the year 2015**

| | 1995 | 2000 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|---|
| | | opt. | pess. | opt. | pess. | opt. | pess. |
| **transport volume** ('000 t) | 9,073 | 22,538 | 18,348 | 29,570 | 24,757 | 34,675 | 29,047 |
| **transport performance** ('000 000 tkm) | 2,409 | 10,322 | 8,403 | 13,543 | 11,339 | 15,881 | 13,303 |

*Georgia:*

**Tab. 6.2: Transport volume of the Georgian Railways up the year 2015**

| | 1995 | 2000 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|---|
| | | opt. | pess. | opt. | pess. | opt. | pess. |
| **transport volume** ('000 t) | 4,700 | 11,934 | 9,486 | 15,268 | 11,605 | 17,470 | 13,700 |
| **transport performance** ('000 000 tkm) | 1,246 | 4,057 | 3,225 | 5,191 | 3,946 | 5,940 | 4,658 |

The development of the individual components of rail freight traffic is depicted in the figures below. The detailed figures are contained in Appendices 5.1 and 5.2.

**Fig. 6.1 Development of Azerbaijani rail freight traffic up to 2015 (optimistic scenario)**

(figures in '000 tons)

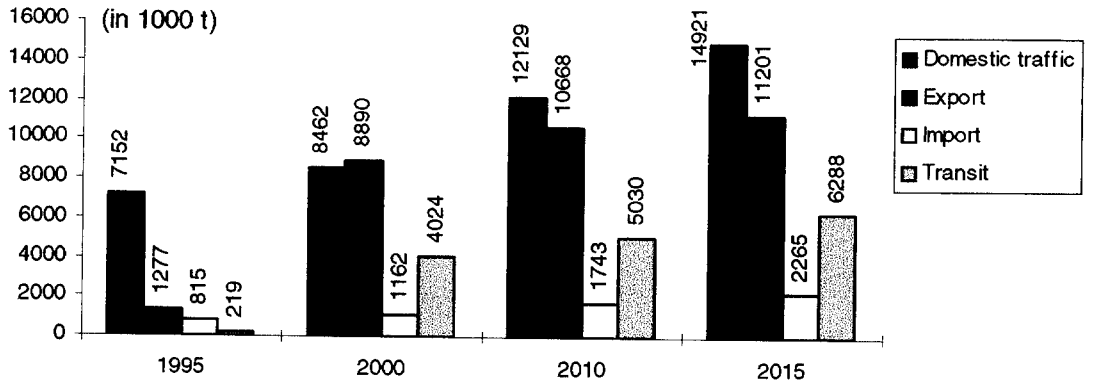



**Fig. 6.2 Development of Azerbaijani rail freight traffic up to 2015 (pessimistic scenario)**

(figures in '000 tons)

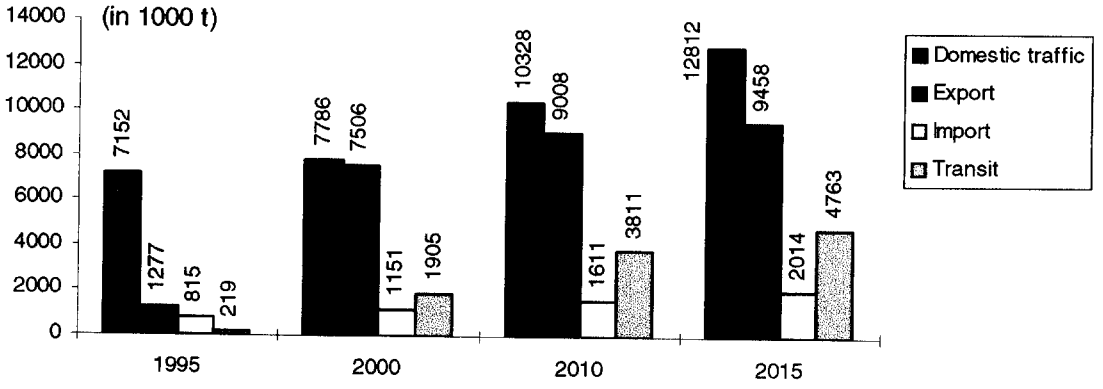


**Fig. 6.3 Development of Georgian rail freight traffic up to 2015 (optimistic scenario)**

(figures in '000 tons)

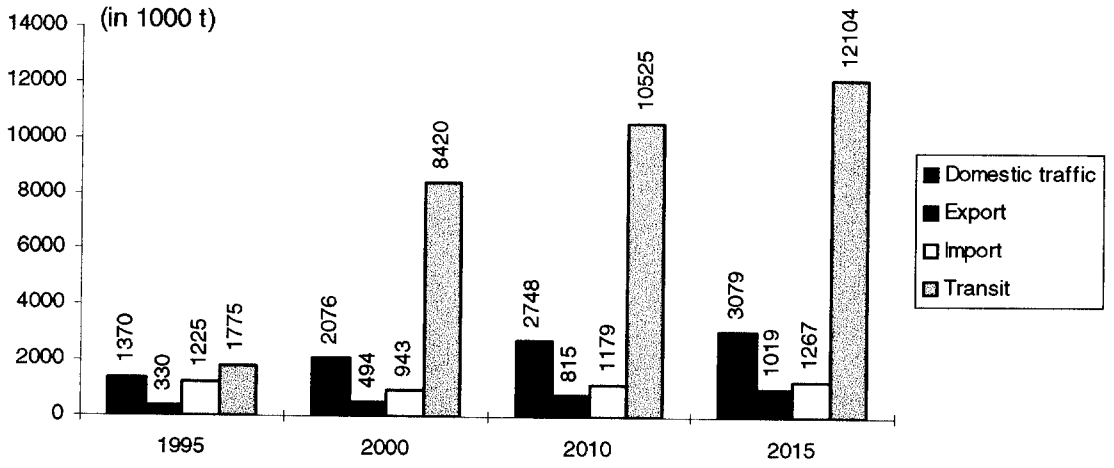
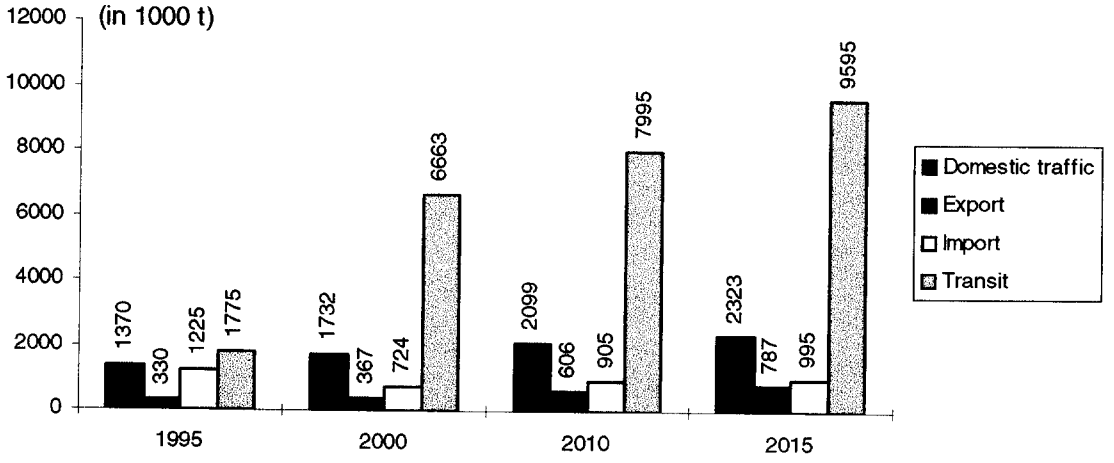



**Fig. 6.4 Development of Georgian rail freight traffic up to 2015 (pessimistic scenario)**

(figures in '000 tons)




The forwarding of the petrochemical products produced in the country will maintain a dominating position in the rail freight traffic of Azerbaijan. Their share in the total amount of goods transported was 70.7 per cent in 1995. It will have reached 63.5

per cent (optimistic scenarios) by the year 2000, in 2010 it will be 62.9 per cent and in 2015 the share will stand at 61.7 per cent. Parallel, the share of transit transports will rise considerably during the period under investigation. Whereas the share of transit transports was still 2.4 per cent in 1995, it will have reached 17.9 per cent (in the optimistic scenario) already in the year 2000. In the following years it will remain at about that level.

Transit traffic will gain a dominating role in the rail freight traffic of Georgia. Already in 1995, the share of transits in the total amount forwarded was high at 37.8 per cent, as compared to Azerbaijan. This share will already be 71 per cent (optimistic scenario) in the year 2000, and after that it will drop again below 70 per cent by the year 2015.

There will only be insignificant changes, as compared to the current situation, in the goods structure of the two countries.

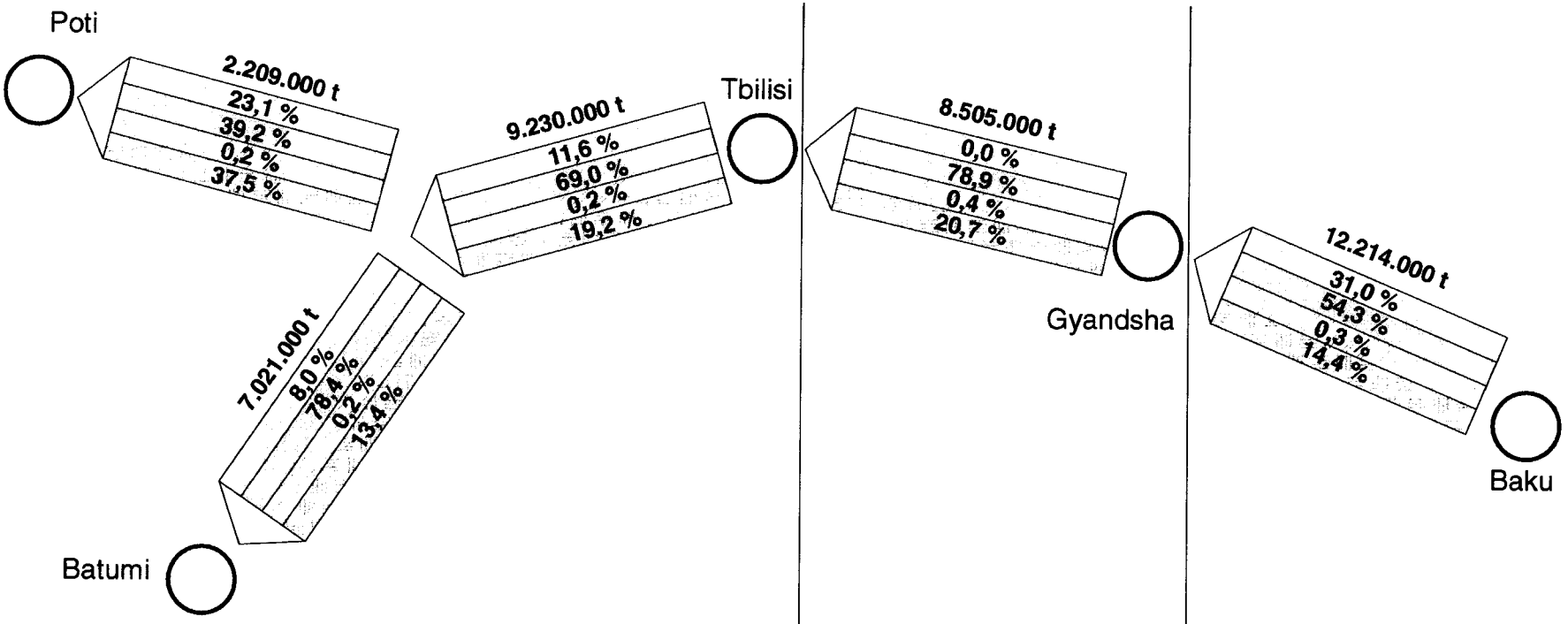
## 6.2 Traffic forecast for Baku - Tbilisi - Poti/Batumi corridor

Based on the division of the goods transport flows along this line according to line sections and main components, in Point 5.3, a possible development during the forecast period was assessed also in two scenarios. This was based on the assumptions drawn up for the entire freight traffic in Point 6.1. With regard to the current conditions mentioned in Point 5.3, for instance, concerning the role of the Black Sea ports of Poti and Batumi, there will be no decisive changes during the forecast period.

The assumption for the transport of petrochemical products is that about 75 per cent of the volume transported by rail will be forwarded via the corridor under investigation in the direction of the Black Sea ports.

The goods flows resulting from this are depicted in the graphs of Figures 6.3 - 6.8 for the optimistic scenario for the years of 2000, 2010 and 2015. Detailed figures for both scenarios are contained in Appendices 5.3 to 5.4.

## Fig. 6.3: West-bound traffic 2000 - Optimistic scenario

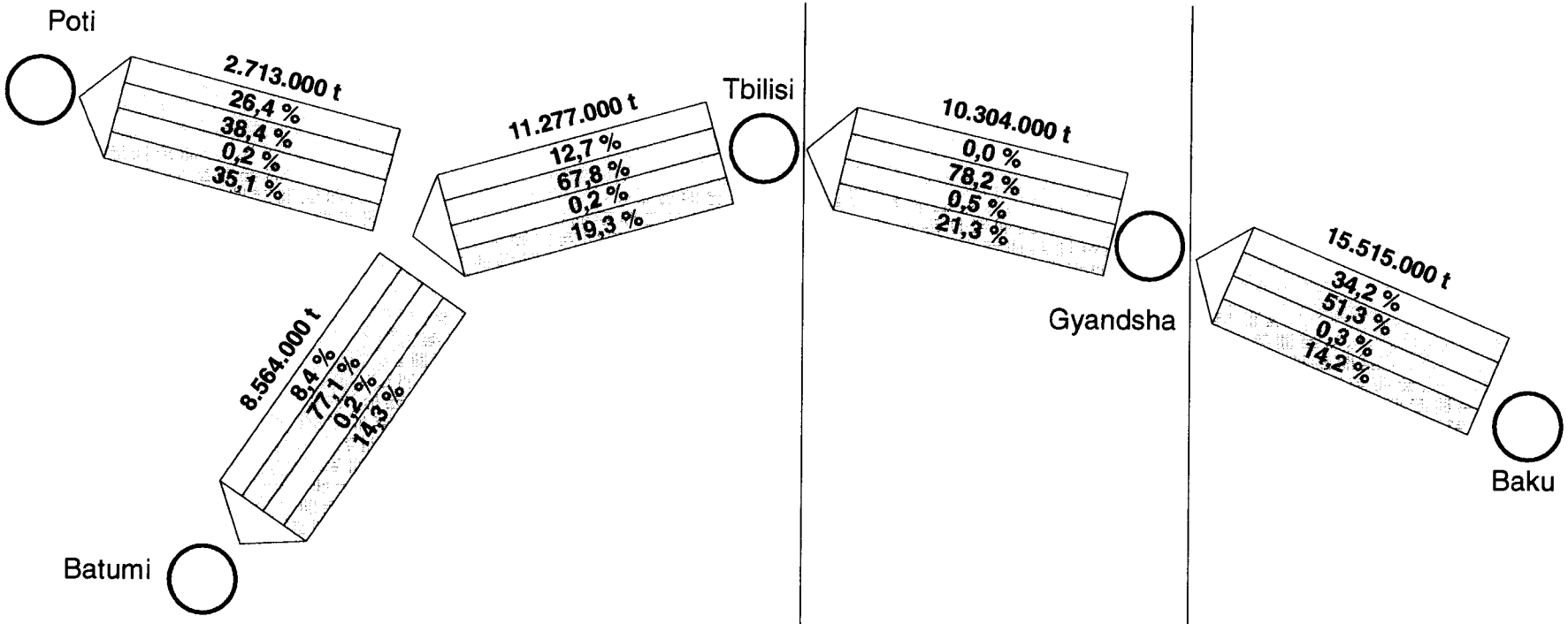



| Tbilisi-Poti | Tbilisi-Batumi | Gyandsha-Tbilisi | Baku-Gyandsha | |
|---|---|---|---|---|
| 510.000 t [2)] | 560.000 t [2)] | 0 t | 3.793.000 t [1)] | Domestic traffic |
| 867.000 t | 5.505.000 t | 6.711.000 t | 6.627.000 t | Exports Azerbaijan |
| 4.000 t | 14.000 t | 35.000 t | 35.000 t | Imports Georgia |
| 828.000 t | 942.000 t | 1.759.000 t | 1.759.000 t | Transit |

[1)] incl. Azeri imports [2)] incl. Georgian exports

aserbe32.cdr

# Fig. 6.4: West-bound traffic 2010 - Optimistic scenario



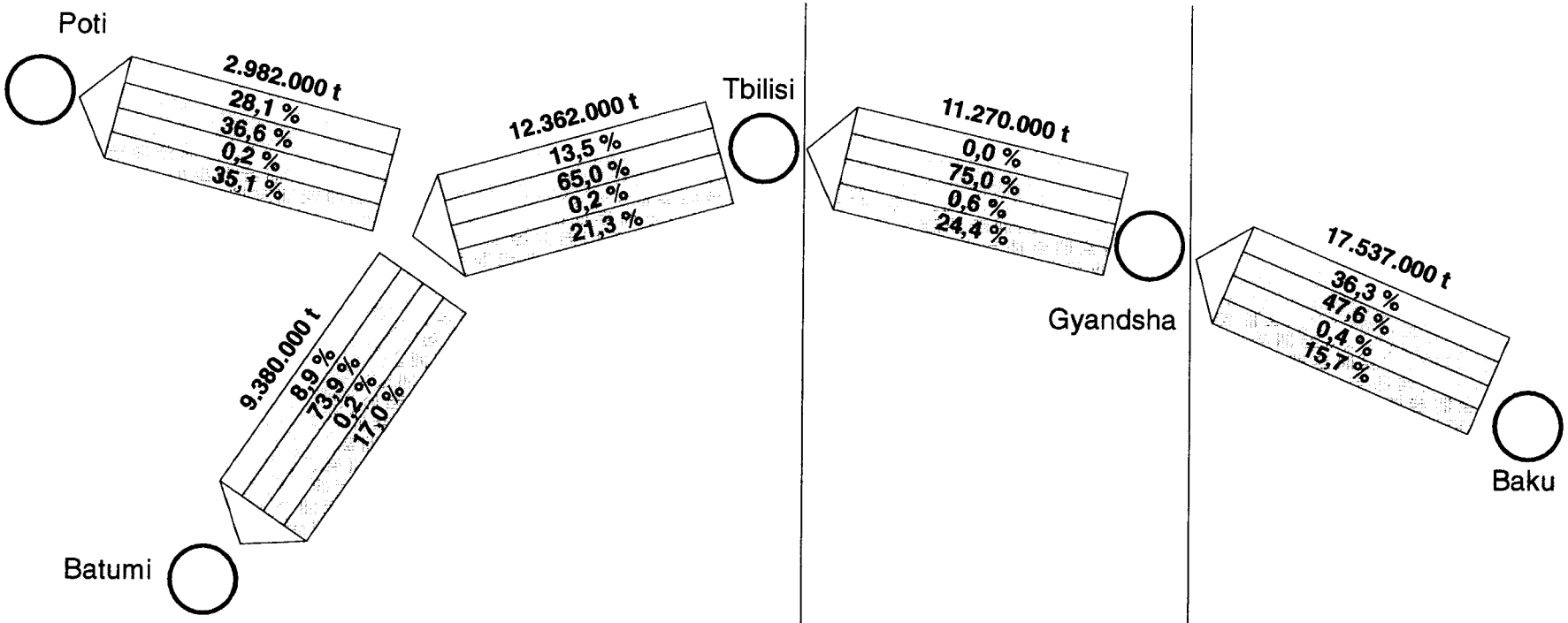

| Tbilisi-Poti | Tbilisi-Batumi | Gyandsha-Tbilisi | Baku-Gyandsha | |
|---|---|---|---|---|
| 715.000 t [2] | 717.000 t [2] | 0 t | 5.311.000 t [1] | Domestic traffic |
| 1.041.000 t | 6.605.000 t | 8.053.000 t | 7.953.000 t | Exports Azerbaijan |
| 5.000 t | 18.000 t | 53.000 t | 53.000 t | Imports Georgia |
| 952.000 t | 1.224.000 t | 2.198.000 t | 2.198.000 t | Transit |

[1] incl. Azeri imports

[2] incl. Georgian exports

aserbe33.cdr

## Fig. 6.5: West-bound traffic 2015 - Optimistic scenario

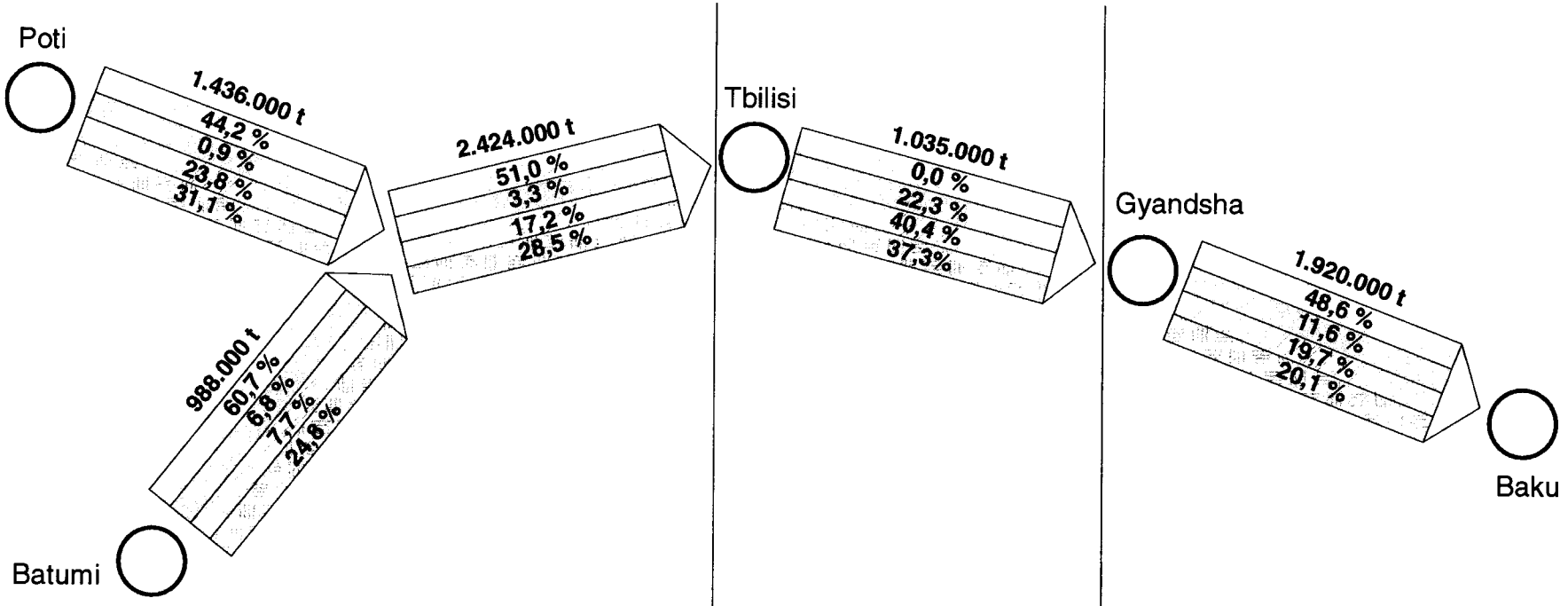



| Tbilisi-Poti | Tbilisi-Batumi | Gyandsha-Tbilisi | Baku-Gyandsha | |
|---|---|---|---|---|
| 837.000 t [2] | 833.000 t [2] | 0 t | 6.373.000 t [1] | Domestic traffic |
| 1.093.000 t | 6.936.000 t | 8.456.000 t | 8.350.000 t | Exports Azerbaijan |
| 5.000 t | 19.000 t | 66.000 t | 66.000 t | Imports Georgia |
| 1.047.000 t | 1.592.000 t | 2.748.000 t | 2.748.000 t | Transit |

[1] incl. Azeri imports [2] incl. Georgian exports

aserbe34.cdr

# Fig. 6.6: East-bound traffic 2000 - Optimistic scenario



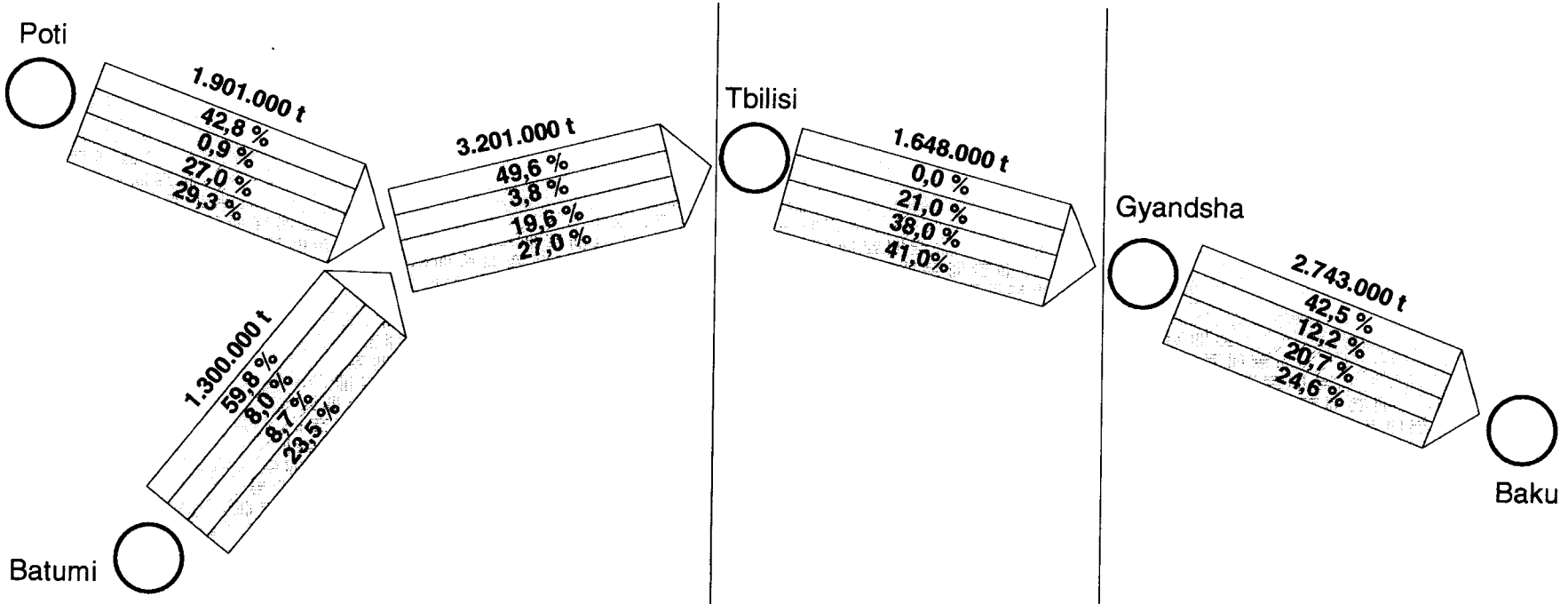

| Poti-Tbilisii | Batumi-Tbilisi | Tbilisi-Gyandsha | Gyandsha-Baku | |
|---|---|---|---|---|
| 635.000 t [1] | 600.000 t [1] | 0 t | 932.000 t [2] | Domestic traffic |
| 13.000 t | 67.000 t | 231.000 t | 224.000 t | Exports Georgia |
| 342.000 t | 76.000 t | 418.000 t | 378.000 t | Imports Azerbaijan |
| 446.000 t | 245.000 t | 386.000 t | 386.000 t | Transit |

[1] incl. Georgian imports

[2] incl. Azeri exports

aserbe42.cdr

# Fig. 6.7: East-bound traffic 2010 - Optimistic scenario

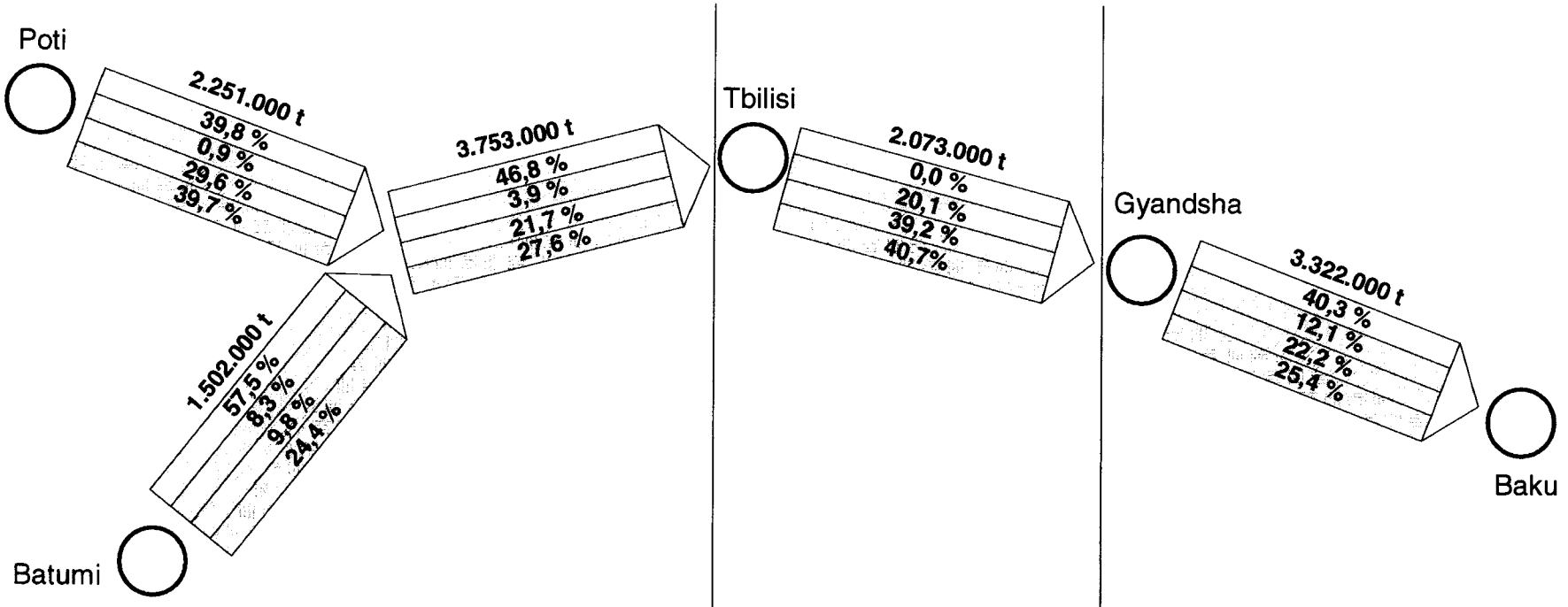



| Poti-Tbilisii | Batumi-Tbilisi | Tbilisi-Gyandsha | Gyandsha-Baku | |
|---|---|---|---|---|
| 813.000 t [1)] | 777.000 t [1)] | 0 t | 1.165.000 t [2)] | Domestic traffic |
| 17.000 t | 104.000 t | 347.000 t | 336.000 t | Exports Georgia |
| 513.000 t | 113.000 t | 626.000 t | 567.000 t | Imports Azerbaijan |
| 558.000 t | 306.000 t | 675.000 t | 675.000 t | Transit |

[1)] incl. Georgian imports [2)] incl. Azeri exports

aserbe43.cdr

# Fig. 6.8: East-bound traffic 2015 - Optimistic scenario




| Poti-Tbilisii | Batumi-Tbilisi | Tbilisi-Gyandsha | Gyandsha-Baku | |
|---|---|---|---|---|
| 895.000 t [1] | 863.000 t [1] | 0 t | 1.339.000 t [2] | Domestic traffic |
| 20.000 t | 125.000 t | 416.000 t | 403.000 t | Exports Georgia |
| 667.000 t | 147.000 t | 814.000 t | 737.000 t | Imports Azerbaijan |
| 669.000 t | 367.000 t | 843.000 t | 843.000 t | Transit |

[1] incl. Georgian imports

[2] incl. Azeri exports

aserbe44.cdr

There will only be insignificant changes in the structure of the type of goods for the forecast development of the freight traffic volume in the transport corridor of Baku - Tbilisi - Poti/Batumi.

**Tab. 6.3: Development of the goods type structure in the corridor of Baku - Tbilisi - Poti/Batumi (westbound traffic)**

| Type of goods | East - West - direction (opt. scenario) | | | |
|---|---|---|---|---|
| | 1995 | 2000 | 2010 | 2015 |
| total | 100.0 | 100.0 | 100.0 | 100.0 |
| petrochemical products | 95.5 | 89.9 | 89.4 | 88.9 |
| coal, coke | 0.1 | 0.0 | 0.0 | 0.0 |
| ore | 0.0 | 0.9 | 0.9 | 0.8 |
| ferrous metals | 0.3 | 1.5 | 1.7 | 1.8 |
| timber | 0.1 | 0.0 | 0.0 | 0.1 |
| mineral building materials | 0.5 | 0.3 | 0.4 | 0.6 |
| cement | 0.3 | 0.1 | 0.1 | 0.2 |
| mineral fertiliser | 0.0 | 0.0 | 0.0 | 0.0 |
| cereals | 0.3 | 0.1 | 0.1 | 0.1 |
| others | 2.4 | 7.3 | 7.3 | 7.5 |

Petrochemical products will continue to determine transport in the westbound traffic. Their share will decrease to slightly below 90 per cent by the year 2015. On the other hand, the share of other processed products will increase a little.

There are only insignificant differences between the optimistic and the pessimistic scenario with regard to the structure of the type of goods.

**Tab. 6.4: Development of the goods structure in the corridor of Baku - Tbilisi - Poti/Batumi (eastbound traffic)**

| Type of goods | West - East - direction (opt. scenario) | | | |
|---|---|---|---|---|
| | 1995 | 2000 | 2010 | 2015 |
| total | 100.0 | 100.0 | 100.0 | 100.0 |
| petrochemical products | 1.1 | 1.2 | 1.2 | 1.0 |
| coal, coke | 0.0 | 0.1 | 0.1 | 0.1 |
| ore | 12.6 | 12.9 | 12.8 | 10.6 |
| ferrous metals | 8.3 | 15.6 | 16.2 | 18.7 |
| timber | 0.0 | 0.0 | 0.0 | 0.0 |
| mineral building materials | 2.8 | 7.5 | 8.4 | 8.5 |
| cement | 0.1 | 0.6 | 1.3 | 1.2 |
| mineral fertiliser | 3.7 | 4.3 | 4.3 | 4.1 |
| cereals | 62.3 | 35.5 | 30.5 | 28.7 |
| others | 9.1 | 22.3 | 25.2 | 27.1 |

The share of cereals will drop considerably in the eastbound traffic, due to the decreasing food aid for the countries of the region. The share of investment goods, consumer goods and other processed goods will grow.

There are only insignificant differences between the optimistic and the pessimistic scenario with regard to the structure of the type of goods, also in the eastbound traffic.

# 7 Passenger traffic forecast

## 7.1 Introduction

The investigation of the current performance and revenue situation of the Azerbaijani and Georgian railways has shown that passenger traffic plays only a very insignificant role, at the moment. In 1995, for instance, only some 2.4 per cent of the total performance of the Azerbaijani Railways related to passenger traffic and only 2.8 per cent of the total revenue stemmed from passenger traffic. The situation of the Georgian railways is similar. In 1995, passenger traffic constituted only 2.2 per cent of the total performance and this amounted to only 1.3 per cent of the revenue.

Based on the development in freight traffic depicted in Point 6, which forecasts a relatively steep increase over the next few years, it may be assumed that the situation will not change dramatically throughout the forecast period.

Due to this little significance of passenger traffic for the performance and revenue situation, an extensive and detailed forecast for the passenger traffic of the two railways was not drawn up.

The capacities available as a result were used for a more thorough and extended investigation of the freight traffic, as compared to the original offer.

A relatively rough assessment of the development in the passenger traffic volume was drawn up for the forecast period.

## 7.2. Assessment of main factors

The specific nature of the development in travel traffic relations, documented on the one hand by a drastic break in the structure, due to the total change in the political and economic framework conditions of the countries investigated, and on the other hand also by the continued existence of economic and living conditions differing to

those of Western Europe, and a resulting diverging motivation for travel needs and choice of means of transport, made the application of traditional procedures for the travel traffic forecast seem unsuitable. That is the reason why an approach was adopted which takes into consideration all these differing conditions in an adequate manner and exactness and offers a realistic estimate of the development possibilities of the region.

The application of traditional mathematical and statistical procedures, used for the forecast of Western European traveller flows, as for instance the gravitation model, for the traffic development forecast in the region, are connected with considerable problems. The reasons are to be seen, above all:

- in the structural break, starting with 1989/90, with the thorough political and economic changes,

- in the change of values and travel motivation connected with the transition, due to changed structures of the public's income and expenditure,

- in the changed destination areas for private and business trips, due to the fall of state restrictions and a re-orientation of the trade and tourism relations,

- in the fall of the state's regulation as regards the tasks of the transport modes and the thus wanted modal split, including the fixing or subsidising of tariffs etc.

The inadequate possibility of covering these manifold changes of the most varied factors of influence with their far-reaching effects by means of the traditional methods leads to very imprecise results and finally to a dubious basis of trust for the resulting conclusions.

Thus an unconventional method was adopted, which allows a more exact consideration of the specific conditions in the Caucasus region, by including a great number of differing factors of influence, scrutinising and assessing them from a point of view specific to the country.

Out of the great variety of factors influencing passenger traffic demand and the choice of the mode of transport in passenger traffic, the following were studied closely:

- the political situation and its development,
- the overall economic development,
- the development of the population,
- the development of the wages, the degree of employment and the unemployment rate,
- the design of foreign trade and bilateral economic relations,
- the status and development prospects of active and passive tourism,
- the development of individual car ownership,
- the infrastructure of the individual modes of transport.

The development trend of the individual factors are briefly introduced by the way of theses, in the following.

The political situation, as it was characterised already in the investigations on freight traffic, has had serious effects on passenger traffic. For instance, well-known tourist areas in the two countries (Abkhasia, Nagorno-Karabakh) are not accessible any longer today or important routes cannot be travelled (Baku - Nakhichevan). On solving the political problems, which has been predicted for the time after the year 2000, there will also be a rise in railway passenger traffic once more. This will also mean that the average travelling distance will increase slightly.

The difficult economic situation in Georgia and Azerbaijan has led to a great number of changes in the social situation of the population.
For instance, there have been drastic changes in the development of the income, the structure of expenditure and thus in the development of the cost of living of the general public. Unemployment has risen sharply in the two countries, too. As one may not expect any quick positive changes, but rather only a gradual, moderate improvement in the social situation of the majority of the population, according to the predicted economic development, this will lead to a rather subdued demand for passenger traffic.

An identifiable intensification of foreign trade relations between the two countries will lead to an increase in the business traffic, especially between the economic centres of both countries.

The development of passive and active tourism has a decisive influence on passenger traffic demand. Both countries are traditionally important tourist and recreation areas. However, the political conflicts, but also the difficult economic conditions, have led to an extreme slump in the tourist traffic of the region. Even given a speedy solution of all political conflicts in the region, international tourism will start up again very slowly, as the infrastructural prerequisites can only be re-established gradually.

Individual car ownership in the two countries is only little developed, as compared to West European states. Doubtless, it will rise over the years to come, but this will happen moderately, due to the already mentioned economic situation. Thus, individual car ownership will only bring about insignificant changes in rail passenger traffic, as compared to the current situation.

The role of bus traffic will increase considerably in the economic development towards market economy conditions taking place at the moment. Private companies will influence the passenger traffic market more and more.
Air traffic will play the dominating role in international tourist traffic from and to the region in future.

## 7.3 Future traffic volumes

Over the past few years, rail passenger traffic has dropped sharply both in Azerbaijan as well as in Georgia.

**Tab. 7.1: Development of rail passenger traffic**

| Year | Georgia | | Azerbaijan |
|---|---|---|---|
| | '000 000 pass. | '000 000 pkm | '000 000 pass. |
| 1989 | 17.0 | 2,858 | 19.6 |
| 1990 | 14.8 | 2,497 | 15.3 |
| 1991 | 11.0 | 2,135 | 14.3 |
| 1992 | 7.6 | 1,210 | 11.9 |
| 1993 | 8.1 | 1,003 | 8.9 |
| 1994 | 10.8 | 1.032 | 10.4 |
| 1995 | 3.7 | 371 | 7.5 |

As compared to 1989, the number of passengers travelling by rail went down to 21.7 per cent in Georgia and 38.3 per cent in Azerbaijan by 1995.

The following basic statements are made on the future development of rail passenger traffic until the year 2010:

- The number of rail passengers will rise in both countries as of 1997;
- The average travelling distance in passenger traffic will increase with the solution of the political problems and conflicts in the region;
- Due to the increasing travelling distance, the passenger carriage performance will increase faster than the actual number of passengers;
- The level of 1991/1992 will be reached in both countries by the year 2015.

There is the following detailed situation for the Azerbaijani and Georgian railways for the forecast period:

| | 1994 | 1995 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|
| Azerbaijan | | | | | |
| passengers ('000 000) | 10.4 | 7.5 | 8.5 | 10.0 | 12.5 |
| performance ('000 000 pkm) | 1,104 | 787 | 935 | 1,150 | 1,438 |
| travelling distance | 106 | 105 | 110 | 115 | 115 |
| Georgia | | | | | |
| passengers ('000 000) | 10.8 | 3.7 | 4.0 | 6.0 | 7.5 |
| performance ('000 000 pkm) | 1,032 | 371 | 420 | 660 | 825 |
| travelling distance | 95 | 101 | 105 | 110 | 110 |

Appendix 4.1
Page 1

## Goods structure of Azerbaijans´s foreign trade

*Export*

(in % of total value)

| Groups of goods | 1994 | | | 1995 | | |
|---|---|---|---|---|---|---|
| | total | FSU | Non-FSU | total | FSU | Non-FSU |
| live animals, animal products | 0.1 | 0.2 | 0.0 | 0.1 | 0.2 | 0.1 |
| plant products | 2.3 | 5.0 | 0.2 | 2.4 | 5.5 | 0.3 |
| animals or vegetable oil and fat | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| food, beverages, tobacco | 7.7 | 17.1 | 0.5 | 4.5 | 8.5 | 1.8 |
| mineral products (oil, ore, build. mater.) | 34.2 | 25.2 | 41.0 | 51.8 | 49.3 | 53.4 |
| chemical products | 3.6 | 6.7 | 1.3 | 3.6 | 7.7 | 0.8 |
| plastic, rubber, rubber products | 1.6 | 2.9 | 0.6 | 2.5 | 4.5 | 1.1 |
| hides, furs and products thereof | 0.1 | 0.1 | 0.1 | 0.3 | 0.0 | 0.4 |
| timber, timber products | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 |
| pulp, paper, cardboard | 0.6 | 0.1 | 0.9 | 0.1 | 0.1 | 0.1 |
| textiles | 18.0 | 8.4 | 25.2 | 22.8 | 5.0 | 34.5 |
| shoes and oth. prod. of ligth industry | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 |
| prod. of stone, ceramics, cement, glass | 0.2 | 0.4 | 0.0 | 0.3 | 0.7 | 0.0 |
| precious metals and stones | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| metal, metal products | 16.5 | 1.4 | 28.0 | 3.2 | 1.4 | 4.4 |
| machines, electrical appliances | 14.0 | 30.4 | 1.7 | 7.2 | 14.8 | 2.2 |
| means of transport | 0.7 | 1.2 | 0.3 | 0.8 | 1.2 | 0.6 |
| other equip., watches, musical instr. | 0.2 | 0.4 | 0.0 | 0.3 | 0.8 | 0.0 |
| other finished industrial products | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 |

Appendix 4.1
Page 2

## Goods structure of Azerbaijans´s foreign trade

***Import***

(in % of total value)

| Groups of goods | 1994 | | | 1995 | | |
|---|---|---|---|---|---|---|
| | Gesamt | FSU | Non-FSU | Gesamt | FSU | Non-FSU |
| live animals, animal products | 5.4 | 4.2 | 7.5 | 11.1 | 6.9 | 13.3 |
| plant products | 10.1 | 9.6 | 10.8 | 7.7 | 6.8 | 8.2 |
| animals or vegetable oil and fat | 3.0 | 0.2 | 7.5 | 8.2 | 0.3 | 12.3 |
| food, beverages, tobacco | 7.9 | 4.4 | 13.7 | 14.5 | 6.2 | 18.8 |
| minaral products (oil, ore, build. mater.) | 33.3 | 49.0 | 7.3 | 15.1 | 32.2 | 6.2 |
| chemical products | 4.9 | 2.5 | 8.8 | 9.2 | 6.3 | 10.7 |
| plastic, rubber, rubber products | 1.9 | 2.6 | 0.6 | 1.7 | 3.3 | 0.9 |
| hides, furs and products thereof | 0.2 | 0.1 | 0.4 | 0.4 | 0.0 | 0.6 |
| timber, timber products | 0.8 | 1.1 | 0.2 | 0.8 | 1.3 | 0.5 |
| pulp, paper, cardboard | 0.9 | 1.0 | 0.7 | 2.3 | 3.7 | 1.5 |
| textiles | 2.3 | 1.2 | 4.2 | 1.7 | 1.5 | 1.8 |
| shoes and oth. prod. of ligth industry | 0.9 | 0.3 | 1.9 | 0.3 | 0.1 | 0.4 |
| prod. of stone, ceramics, cement, glass | 0.9 | 1.0 | 0.8 | 1.2 | 1.9 | 0.8 |
| precious metals and stones | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| metal, metal products | 12.5 | 15.0 | 8.4 | 6.3 | 12.9 | 2.9 |
| machines, electrical appliances | 10.1 | 4.6 | 19.4 | 12.4 | 12.3 | 12.5 |
| means of transport | 2.9 | 2.4 | 3.7 | 5.5 | 3.2 | 6.7 |
| other equip., watches, musical instr. | 0.5 | 0.1 | 1.2 | 0.6 | 0.7 | 0.5 |
| other finished industrial products | 1.5 | 0.7 | 2.8 | 1.1 | 0.6 | 1.3 |

# Structure of trade with FSU countries

## Azerbaijan

| | 1991 | | 1992 | | 1993 | |
|---|---|---|---|---|---|---|
| | '000 000 $ | % | '000 000 $ | % | '000 000 $ | % |
| *Exports total* | 1146 | 100.00 | 10217 | 100.0 | 34197 | 100.0 |
| Industry | 1119 | 97.64 | 8040 | 78.7 | 26872 | 78.6 |
| Electric power | 12 | 1.05 | 296 | 2.9 | 810 | 2.4 |
| Oil and gas | 125 | 10.91 | 1884 | 18.4 | 5618 | 16.4 |
| Ferrous metals | 27 | 2.36 | 392 | 3.8 | 2141 | 6.3 |
| Nonferrous metals | 38 | 3.32 | 1148 | 11.2 | 998 | 2.9 |
| Chemicals a. petroch. | 113 | 9.86 | 994 | 9.7 | 3185 | 9.3 |
| Machines, metalwork | 206 | 17.98 | 1032 | 10.1 | 5609 | 16.4 |
| Timber, pulp, paper | 1 | 0.09 | 4 | 0.0 | 12 | 0.0 |
| Construct. materials | 4 | 0.35 | 33 | 0.3 | 147 | 0.4 |
| Light industry | 186 | 16.23 | 277 | 2.7 | 2192 | 6.4 |
| Food | 388 | 33.86 | 1946 | 19.0 | 5882 | 17.2 |
| other | 18 | 1.57 | 35 | 0.3 | 278 | 0.8 |
| Agricultural products | 27 | 2.36 | 1191 | 11.7 | 2976 | 8.7 |
| Consumer goods | | 0.00 | 987 | 9.7 | 4351 | 12.7 |
| *Imports total* | 884 | 100.00 | 8503 | 100.0 | 28264 | 100.0 |
| Industry | 875 | 98.98 | 7340 | 86.3 | 22590 | 79.9 |
| Electric power | | 0.00 | | 0.0 | | 0.0 |
| Oil and gas | 78 | 8.82 | 735 | 8.6 | 7395 | 26.2 |
| Coal | 1 | 0.11 | 1 | 0.0 | 13 | 0.0 |
| Ferrous metals | 81 | 9.16 | 2396 | 28.2 | 5390 | 19.1 |
| Nonferrous metals | 123 | 13.91 | 336 | 4.0 | 1548 | 5.5 |
| Chemicals a. petroch. | 60 | 6.79 | 1165 | 13.7 | 3030 | 10.7 |
| Machines, metalwork | 194 | 21.95 | 1525 | 17.9 | 3088 | 10.9 |
| Timber, pulp, paper | 29 | 3.28 | 320 | 3.8 | 506 | 1.8 |
| Construction material | 14 | 1.58 | 142 | 1.7 | 421 | 1.5 |
| Light industry | 91 | 10.29 | 256 | 3.0 | 122 | 0.4 |
| Food | 186 | 21.04 | 404 | 4.8 | 973 | 3.4 |
| other | 18 | 2.04 | 60 | 0.7 | 104 | 0.4 |
| Agricultural prod. | 8 | 0.90 | 567 | 6.7 | 5032 | 17.8 |
| Consumer goods | | 0.00 | 595 | 7.0 | 641 | 2.3 |

# Structure of trade with Non-FSU countries

## Azerbaijan

| | 1991 | | 1992 | | 1993 | |
|---|---|---|---|---|---|---|
| | '000 000 $ | % | '000 000 $ | % | '000 000 $ | % |
| *Exports total* | 50.7 | 100.0 | 754.1 | 100.0 | 350.6 | 100.0 |
| Industry | 45.1 | 89.0 | 711.3 | 94.3 | 337.7 | 96.3 |
| Electric power | | 0.0 | | 0.0 | | 0.0 |
| Oil and gas | 12.5 | 24.7 | 555.0 | 73.6 | 139.1 | 39.7 |
| Ferrous metals | 0.1 | 0.2 | 17.4 | 2.3 | 107.0 | 30.5 |
| Nonferrous metals | 0.2 | 0.4 | 35.4 | 4.7 | 20.8 | 5.9 |
| Chemicals a. petroch. | | 0.0 | 7.2 | 1.0 | 10.4 | 3.0 |
| Machines, metalwork | 0.4 | 0.8 | 25.0 | 3.3 | 5.1 | 1.5 |
| Timber, pulp, paper | | 0.0 | 8.0 | 1.1 | 8.5 | 2.4 |
| Construct. materials | | 0.0 | 1.9 | 0.3 | 1.2 | 0.3 |
| Light industry | 31.8 | 62.7 | 60.9 | 8.1 | 44.5 | 12.7 |
| Food | | 0.0 | 0.5 | 0.1 | 1.2 | 0.3 |
| other | | 0.0 | | 0.0 | | 0.0 |
| Agricultural products | 1.4 | 2.8 | 7.5 | 1.0 | 4.4 | 1.3 |
| Consumer goods | 4.2 | 8.3 | 35.3 | 4.7 | 8.5 | 2.4 |
| *Imports total* | 119.3 | 100.0 | 332.5 | 100.0 | 241.0 | 100.0 |
| Industry | 54.2 | 45.4 | 143.7 | 43.2 | 124.6 | 51.7 |
| Electric power | | 0.0 | | 0.0 | | 0.0 |
| Oil and gas | 8.1 | 6.8 | 15.5 | 4.7 | 1.7 | 0.7 |
| Coal | | 0.0 | | 0.0 | 0.2 | 0.1 |
| Ferrous metals | 5.8 | 4.9 | 1.5 | 0.5 | 6.3 | 2.6 |
| Nonferrous metals | 4.2 | 3.5 | 1.4 | 0.4 | 5.0 | 2.1 |
| Chemicals a. petroch. | 2.3 | 1.9 | 12.1 | 3.6 | 38.0 | 15.8 |
| Machines, metalwork | 2.6 | 2.2 | 61.7 | 18.6 | 47.7 | 19.8 |
| Timber, pulp, paper | 0.8 | 0.7 | 0.3 | 0.1 | 0.5 | 0.2 |
| Construction material | 0.2 | 0.2 | 5.4 | 1.6 | 0.8 | 0.3 |
| Light industry | 7.4 | 6.2 | 2.4 | 0.7 | 1.6 | 0.7 |
| Food | 22.8 | 19.1 | 39.1 | 11.8 | 17.0 | 7.1 |
| other | | 0.0 | 4.4 | 1.3 | 5.8 | 2.4 |
| Agricultural products | 49.5 | 41.5 | 126.3 | 38.0 | 78.5 | 32.6 |
| Consumer goods | 15.6 | 13.1 | 62.5 | 18.8 | 38.0 | 15.8 |

# Main Export Items of Azerbaijan

( in Tons)

| Type of goods | 1994 | 1995 |
|---|---|---|
| fish (fresh, processed) | 1,878 | 998 |
| fruit, vegetable | 31,985 | 8,492 |
| citrus fruit | 415 | 149 |
| tea | 1,972 | 1,274 |
| cotton products | 1,927 | 19,158 |
| food, preserve | 1,721 | 3,778 |
| tomato pulp | 10,064 | 6,463 |
| fruit juices | 6,804 | 5,648 |
| beverages (alc., non-alc.) | 1,100 | 790 |
| champagne | 2,026 | 1,401 |
| tobacco | 12,918 | 8,952 |
| betonit | 147,488 | 68,258 |
| heavy spare | 13,264 | 5,945 |
| natural stone (unprocessed) | 3,826 | 331 |
| cement | | 180 |
| iron ore | 4,225 | |
| petrol | 412 | 89,192 |
| kerosene | 132,190 | 188,718 |
| diesel | 1,507,093 | 1,625,216 |
| mazout | 58,322 | 125,621 |
| lubricants | 100,618 | 119,557 |
| other petrochem. products | 5,411 | 22,824 |
| liquid gas | 15,150 | 8,762 |
| petrol coke | 15,010 | 4,817 |
| bitumen | 52 | 14,536 |
| chem. products | 74,590 | 45,427 |
| aluminium oxide | 14,488 | 17,980 |
| hydrocarbone | 39,007 | 10,108 |
| mineral fertiliser | 7,836 | 5,824 |
| tyres | 767 | 250 |
| timber, chipboards | 2,195 | 875 |
| paper | 12,826 | 2,188 |
| cotton | 78,286 | 75,992 |
| metallurgical products | 348,783 | 45,073 |
| non-ferrous metals | 9,983 | 4,277 |
| air conditioning | 3,940 | 2,407 |
| compressors | 8,467 | 1,893 |
| refrigerators | 3,555 | 644 |
| electric motors | 990 | 821 |
| tractors | 800 | 3,570 |
| busses | 250 | 90 |
| cars | 21 | 5 |
| lorries | 880 | 60 |
| motorcycles | 263 | 76 |
| **Total** | **2,683,798** | **2,548,620** |

## Main Import Items of Azerbaijan

( in Tons)

| Type of goods | 1994 | 1995 |
|---|---|---|
| food | 93,535 | 207,874 |
| fruit, vegetables | 78,188 | 64,770 |
| potatoes | 41,116 | 19,054 |
| cereals | 291,993 | 112,553 |
| flower | 248,800 | 69,891 |
| sugar | 46,495 | 104,186 |
| beverages | 3,420 | 738 |
| salt | 21,629 | 23,771 |
| minerals | 18,559 | 28,975 |
| cement | 83,007 | 91,295 |
| bauxite | 37,395 | 32,420 |
| coal, coke | 1,600 | 1,059 |
| oil | 852,567 | 61,936 |
| petrochemical products | 145,632 | 2,006 |
| chemical products | 60,869 | 34,813 |
| mineral fertiliser | 4,147 | 36,062 |
| tyres | 1,918 | 1,255 |
| timer, timber products | 44,830 | 28,862 |
| paper | 8,325 | 26,189 |
| building materials | 9,766 | 153,049 |
| metallurgical products | 334,432 | 55,772 |
| non.ferrous metals | 1,605 | 1,116 |
| tractors | 2,830 | 270 |
| busses | 850 | 1,970 |
| cars | 1,091 | 2,864 |
| lorries | 4,960 | 2,064 |
| **Total** | **2,439,559** | **1,164,814** |

Appendix 4-3

# Geographical structure of foreign trade

## Azerbaijan

### *1. Exports*

(% of total value)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|
| **FSU** | **93.7** | **94.9** | **93.3** | **40.8** | **51.6** | **43.1** | **39.6** |
| Russia | | | 56.1 | | 25.6 | 21.9 | 18.1 |
| Ukraine | | | 12.3 | | 6.7 | 9.1 | 6.1 |
| Belarus | | | 4.7 | | 2.1 | 1.2 | 0.5 |
| Kazakhstan | | | 3.9 | | 4.2 | 2.6 | 3.1 |
| Turkmenistan | | | 4.2 | | 5.4 | 2.7 | 2.4 |
| Uzbekistan | | | 2.4 | | 0.6 | 0.4 | 0.7 |
| Georgia | | | 5.7 | | 4.2 | 2.6 | 7.6 |
| | | | | | | | |
| **Non-FSU** | **6.3** | **5.1** | **6.1** | **59.2** | **48.4** | **56.9** | **60.4** |
| European Union | | | | | 6.3 | 11.0 | 17.1 |
| Turkey | | | | | 8.4 | 2.6 | 4.8 |
| Iran | | | | | 26.6 | 38.0 | 29.8 |
| | | | | | | | |

### *2. Imports*

(% of total value)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|
| **FSU** | **73.1** | **73.8** | **80.3** | **56.0** | **56.2** | **62.5** | **34.2** |
| Russia | | | 45.0 | | 23.1 | 15.1 | 13.2 |
| Ukraine | | | 22.7 | | 9.7 | 11.1 | 5.0 |
| Belarus | | | 2.3 | | 1.5 | 1.0 | 0.7 |
| Kazakhstan | | | 4.2 | | 6.4 | 6.7 | 2.6 |
| Turkmenistan | | | 0.2 | | 9.9 | 25.1 | 7.7 |
| Uzbekistan | | | 1.7 | | 0.3 | 0.3 | 1.2 |
| Georgia | | | 1.6 | | 3.3 | 1.0 | 2.8 |
| | | | | | | | |
| **Non-FSU** | **26.9** | **26.2** | **19.7** | **44.0** | **43.8** | **37.5** | **65.8** |
| European Union | | | | | 7.1 | 7.6 | 11.7 |
| Turkey | | | | | 11.5 | 9.8 | 21.0 |
| Iran | | | | | 7.6 | 8.6 | 12.0 |
| | | | | | | | |

Appendix 4-4

# Geographical structure of Azerbaijan´s foreign trade

## *Exports*

| Destination | 1994 | | 1995 | |
|---|---|---|---|---|
| | Tons | % | Tons | % |
| **Total** | **2,683,798** | | **2,548,620** | |
| Russia | 255,015 | 9.5 | 208,145 | 8.2 |
| Ukraine | 273,424 | 10.2 | 98,563 | 3.9 |
| Belarus | 14,124 | 0.5 | 4,341 | 0.2 |
| Georgia | 91,724 | 3.4 | 397,616 | 15.6 |
| *Total* | *379,272* | *14.1* | *500,520* | *19.6* |
| Uzbekistan | 2,822 | 0.1 | 2,349 | 0.1 |
| Kazakhstan | 29,391 | 1.1 | 45,266 | 1.8 |
| Kirgiztan | 21,612 | 0.8 | 7,628 | 0.3 |
| Tadshikistan | 16,842 | 0.6 | 19,783 | 0.8 |
| Turkmenistan | 159,427 | 5.9 | 26,535 | 1.0 |
| *Total* | *230,094* | *8.6* | *101,561* | *4.0* |
| Turkey | 16,994 | 0.6 | 36,288 | 1.4 |
| Iran | 1,405,866 | 52.4 | 1,040,194 | 40.8 |

## *Imports*

| Destination | 1994 | | 1995 | |
|---|---|---|---|---|
| | Tons | % | Tons | % |
| **Total** | **2,439,559** | | **1,164,814** | |
| Russia | 497,778 | 20.4 | 108,782 | 9.3 |
| Ukraine | 301,080 | 12.3 | 42,219 | 3.6 |
| Belarus | 8,102 | 0.3 | 4,159 | 0.4 |
| Georgia | 33,516 | 1.4 | 65,233 | 5.6 |
| *Total* | *342,698* | *14.0* | *111,611* | *9.6* |
| Uzbekistan | 5,866 | 0.2 | 56,033 | 4.8 |
| Kazakhstan | 979,985 | 40.2 | 157,258 | 13.5 |
| Kirgiztan | 42,385 | 1.7 | 2,031 | 0.2 |
| Tadshikistan | 330 | 0.0 | 137 | 0.0 |
| Turkmenistan | 144,367 | 5.9 | 40,674 | 3.5 |
| *Total* | *1,172,933* | *48.1* | *256,133* | *22.0* |
| Turkey | 142,344 | 5.8 | 102,280 | 8.8 |
| Iran | 171,059 | 7.0 | 351,141 | 30.1 |

Appendix 4-5

## Azerbaijan's Export of Oil Products

| Destination | 1994 | | 1995 | |
|---|---|---|---|---|
| | Tons | % | Tons | % |
| ***Total*** | ***1,819,108*** | | ***2,190,481*** | |
| Russia | 11,056 | 0.6 | 102,068 | 4.7 |
| Ukraine | 219,739 | 12.1 | 82,608 | 3.8 |
| Belarus | 7,500 | 0.4 | 177 | 0.0 |
| Uzbekistan | 110 | 0.0 | 108 | 0.0 |
| Moldova | 112,933 | 6.2 | 39,480 | 1.8 |
| Kazakhstan | 22,976 | 1.3 | 41,201 | 1.9 |
| Georgia | 59,280 | 3.3 | 364,393 | 16.6 |
| Kirgiztan | 20,600 | 1.1 | 5,669 | 0.3 |
| Tadzhikistan | 2,524 | 0.1 | 3,931 | 0.2 |
| Turkmenistan | 146,635 | 8.1 | 20,177 | 0.9 |
| **FSU** | **603,353** | 33.2 | **659,812** | 30.1 |
| Afghanistan | 1,591 | 0.1 | | |
| Lithuania | 12,744 | 0.7 | 47,756 | 2.2 |
| Latvia | 35,683 | 2.0 | 13,464 | 0.6 |
| Austria | 52,998 | 2.9 | 22,355 | 1.0 |
| Gibraltar | | 0.0 | 45,421 | 2.1 |
| Greece | 10,303 | 0.6 | 101,988 | 4.7 |
| Iran | 1,045,326 | 57.5 | 976,324 | 44.6 |
| Italy | | 0.0 | 277,138 | 12.7 |
| Poland | 22,695 | 1.2 | | |
| UK | 32,745 | 1.8 | 46,071 | 2.1 |
| **Non FSU** | **1,214,085** | 66.7 | **1,530,517** | 69.9 |

Appendix 4-6

# Geographical structure of foreign trade

## Georgia

### *1. Exports*

(% of total value)

| | 1989 | 1990 | 1991 | 1992 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **FSU** | **94.0** | **95.7** | **99.1** | **96.3** | **...** | **...** |
| Russia | | | 66.6 | 54.7 | 33.7 | 30.8 |
| Ukraine | | | 10.3 | 12.4 | 2.1 | ... |
| Belarus | | | 2.0 | 3.2 | ... | ... |
| Kazakhstan | | | 6.2 | 3.6 | 2.0 | ... |
| Turkmenistan | | | 1.5 | 10.2 | 10.0 | 4.5 |
| Uzbekistan | | | 2.9 | 2.4 | ... | ... |
| Azerbaijan | | | 1.7 | 6.4 | 9.4 | 6.6 |
| Armenia | | | 2.3 | 0.6 | 8.3 | 12.4 |
| | | | | | | |
| **Non FSU** | **6.0** | **4.3** | **0.9** | **3.7** | **...** | **...** |
| Europe | | | 0.4 | 3.3 | ... | 17.2 |
| Turkey | | | 0.0 | 0.2 | 14.6 | 22.8 |
| Iran | | | - | - | 1.1 | ... |
| | | | | | | |

### *2. Imports*

(% of total value)

| | 1989 | 1990 | 1991 | 1992 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **FSU** | **75.6** | **72.3** | **84.5** | **96.8** | **...** | **...** |
| Russia | | | 50.7 | 10.3 | 8.4 | 13.6 |
| Ukraine | | | 16.9 | 10.1 | ... | ... |
| Belarus | | | 2.4 | 1.8 | ... | ... |
| Kazakhstan | | | 1.4 | 0.9 | ... | ... |
| Turkmenistan | | | 0.0 | 64.9 | 65.0 | 13.7 |
| Uzbekistan | | | 1.2 | 1.1 | ... | ... |
| Azerbaijan | | | 6.0 | 1.2 | 4.9 | 11.1 |
| Armenia | | | 1.5 | 0.6 | 0.3 | 0.6 |
| | | | | | | |
| **Non-FSU** | **24.4** | **27.7** | **15.5** | **3.2** | **...** | **...** |
| Europe | | | 4.1 | 0.5 | ... | ... |
| Turkey | | | 6.8 | 0.4 | 10.8 | 21.0 |
| Bulgaria | | | ... | ... | 0.6 | 7.0 |
| Romania | | | ... | ... | 1.0 | 7.7 |
| | | | | | | |

**Appendix 4-7**

## Commodity structure of foreign trade of Georgia

(in % of total value)

| Commodity group | Export | | Import | |
|---|---|---|---|---|
| | 1994 | 1995 | 1994 | 1995 |
| Electric power | - | - | 2.8 | 2.3 |
| Crude oil | 5.0 | 7.7 | 11.1 | 30.9 |
| Natural gas | - | - | 64.4 | 13.8 |
| Coal, coke | 0.3 | 0.3 | 0.4 | 0.4 |
| Ferrous metallurgy | 30.1 | 33.9 | 0.4 | 0.4 |
| Non-ferrous metallurgy | 0.9 | 3.0 | 0.2 | 0.2 |
| Chemical and petrol prod. | 11.4 | 9.8 | 2.4 | 4.2 |
| Machinery and metal works | 14.1 | 7.2 | 4.1 | 6.5 |
| Wood, pulp, paper products | 1.8 | 2.0 | 0.3 | 0.6 |
| Building materials | 3.7 | 4.4 | 1.2 | 1.3 |
| Light industry products | 10.2 | 4.1 | 0.9 | 2.0 |
| Agricultural and food prod. | 21.6 | 27.3 | 10.8 | 34.4 |
| Others | 1.1 | 0.2 | 1.1 | 3.1 |

Appendix 4-8

## Foreign trade between Azerbaijan and Georgia

(in Tons)

| Type of goods | Export Georgia | | Export Azerbaijan | |
|---|---|---|---|---|
| | 1994 | 1995 | 1994 | 1995 |
| food | | 281 | 513 | 932 |
| tea | 108 | 34 | | |
| tobacco | | | 41 | 411 |
| fruit and vegetable juice | 785 | | | |
| sugar | 20 | | | |
| minerals | 70 | 11,808 | | 6 |
| petroleum | | | 11,325 | 84,521 |
| diesel | | | 25,894 | 188,448 |
| petrol | | | 51 | 4,684 |
| mazout | 17,000 | | 20,262 | 51,498 |
| lubricants | | 8 | 1,739 | 12,154 |
| gas | | | 1,304 | 8,762 |
| chemistry | 277 | 2,975 | 1,956 | 26,964 |
| acids | 62 | 65 | 17,585 | 7,734 |
| carbide | 139 | 105 | | |
| caustic soda | | | 2,619 | 1,121 |
| hydrocarbon | | | 7,277 | 10,108 |
| ammonia | 671 | 1,537 | | |
| spirit | | 1,950 | | |
| phenol | 2,021 | 7,921 | | |
| nitrogen fertiliser | 1,904 | 21,113 | | |
| paper | 338 | 153 | 259 | 266 |
| stone | 294 | 124 | | |
| metal and metal products | 8,879 | 17,159 | 285 | |
| ***Total*** | ***32,568*** | ***65,233*** | ***91,110*** | ***397,609*** |

Appendix 5-1

## Development of rail transport - Azerbaijan´s total network

| | Amount | 1988 | 1995 | 1997 | | 2000 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | opt. | pess. | opt. | pess. | opt. | pess. | opt. | pess. |
| **Total amount** | **´000 t** | **91,363** | **9,073** | **10,556** | **10,041** | **22,538** | **18,348** | **29,570** | **24,757** | **34,675** | **29,047** |
| **Total perform.** | **´000 000 tkm** | **41,895** | **2,409** | **2,797** | **2,661** | **10,322** | **8,403** | **13,543** | **11,339** | **15,881** | **13,303** |
| Export amount | ´000 t | 15,859 | 1,277 | 1,270 | 1,251 | 8,890 | 7,506 | 10,668 | 9,008 | 11,201 | 9,458 |
| Import amount | ´000 t | 15,477 | 815 | 894 | 885 | 1,162 | 1,151 | 1,743 | 1,611 | 2,265 | 2,014 |
| Transit amount | ´000 t | 37,082 | 219 | 575 | 476 | 4,024 | 1,905 | 5,030 | 3,811 | 6,288 | 4,763 |
| *Domastic traffic* | | *22,945* | *6,762* | *7,817* | *7,429* | *8,462* | *7,786* | *12,129* | *10,328* | *14,921* | 12,812 |
| *Freight dispatch* | | *39,466* | *8,429* | *9,087* | *8,680* | *17,352* | *15,292* | *22,797* | *19,335* | *26,122* | 22,270 |
| Oil, petroch. prod. | ´000 t | 10,692 | 6,416 | 7,342 | 6,987 | 14,316 | 12,577 | 18,611 | 15,721 | 21,402 | 18,079 |
| Building materials | ´000 t | 13,044 | 1,031 | 812 | 796 | 1,827 | 1,593 | 2,466 | 2,071 | 2,713 | 2,381 |
| Iron ore | ´000 t | 697 | 4 | 10 | 4 | 22 | 5 | 30 | 5 | 33 | 6 |
| Cement | ´000 t | 835 | 141 | 126 | 122 | 145 | 141 | 195 | 183 | 215 | 210 |
| Cereals | ´000 t | 725 | 241 | 251 | 248 | 276 | 273 | 345 | 335 | 379 | 368 |
| others | ´000 t | 8,294 | 596 | 548 | 522 | 767 | 704 | 1,150 | 1,021 | 1,380 | 1,226 |
| Transport distance | km | | 265 | 265 | 265 | 458 | 458 | 458 | 458 | 458 | 458 |

Appendix 5-2

## Development of rail transport - Georgia´s total network

| | ME | 1988 | 1995 | 1997 | | 2000 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | opt. | pess. | opt. | pess. | opt. | pess. | opt. | pess. |
| **Total amount** | **´000 t** | **36,190** | **4,700** | **4,886** | **4,390** | **11,934** | **9,486** | **15,268** | **11,605** | **17,470** | **13,700** |
| **Total perform.** | **´000 000 tkm** | **12,591** | **1,246** | **1,319** | **1,185** | **4,057** | **3,225** | **5,191** | **3,946** | **5,940** | **4,658** |
| Export amount | ´000 t | | 330 | 353 | 306 | 494 | 367 | 815 | 606 | 1,019 | 787 |
| Import amount | ´000 t | | 1,225 | 820 | 603 | 943 | 724 | 1,179 | 905 | 1,267 | 995 |
| Transit amount | ´000 t | | 1,775 | 2,245 | 2,050 | 8,420 | 6,663 | 10,525 | 7,995 | 12,104 | 9,595 |
| *Domastic traffic* | | | 1,370 | *1,467* | *1,430* | *2,076* | *1,732* | *2,748* | *2,099* | *3,079* | 2,323 |
| *Freight dispatch* | | | 1,600 | *1,820* | *1,736* | *2,570* | *2,099* | *3,564* | *2,704* | *4,098* | 3,110 |
| Coal | ´000 t | 2,352 | 41 | 50 | 44 | 87 | 62 | 130 | 74 | 149 | 86 |
| Oil, petroch. prod. | ´000 t | 1,332 | 271 | 297 | 290 | 371 | 334 | 483 | 434 | 555 | 499 |
| Building materials | ´000 t | 10,329 | 218 | 252 | 247 | 441 | 309 | 661 | 463 | 760 | 533 |
| Iron ore | ´000 t | 5,467 | 80 | 88 | 86 | 110 | 103 | 132 | 123 | 151 | 142 |
| Cement | ´000 t | 882 | 20 | 22 | 22 | 39 | 26 | 58 | 38 | 66 | 43 |
| Cereals | ´000 t | 2,624 | 157 | 177 | 170 | 222 | 204 | 266 | 255 | 306 | 293 |
| Metal | ´000 t | 1996 | 161 | 199 | 172 | 309 | 216 | 494 | 302 | 568 | 347 |
| Others | ´000 t | | 652 | 736 | 705 | 994 | 846 | 1,341 | 1,015 | 1,542 | 1,168 |
| Transport distance | km | | 268 | 270 | 270 | 340 | 340 | 340 | 340 | 340 | 340 |

## Westbound traffic - traffic volumes (optimistic scenario)

**Baku - Tbilisi - Batumi/Poti corridor**

**Appendix 5-3**

('000 tons)

| | Actual 1995 | 1996 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| **1 Baku - Gyandsha** | | | | | | |
| Domestic | 3299 | 3,283 | 3,529 | 3,793 | 5,311 | 6,373 |
| Azeri exports | 952 | 928 | 947 | 6,627 | 7,953 | 8,350 |
| Georgian imports | 26 | 27 | 28 | 35 | 53 | 66 |
| Transit | 134 | 335 | 469 | 1,759 | 2,198 | 2,748 |
| Azeri imports | 30 | 30 | 30 | 30 | 30 | 30 |
| *Total* | *4441* | *4,602* | *5,003* | *12,245* | *15,545* | *17,567* |
| **2 Gyandsha - Tbilisi** | | | | | | |
| Domestic | 0 | 0 | 0 | 0 | 0 | 0 |
| Azeri exports | 964 | 940 | 959 | 6,711 | 8,053 | 8,456 |
| Georgian imports | 26 | 27 | 28 | 35 | 53 | 66 |
| Transit | 134 | 335 | 469 | 1,759 | 2,198 | 2,748 |
| *Total* | *1124* | *1,302* | *1,456* | *8,505* | *10,304* | *11,270* |
| **3 Tbilisi - Batumi** | | | | | | |
| Domestic | 380 | 399 | 429 | 515 | 643 | 740 |
| Azeri exports | 615 | 600 | 612 | 5,505 | 6,605 | 6,936 |
| Georgian imports | 11 | 11 | 12 | 14 | 18 | 19 |
| Transit | 126 | 315 | 410 | 942 | 1,224 | 1,592 |
| Georgian exports | 30 | 30 | 32 | 45 | 74 | 93 |
| *Total* | *1162* | *1,355* | *1,494* | *7,020* | *8,565* | *9,379* |
| **4 Tbilisi - Poti** | | | | | | |
| Domestic | 310 | 326 | 350 | 420 | 567 | 652 |
| Azeri exports | 109 | 106 | 108 | 867 | 1,041 | 1,093 |
| Georgian imports | 3 | 3 | 3 | 4 | 5 | 5 |
| Transit | 28 | 70 | 151 | 828 | 952 | 1,047 |
| Georgian exports | 60 | 60 | 64 | 90 | 148 | 185 |
| *Total* | *510* | *565* | *676* | *2,209* | *2,712* | *2,982* |

**Eastbound traffic - traffic volumes (optimistic scenario)**
**Baku - Tbilisi - Batumi/Poti corridor**

**Appendix 5-4**

('000 tons)

| | Actual 1995 | 1996 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| **1 Gyandsha - Baku** | | | | | | |
| Domestic | 676 | 592 | 621 | 932 | 1,165 | 1,339 |
| Azeri imports | 265 | 270 | 291 | 378 | 567 | 737 |
| Georgian exports | 155 | 154 | 166 | 224 | 336 | 403 |
| Transit | 54 | 55 | 96 | 386 | 675 | 843 |
| Azeri exports | 30 | 29 | 30 | 90 | 107 | 113 |
| *Total* | *1180* | *1,100* | *1,204* | *2,008* | *2,849* | *3,435* |
| **2 Tbilisi - Gyandsha** | | | | | | |
| Domestic | 0 | 0 | 0 | 0 | 0 | 0 |
| Azeri imports | 293 | 299 | 321 | 418 | 626 | 814 |
| Georgian exports | 160 | 159 | 171 | 231 | 347 | 416 |
| Transit | 54 | 55 | 96 | 386 | 675 | 843 |
| *Total* | *507* | *513* | *589* | *1,034* | *1,648* | *2,074* |
| **3 Batumi - Tbilisi** | | | | | | |
| Domestic | 195 | 205 | 220 | 275 | 371 | 427 |
| Azeri imports | 53 | 54 | 58 | 76 | 113 | 147 |
| Georgian exports | 45 | 45 | 48 | 67 | 104 | 125 |
| Transit | 195 | 191 | 196 | 245 | 306 | 367 |
| Georgian imports | 290 | 276 | 282 | 325 | 406 | 436 |
| *Total* | *778* | *770* | *805* | *988* | *1,301* | *1,503* |
| **4 Poti - Tbilisi** | | | | | | |
| Domestic | 143 | 150 | 161 | 202 | 272 | 313 |
| Azeri imports | 240 | 245 | 263 | 342 | 513 | 667 |
| Georgian exports | 10 | 10 | 10 | 13 | 17 | 20 |
| Transit | 350 | 348 | 357 | 446 | 558 | 669 |
| Georgian imports | 610 | 580 | 377 | 433 | 541 | 582 |
| *Total* | *1353* | *1,333* | *1,169* | *1,436* | *1,902* | *2,252* |

# Annex 2

Taking Stock of
Accountancy

# Cost and Operating Result Accounting of the Azerbaijani and Georgian State Railways

Baku, Tbilisi, Berlin August 1996

# Table of Contents

# List of Appendices

# Taking Stock of Cost and Operating Result Accounting

## Introduction

The content of the following comments refers to AP 1220 of the Offer to Perform. The investigation was based on a stocktaking of the cost and operating result accounting (these elements form the core of accountancy) as well as the financing instruments of the Azerbaijani and Georgian railways with the objective to deduct assistance in decision-making on the financing of a pilot train from Baku to Poti and further measures to re-install a secure and reliable train operation on this line.

As a result of the negotiations with the representatives of the two railway administrations of Azerbaijan and Georgia for the preparation of the joint work on the stocktaking, they expressed the wish that the task be extended to include the drafting of documents acceptable to the banks for the approval of loans. This amendment demands an additional part of analysis with regard to the cost and operating result situation of the two railways, which became necessary as basis and component of the documents acceptable to the banks. According to these new framework conditions, the task was extended by the assessment of the financial situation of the two railways and by the drafting of documents acceptable to the banks.

# 1 Initial Conditions

The assessment of the financial situation of the two railways was conducted in conjunction with the stocktaking of the cost and operating result accounting (the operating result accounting contains the registration of revenue and allocation).

The business parameters of 1995 served as basic data in comparison with those of 1994. A trend assessment of transport services rendered up to the year 2015 was included for deducting development trends in the financial situation.

The economic result of the railways is influenced by two decisive factors. Firstly, the disintegration of the former Soviet Union and, secondly, the road towards market-economy instruments embarked upon by the two state governments. The disintegration of the former state alliance led to military conflicts, differing in nature and the effect on the results of transport services according to the country, on the one hand, and to organisational changes in accountancy, on the other hand.

The following statements on the economic development are generally true for both Trans-Caucasian railways:

1. The transport services rendered in 1995 constituted only a fraction of those in 1989,

2. The release of the formerly subsidised prices, e.g. for material, energy and repairs as well as the re-valuation of the basic means led to an explosion in costs, which in turn resulted in continuous rises in tariffs.

3. The sharp drop in transport services, especially in goods transport, led to a significant cut in the revenue of the railways.

The organisational changes in accountancy resulted mainly from the dissolution of the formerly central structures. For instance, the methodological basics, e.g. structure of cost centres, types of costs, uniform classification of accounts, calculation guidelines and guidelines for price formation, were all drawn up by the

former Ministry of Transport of the USSR (MPS) and issued to all railways. The financing of investments and the cost of supplying and maintaining the infrastructure and the rolling stock, too, were provided in a uniform manner by the MPS.
After the fall of the central structures and regulations, the individual state railways now have to work out own procedures for their financing. This results in changes especially in the operating result accounting and the guidelines on the appropriation of the profit, which can be characterised by selected examples:

- extension of the cost nomenclature,
- formation of own funds (e.g. accumulation and amortisation funds) according to capital economy principles,
- further development of the tariff regulations and the price formation rules,
- drafting of new profit appropriation guidelines in connection with new stipulations of the tax legislation in the respective states.

These above mentioned changes had a different effect on the cost and operating result accounting or on the entire financial situation respectively of both the Azerbaijani and Georgian state railways. Thus they have to be analysed for each of these railways individually.

# 2 Cost and Operating Result Accounting of the Azerbaijani and Georgian State Railways

## 2.1 Azerbaijani State Railways

### 2.1.1 Fundamentals and structure of cost and operating result accounting

The accountancy of the railways of the former USSR, which included Azerbaijan, was based on guidelines and advice issued by the Ministry of Transport of the USSR (MPS). The types of cost, the cost centre accounting, the cost function structure and the calculation methods were all laid down for costing by the MPS, and the individual state railways were provided with these for uniform application. There were also uniform regulations for the registration and allocation of revenue. The formation and application of capital costs were waived at the level of the individual state railways, with few exceptions, as this was conducted at central level.

This structure of accountancy has changed little in Azerbaijan over the past years (the same is true for Georgia), except for the aforementioned changes on page 6.

The cost accounting of the Azerbaijani railways is split first of all into three decentralised and one central part. This also implements the principle of cost-centre accounting. The three decentralised parts contain the three territorial areas of Gyandsha, Baku and Nachitshevan. The central part contains costs, which cannot be allocated to any of the three areas individually, as well as the costs of managing the Azerbaijani railways.

The costs, also described as expenditure, are divided in the annual cost sheet according to the following functional structures (technological elements in the transport process), separated both for passenger and goods transport:

- ❒ expenditure at stations for passenger transport, container transport and commercial work,
- ❒ expenditure for tractive units,
- ❒ expenditure for wagons,
- ❒ route cost,
- ❒ expenditure for building construction,
- ❒ expenditure for security and telecommunication technology,
- ❒ cost of energy supply,
- ❒ transit cost,
- ❒ cost for breakdown trains,
- ❒ remaining overheads for the three territorial areas,
- ❒ railway administration cost.

Appendix 1 contains the cost share of these individual elements in the overall costs. In as far as costs are differentiated according to the type of cost, the following selected types of cost are shown explicitly in the annual cost sheet:

- ❒ personnel cost,
- ❒ cost of repairs (repair fund),
- ❒ cost of other energy consumption,
- ❒ other costs (including material consumption and amortisation).

The individual cost shares of these types of costs are highlighted in Appendix 2.

As regards Appendix 2, one has to say that the personnel cost in this sheet only depicts part of the expenditure for personnel, i.e. the original costs do not contain all personnel costs. A second part of the personnel costs is financed from the profit. This calculation is discussed once more in detail in section 2.1.2.

The revenue forms a second component of the cost and operating result accounting. This is depicted in Appendix 3.

The annual revenue sheet has the following structure:

Revenue from goods transport
including revenue from transportation services
including revenue from additional charges

Revenue from passenger transport
including revenue from transportation services
including revenue from seat reservation tickets
including revenue from the transportation of luggage
including revenue from the transportation of mail.

There are the following comments as regards Appendix 3:

The value of the total revenue in 1995, to the tune of manats 285,738.4 million, is a value of calculation which resulted from the transport services rendered in that year. Due to the low degree of solvency among the transport customers of goods transport and the partly state ordered transports, for instance food and fuel transports, and in view of the known insolvency of the dispatchers, only manats 99,000 million were actually received, so that the cost and operating result accounting has to be corrected by this value.

The calculation of the profit for 1995 is conducted as follows:

| | '000,000 manats |
|---|---|
| Total revenue | 285,738.4 |
| - Total cost | - 130,385.5 |
| Profit from transportation | 155,352.9 |
| - Losses from transport irregularities | - 86.0 |
| + Profit from related and supporting activities | + 7,101.8 |
| ± Extraordinary cost/revenue (e.g. sanctions) | - 9,364.8 |
| Balance profit | 153,003.9 |
| - Contribution to the welfare fund (1 %) | - 1,530.0 |
| - Deduction to state budget (35 %) | 53,018.0 |
| Available profit | 98,455.9 |

Thus the Azerbaijani railways would have had manats 98,455.9 million at their disposal, if all transport customers had paid their charges for the transportation services rendered.

As only manats 99,000 million of the manats 285,738.4 were paid, as mentioned earlier, a financing gap of manats 186,738.4 million opened due to the debts of the transport customers. This financing gap led to cumulatively rising debts of the Azerbaijani State Railways and to a growing inability of realising the simple reproduction.

The further assessments of the future financial situation are based on the assumption that the debts shall be eliminated step by step by the end of 1997, if need be by compensation payments from the state. This assumption has to be made

as this is the only way how a normal cost and operating result accounting can be set up and balanced.

The profit appropriation envisages two parts, in the main. The available regular profit of 1995, to the tune of manats 98,455.8 million, is divided up as follows:

- manats 56,576.5 million, amounting to 57.5 per cent, to the consumption fund (including wages) and
- manats 40,642.8 million, amounting to 41.3 per cent, to the accumulation fund.

The remaining part of the profit is used "for other objectives".

### 2.1.2 Formation of parameters for the analysis of the existing and future financial situation of the state railways

Parameters are necessary for the assessment of the existing and future financial situation, on the basis of cost and operating result accounting, which express the connection between performance, expenditure, revenue, operating results and profit.

These parameters are to assist in the decision-making for granting loans and for establishing repayment conditions vis-à-vis the lender.

#### *2.1.2.1 Performance parameters*

The ton kilometre charged in goods transport and the passenger kilometre in passenger transport are the most important performance parameters of the railways. The ton kilometre charged is calculated on the basis of the volume to be transported and the mean transport distance.

On the basis of the actual values and the assessment of the economic development in the region of the Caucasus and Central Asia (compare the estimate of potentials in the according section of this report), the following optimistic and pessimistic transport services, expressed as ton kilometres charged, in goods transport are used for assessing the financial situation:

| Parameter | 1988 | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|---|
| Goods transport services '000 000 tkm (opt.) | 41,895 | 3,276 | 2,409 | 2,797 | 10,322 | 13,543 | 15,881 |
| Goods transport services '000 000 tkm (pess.) | 41,895 | 3,276 | 2,409 | 2,661 | 8,403 | 11,339 | 13,303 |

The services in passenger transport (passenger kilometres) are not taken into consideration within the framework of this analysis, at the moment, as, referring to 1995,

- they only amounted to 2.4 per cent of the total services rendered, measured in comparable tkm,
- they only made up 2.8 per cent of the total revenue

and no development potential can be detected at present which would lead to a significant change in the passenger transport.

*2.1.2.2 Expenditure parameters*

Two parameters are formed and analysed to assess the expenditure necessary for conducting the transport services. They are the cost per passenger kilometre (pkm) and the cost per ton kilometre charged (tkm). These are calculated in the national currency of manats first and later, in the summarising figures of the appendices (see Appendix 4), they are uniformly expressed in terms of dollars.

The following values were established for 1994 and 1995:

| Parameter | | 1994 | 1995 |
|---|---|---|---|
| Ton kilometre charged | '000 000 tkm | 3,276.20 | 2,408.50 |
| Passenger kilometre | '000 000 pkm | 1,103.80 | 786.90 |
| Original cost of goods transport | '000 000 manats | 139,758.00 | 102,743.80 |
| Original cost of passenger transport | '000 000 manats | 38,774.00 | 27,641.70 |
| Specific cost of goods transport | manats/tkm | 42.66 | 42.66 |
| Specific cost of passenger transport | manats/pkm | 35.13 | 35.13 |

*2.1.2.3 Revenue parameters*

In order to assess the efficiency of the transport services, the expenditure parameters have to be compared with the revenue parameters. The income per passenger kilometre and the income per ton kilometre charged serve this purpose. The revenue is calculated in the national currency first in this case, too. In line with what was outlined in Section 2.1.1, the revenue is calculated according to the actual transport services rendered and not according to payment made.

The following values were established for 1994 and 1995:

| Parameter | | 1994 | 1995 |
|---|---|---|---|
| Ton kilometre charged | '000 000 tkm | 3,276.20 | 2,408.50 |
| Passenger kilometre | '000 000 pkm | 1,103.80 | 786.90 |
| **Revenue from goods transport** | | | |
| Revenue from transport services | '000 000 manats | 323,378.00 | 237,018.20 |
| Revenue from additional charges | '000 000 manats | 55,380.00 | 40,729.10 |
| Total revenue | '000 000 manats | 378,758.00 | 277,747.30 |
| **Revenue from passenger transport** | | | |
| Revenue from transport services | '000 000 manats | 7,384.40 | 5,265.80 |
| Revenue from seat reservation, luggage and mail transportation | '000 000 manats | 3,801.10 | 2,725.30 |
| Total revenue | '000 000 manats | 11,185.50 | 7,991.10 |
| Specific revenue goods transport (total) | manats/tkm | 115.61 | 115.32 |
| Specific revenue goods transport (only transportation) | manats/tkm | 98.71 | 98.41 |
| Specific revenue passenger transport (total) | manats/pkm | 10.13 | 10.16 |
| Specific revenue passenger transport (only transportation) | manats/pkm | 6.69 | 6.69 |

*2.1.2.4 Operating result parameters and operating result analysis*

In comparing the specific expenditure and revenue parameters, the following operating results emerge for 1995 [1]):

[1] As the specific income per service unit in passenger and goods transport remained more or less the same for the years of 1994 and 1995, only one year is included in the comparison.

| Parameter | Cost manats/tkm/pkm | Revenue manats/tkm/pkm | Result manats/tkm/pkm |
|---|---|---|---|
| **Goods transport** | | | |
| Original cost goods transport | 42.66/tkm | - | - |
| Specific revenue goods transport (total) | - | 115.32/tkm | + 72.66/tkm |
| Specific revenue goods transport (only transport services) | - | 98.41/tkm | + 55.75/tkm |
| **Passenger transport** | | | |
| Original cost passenger transport | 35.13/pkm | - | - |
| Specific revenue passenger transport (total) | - | 10.16/pkm | - 24.97/pkm |
| Specific revenue passenger transport (only transport services) | - | 6.69/pkm | - 28.44/pkm |

The following conclusions or considerations may be deducted from the above operating result parameters:

1. Passenger transport is a loss-making operation, its specific expenditure for rendering passenger transport services is about 3.5 to 5-fold higher than the specific revenue. Comparing the share of the absolute original cost of passenger transport with the total cost of 1995, then this share amounts to 21.1 per cent (compare Appendix 1). The share of the revenue generated by passenger transport, however, only amounts to 2.8 per cent of the total revenue (compare Appendix 3). Revenue from the goods transport sector have to be used to compensate this difference.

   This gap between the cost and the revenue cannot be narrowed through a further

increase in tariffs, as such increases have been introduced six times already since 1st January 1994, but rather with the help of a balanced relationship between the transport services and the expenditure necessary for rendering them, if need be through transferring transport capacity (and staff) from passenger to goods transport, in future periods.

Comparing once more the share of cost incurred by passenger transport in the total original cost (21.2 per cent) with the pertaining comparable service share of passenger transport in the total service (2.4 per cent, compare Section 2.1.2.1), then the above consideration is well worth pursuing. This approach is only justified, however, if the principle of (at least) the simple reproduction can be implemented in combination with the principle of cost truth; this in turn is only possible to a limited extent, in view of the details in Section 2.1.1 on the profit appropriation of the Azerbaijani Railways.

2. The difference, described as result in the above table, between the specific expenditure and the specific revenue, relating to the ton kilometre charged in goods transport respectively, is too high. This may be due to the low cost or a level of revenue which is too high, or it may be due to both causes, at the same time.

   As a result of the analysis, it may be said that firstly, the quoted original cost is so low because necessary services, such as repairs on the network and the rolling stock cannot be financed anymore (problem of the planned and actual revenue).

   Secondly, the original cost does not contain the full personnel cost, as a considerable part of this cost is financed through the profit. This share is to be 88 per cent of the total wages in 1996, for example.

   The share of the profit in the price, for instance in the goods transport tariff in domestic transport, is calculated by the respective state authorities and not by the railways, and then confirmed by the Cabinet of Ministers of the Azerbaijani Government. Thus these authorities also calculate the central fiscal charges to be

paid to the state by the railways. It may not be excluded therefore that the transport tariffs will be calculated higher than they should be in their function as railway tariffs, in order to secure a more stable budget.

#### *2.1.2.5 The profit and its appropriation*

The calculation of the profit is detailed in Section 2.1.1 on page 10. Given that the Azerbaijani Railways may avail of the revenue generated by the charges according to the tariff for the transport services rendered, a profit is calculated, which, apart from the profit appropriation structures shown in Point 2.1.1, may also be used for repaying debts within certain debt repayment periods and according to certain payment terms. The details of granting loans and the repayment of loans should be developed in concrete financing models and be coordinated with the individual banks.

Should there not be the possibility of the transport customers repaying their debts or a compensation by the state by the end of 1997, new forms of loan repayments have to be agreed.

### 2.1.3 Conclusions from the assessment of the cost and operating result accounting

The following may be stated as a result of the investigation:

The Azerbaijani State Railways are highly indebted at the moment. On 1st June 1996, the debts already amounted to manats 196 thousand million. A further growth of the debts may not be excluded. These debts have not developed and still do not develop due to the inefficient operation of the railways, but rather through the non-.payment of transport services by transport customers.

1. The indebtedness of the railways is leading to a neglect of the simple reproduction, so that important repairs, replacement investments and sometimes wage payments cannot be made. The rate of deterioration of the infrastructure and the age structure of the rolling stock are increasing.

2. The ordering function for transport services (this is assumed by the Cabinet of Ministers of the Azerbaijani state for important goods) is not coupled with the responsibility of paying for the transport services rendered. Thus a discrepancy develops between the ordering of and payment for transport services, brought about by two tiers of responsibility.

3. In order to secure payment of transport services by the transport customers, the recommendation is to introduce a system of advance freight payment.

4. After reaching an even balance in the cost and operating result accounting, the system of accountancy is to be developed further with the aim of achieving a higher degree of flexibility and dynamics. These efforts are also to be extended to the field of tariff formation and application. These two components of further development provide even better conditions for reacting to the market.

### 2.1.4 Deductions from the cost and operating result accounting for the Baku - Beyuk-Kyassik line

Based on the objective of this investigation, to deduct assistance in decision-making for financing the pilot train from Baku to Poti (Beyuk-Kyassik is the border station) and further measures to reinstall a secure and reliable train operation on this line, it is necessary to estimate the proportionate cost and operating result situation for this line.

As the accountancy of the Azerbaijani State Railways does not include line-related performance, cost and operating result accounting, the respective shares in the total network have to be estimated together with experts of the Azerbaijani State Railways. The following assumptions were made:

- service share (passenger and goods transport) until 1999 of the total services: 80 %
- service share (passenger and goods transport) as of 2000 of the total services: 60 %
- The values of the specific cost and revenue rates are maintained as for the entire network.

All values for assessing the financial situation of this line may be deducted from the values of the total network, with the help of these assumptions.

## 2.2 Georgian State Railways

### 2.2.1 Fundamentals and structure of cost and operating result accounting

The accountancy of the railways of the former USSR, which included Georgia, was based on guidelines and advice issued by the Ministry of Transport of the USSR (MPS). The types of cost, the cost centre accounting, the cost function structure and the calculation methods were all laid down for costing by the MPS, and the individual state railways were provided with these for uniform application. There were also uniform regulations for the registration and allocation of revenue. The formation and application of capital costs were waived at the level of the individual state railways, with few exceptions, as this was conducted at central level.

This structure of accountancy has changed little in Georgia over the past years (the same is true for Azerbaijan), except for the changes mentioned on page 6.

The cost accounting of the Georgian Railways is split first of all into two decentralised and one central part. This also implements the principle of cost-centre accounting. The two decentralised parts contain the two territorial areas of Tbilisi and Samtredia. The central part contains costs, which cannot be allocated to any of these areas individually, as well as the costs of managing the Georgian Railways.

The costs, also described as expenditure, are divided in the annual cost sheet according to the following functional structures (technological elements in the transport process), separated both for passenger and goods transport:

- ❒ expenditure at stations for passenger transport, container transport and commercial work,
- ❒ expenditure for tractive units,
- ❒ expenditure for wagons,
- ❒ route cost,
- ❒ expenditure for building construction,
- ❒ expenditure for security and telecommunication technology,
- ❒ cost of energy supply,
- ❒ transit costs,
- ❒ cost of breakdown trains,
- ❒ remaining overheads for the two territorial areas,
- ❒ railway administration cost.

Appendix 5 contains the cost share of these individual elements in the overall cost. In so far as costs are differentiated according to the type of cost, the following selected types of cost are shown explicitly in the annual cost sheet:

- ❒ personnel cost,
- ❒ costs of repairs (repair fund),
- ❒ cost of other energy consumption,
- ❒ other costs (including material consumption and amortisation).

The individual cost shares of these types of costs are highlighted in Appendix 6.

The revenue forms a second component of the cost and operating result accounting. This is depicted in Appendix 7.

The annual revenue sheet has the following structure:

Revenue from goods transport
including revenue from transportation services
including revenue from additional charges

Revenue from passenger transport
including revenue from transportation services
including revenue from seat reservation tickets
including revenue from the transportation of luggage
including revenue from the transportation of mail.

The calculation of the profit for 1995 is conducted as follows:

| | '000 laris |
|---|---|
| Total revenue | 46,709.7 |
| - Total cost | - 32,647.4 |
| Profit from transportation | 14,062.3 |
| - Losses from transport irregularities | - 975.6 |
| + Profit from related and supporting activities | + 2,597.6 |
| ± Extraordinary cost/revenue (e.g. sanctions) | + 412.2 |
| Balance profit | 16,096.5 |
| - Deduction to state budget (20 %) | 2,068.2 |
| Available profit | 14,028.3 |

The profit appropriation envisages three parts, in the main. The available regular profit of 1995, to the tune of laris 14,028.3 thousand, is divided up as follows:

- laris 3,800.6 thousand, amounting to 21.7 per cent, to the consumption fund,
- laris 8,626.2 thousand, amounting to 61.5 per cent, to the accumulation fund and
- laris 1,601.5 thousand, amounting to 11.4 per cent, for financing other objectives.

### 2.2.2 Formation of parameters for the analysis of the existing and future financial situation of the state railways

Parameters are necessary for the assessment of the existing and future financial situation, on the basis of cost and operating result accounting, which express the connection between performance, expenditure, revenue, operating results and profit.

These parameters are to assist in the decision-making for granting loans and for establishing repayment conditions vis-à-vis the lender.

#### *2.2.2.1 Performance parameters*

The ton kilometre charged in goods transport and the passenger kilometre in passenger transport are the most important performance parameters of the railways. The ton kilometre charged is calculated on the basis of the volume to be transported and the mean transport distance.

On the basis of the actual values and the assessment of the economic development in the region of the Caucasus and Central Asia (compare the estimate of potentials in the according section of this report), the following optimistic and pessimistic transport services, expressed as ton kilometres charged, in goods transport are used for assessing the financial situation:

| Parameter | 1988 | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|---|
| Goods transport services '000 000 tkm (opt.) | 12,591 | 954.7 | 1,246 | 1,319 | 4,057 | 5,191 | 5,940 |
| Goods transport services '000 000 tkm (pess.) | 12,591 | 954.7 | 1,246 | 1,185 | 3,225 | 3,946 | 4,658 |

The services in passenger transport (passenger kilometres) are not taken into consideration within the framework of this analysis, at the moment, as, referring to 1995,

- they only amounted to 2.2 per cent of the total services rendered, measured in comparable ton km,
- they only made up 1.3 per cent of the total revenue

and no development potential can be detected at present which would lead to a significant change in the passenger transport.

*2.2.2.2 Expenditure parameters*

Two parameters are formed and analysed to assess the expenditure necessary for conducting the transport services. They are the cost per passenger kilometre (pkm) and the cost per ton kilometre charged (tkm). These are calculated in the national currency of laris first and later, in the summarising figures of the appendices (see Appendix 8), they are uniformly expressed in terms of dollars.

The following values were established for 1994 and 1995:

| Parameter | | 1994 | 1995 |
|---|---|---|---|
| Ton kilometre charged | '000 000 tkm | 954.7 | 1,246.0 |
| Passenger kilometre | '000 000 pkm | 1,164.5 | 371.3 |
| Original cost of goods transport | '000 000 laris | | 20,220.9 |
| Original cost of passenger transport | '000 000 laris | | 12,426.5 |
| Specific cost of goods transport | laris/tkm | | 0.0162 |
| Specific cost of passenger transport | laris/pkm | | 0.0335 |

*2.2.2.3 Revenue parameters*

In order to assess the efficiency of the transport services, the expenditure parameters have to be compared with the revenue parameters. The income per passenger kilometre and the income per ton kilometre charged serve this purpose. The revenue is calculated in the national currency first in this case, too.

The following values were established for 1994 and 1995:

| Parameter | | 1994 | 1995 |
|---|---|---|---|
| Ton kilometre charged | '000 000 tkm | 954.7 | 1,246.0 |
| Passenger kilometre | '000 000 pkm | 1,164.6 | 371.3 |
| **Revenue from goods transport** | | | |
| Revenue from transport services | '000 laris | 27,970.7 | 43,425.6 |
| Revenue from additional charges | '000 laris | 1,001.2 | 2,659.0 |
| Total revenue | '000 laris | 28,971.9 | 46,084.6 |
| **Revenue from passenger transport** | | | |
| Revenue from transport services | '000 laris | 398.3 | 605.4 |
| Revenue from seat reservation, luggage and mail transportation | '000 laris | 48.6 | 19.7 |
| Total revenue | '000 laris | 446.9 | 625.1 |
| Specific revenue goods transport (total) | laris/tkm | 0.030 | 0.0370 |
| Specific revenue goods transport (only transportation) | laris/tkm | 0.029 | 0.0349 |
| Specific revenue passenger transport (total) | laris/pkm | 0.0004 | 0.0017 |
| Specific revenue passenger transport (only transportation) | laris/pkm | 0.0003 | 0.0016 |

### *2.1.2.4 Operating result parameters and operating result analysis*

In comparing the specific expenditure and revenue parameters, the following operating results emerge for 1995 [2]):

[2] As the specific income per service unit in passenger and goods transport is difficult to compare due to the civil war in 1994, only 1995 is included in the comparison.

| Parameter | Cost laris/tkm/pkm | Revenue laris/tkm/pkm | Result laris/tkm/pkm |
|---|---|---|---|
| **Goods transport** | | | |
| Original cost goods transport | 0.0162/tkm | - | - |
| Specific revenue goods transport (total) | - | 0.0370/tkm | + 0.0208/tkm |
| Specific revenue goods transport (only transport services) | - | 0.0349/tkm | + 0.0187/tkm |
| **Passenger transport** | | | |
| Original cost passenger transport | 0.0335/pkm | - | - |
| Specific revenue passenger transport (total) | - | 0.0017/pkm | - 0.0318/pkm |
| Specific revenue passenger transport (only transport services) | - | 0.0016/pkm | - 0.0319/pkm |

The following conclusions or considerations may be deducted from the above result parameters:

1. Passenger transport is a loss-making operation, its specific expenditure for rendering passenger transport services is about 20-fold higher than the specific revenue. Comparing the share of the absolute original cost of passenger transport with the total cost of 1995, this share amounts to 38.1 per cent (compare Appendix 5). The share of the revenue generated by passenger transport, however, only amounts to 1.3 per cent of the total revenue (compare Appendix 7). Revenue from the goods transport sector has to be used to compensate this difference.

This gap between the cost and the revenue cannot be narrowed through a further increase in tariffs, but rather with the help of a balanced relationship between the transport services and the expenditure necessary for rendering them, if need be through transferring transport capacity (and staff) from passenger to goods transport, in future periods.

Comparing once more the share of cost incurred by passenger transport in the total original cost (38.1 per cent) with the pertaining comparable service share of passenger transport of the total service (2.2 per cent, compare Section 2.2.2.1), then the above consideration is well worth pursuing. This approach is only justified, however, if the principle of (at least) the simple reproduction can be implemented in combination with the principle of cost truth.

2. The difference, described as result in the above table, between the specific expenditure and the specific revenue, relating to the ton kilometre charged in goods transport respectively, is too high. This may be due to the low cost or a level of revenue which is too high, or it may be due to both causes, at the same time.

   As a result of the analysis, it may be said that that firstly, the quoted original cost is so low because necessary services, such as repairs on the network and the rolling stock, cannot be financed anymore.

   The share of the profit in the price, for instance in the goods transport tariff in domestic transport, is calculated by the respective state authorities and not by the railways, and then confirmed by the state authorities of the Georgian Government. Thus these authorities also calculate the central fiscal charges to be paid to the state by the railways. It may not be excluded therefore that the transport tariffs will be calculated higher than they should be in their function as railway tariffs, in order to secure a more stable budget.

#### 2.2.2.5 *The profit and its appropriation*

The calculation of the profit is detailed in Section 2.2.1 on page 22. Given that the Georgian Railways may avail of the revenue generated by the charges according to the tariff for the transport services rendered, a profit is calculated which, apart from the profit appropriation structures shown in Point 2.2.1, may also be used for repaying debts within certain debt repayment periods and according to certain payment terms. The details of granting loans and the repayment of loans should be developed in concrete financing models and be coordinated with the individual banks.

### 2.2.3 Conclusions from the assessment of the cost and operating result accounting

The following may be stated as a result of the investigation:

1. According to the profit calculation and appropriation sheet (compare Section 2.2.1) handed over, some laris 8.6 million should have been available to the Georgian State Railways for accumulation purposes at the beginning of 1996.
   On the other hand, the Georgian State Railways assessed that as of 1st January 1996, according to the accounting balance sheet, there were only laris 631 thousand available for financing investments. There has to have been a further drain of some laris 8 million, which has not been covered by this analysis.

2. The above mentioned means, to the tune of laris 631 thousand, will in no way suffice to secure the simple reproduction. There is the added problem that during the civil war many installations of the railways had been destroyed or robbed. As a result of this development, the degree of deterioration of the infrastructure and the age structure of the rolling stock are steadily increasing.

3. The Georgian State Railways assess that to rectify this financial emergency only financial support from abroad will help. The Georgian Railways may not expect any support from the Georgian State.

4. After reaching an even balance in the cost and operating result accounting, the system of accountancy is to be developed further with the aim of achieving a higher degree of flexibility and dynamics. These efforts are also to be extended to the field of tariff formation and application. These two components of further development provide even better conditions for reacting to the market.

### 2.2.4 Deductions from the cost and operating result accounting for the Beyuk-Kyassik - Poti line

Based on the objective of this investigation, to deduct assistance in decision-making for financing the pilot train from Baku to Poti (Beyuk-Kyassik is the border station) and further measures to reinstall a secure and reliable train operation on this line, it is necessary to estimate the proportionate cost and operating result situation for this line.

As the accountancy of the Georgian State Railways does not include line-related performance, cost and operating result accounting, the respective shares in the total network have to be estimated together with experts of the Georgian State Railways. The following assumptions were made:

- service share (passenger and goods transport) until 1999 of the total services: ? %
- service share (passenger and goods transport) as of 2000 of the total services: ? %
- The values of the specific cost and revenue rates are maintained as for the entire network.

All values for assessing the financial situation of this line may be deducted from the values of the total network, with the help of these assumptions.

Appendix 1

# Structure of the Azerbaijani State Railways' original cost Year 1995 divided according to functional structure

| Functional structure | Share of total cost | Amount 1995 '000 000 manats/year |
|---|---|---|
| I. Sum of expenditure at stations for passenger transport, container transport and commercial work | 14.5 % | 18,982.0 |
| II. Sum of expenditure for tractive units | 41.8 % | 54,480.1 |
| III. Sum of expenditure for wagons | 13.6 % | 17,682.2 |
| IV. Sum of expenditure for route costs | 15.2 % | 19,781.9 |
| V. Sum of expenditure for building construction | 2.3 % | 2,988.7 |
| VI. Sum of expenditure for security and telecommunication technology | 4.4 % | 5,725.6 |
| VII. Sum of cost for energy supply | 3.1 % | 4,085.0 |
| VIII. Transit cost | | - |
| IX. Cost for breakdown trains | 0.2 % | 240.4 |
| X. Remaining overheads for the three areas | 0.7 % | 888.1 |
| XI. Railway administration cost | 4.2 % | 5,531.5 |
| **Total cost** | **100 %** | **130,385.5** |
| out of it for passenger transport | 21.2 % | 27,641.7 |
| out of it for goods transport | 78.8 % | 102,743.8 |

Appendix 2

# Structure of the Azerbaijani State Railways' original cost Year 1995 divided according to selected cost types

| Selected cost types | Amount 1995 '000 000 manats/year | Share of total cost |
|---|---|---|
| **Personnel cost** | | |
| Wage fund | 6,214.8 | |
| Social contribution | + 11,431.5 | |
| Sum of personnel cost | 17,646.3 | 13.5 % |
| **Cost for driving fuel traction** | | |
| fuel | 7,728.8 | |
| electrical energy | + 32,795.1 | |
| Sum of cost for driving fuel | 40,523.9 | 31.1 % |
| **Cost for repairs** (repair fund) | 24,688.7 | 18.9 % |
| **Cost for other energy consumption** | | |
| fuel | 4,788.1 | |
| electrical energy | + 15,201.9 | |
| Sum of cost for other energy consumption | 19,990.0 | 15.3 % |
| **Other costs** | 27,536.6 | 21.2 % |
| including amortisation | (7,565.2) | (5.8 %) |
| **Total cost** | **130,385.5** = $ 29.63 million | **100 %** |

Appendix 3

# Structure of the Azerbaijani State Railways' revenue Year 1995

| Item | Amount 1995 '000 000 manats/year | Share of total revenue |
|---|---|---|
| **Revenue from goods transport** | | |
| Revenue from transportation services | 237,018.2 | 82.9 % |
| Revenue from additional charges | 40,729.1 | 14.3 % |
| *Sum of revenue from goods transport* | *277,747.3* | *97.2 %* |
| **Revenue from passenger transport** | | |
| Revenue from transportation services | 5,265.8 | 1.8 % |
| Revenue from seat reservation | 2,678.2 | 1.0 % |
| Revenue from luggage | 47.1 | (0.0 %) |
| Revenue from mail transportation | - | |
| *Sum of revenue from passenger transport* | *7,991.1* | *2.8 %* |
| **Total revenue** | **285,738.4** | **100 %** |

Appendix 4

## Table of selected parameters of the Azerbaijani State Railways

| Item | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| *Performance parameters*<br>Passenger kilometre<br>Ton kilometre charged | | | | | | |
| *Expenditure parameters in US $*<br>Original cost of passenger transport<br>Original cost of goods transport<br>Cost rate US $/pkm<br>Cost rate US $/tkm | | | | | | |
| *Revenue parameters in US $*<br>Revenue of passenger transport<br>Revenue of goods transport<br>Revenue rate US $/pkm<br>Revenue rate US $/tkm | | | | | | |
| *Profit in US $*<br>Profit from goods transport<br>Profit from passenger transport<br>Total profit<br>Available profit | | | | | | |

**Appendix 4**

| Item | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| *Profit appropriation*<br>Consumption fund<br>Accumulation fund | | | | | | |

Appendix 5

# Structure of the Georgian State Railways' original cost Year 1995 divided according to functional structure

| Functional structure | Share of total cost | Amount 1995 '000 laris/year |
|---|---|---|
| I. Sum of expenditure at stations for passenger transport, container transport and commercial work | 17.3 % | 5,639.1 |
| II. Sum of expenditure for tractive units | 32.4 % | 10,580.8 |
| III. Sum of expenditure for wagons | 7.3 % | 2,388.8 |
| IV. Sum of expenditure for route costs | 26.8 % | 8,749.5 |
| V. Sum of expenditure for building construction | 3.4 % | 1,120.3 |
| VI. Sum of expenditure for security and telecommunication technology | 4.2 % | 1,352.6 |
| VII. Sum of the cost for energy supply | 4.6 % | 1,501.8 |
| VIII. Transit cost | | - |
| IX. Cost for breakdown trains | 0.5 % | 164.2 |
| X. Remaining overheads for the two areas | 1.3 % | 430.3 |
| XI. Railway administration cost | 2.2 % | 720.0 |
| **Total cost** | **100 %** | **32,647.4** |
| out of it for passenger transport | 38.1 % | 12,426.5 |
| out of it for goods transport | 62.9 % | 20,220.9 |

Appendix 6

# Structure of the Georgian State Railways' original cost Year 1995 divided according to selected cost types

| Selected cost types | Amount 1995 '000 laris/year | Share of total cost |
|---|---|---|
| **Personnel cost** | | |
| Wage fund | 5,881.5 | |
| Social contribution | + 2,589.1 | |
| Sum of personnel cost | 8,470.6 | 25.9 % |
| **Cost for driving fuel traction** | | |
| fuel | 1,954.8 | |
| electrical energy | + 3,879.8 | |
| Sum of cost for driving fuel | 5,834.6 | 17.9 % |
| **Cost for repairs** (repair fund) | 7,495.6 | 23.0 % |
| **Cost for other energy consumption** | | |
| fuel | 1,252.4 | |
| electrical energy | + 697.8 | |
| Sum of cost for other energy consumption | 1,950.2 | 6.0 % |
| **Other costs** | 8,896.4 | 27.2 % |
| including amortisation | (1,767.2) | (5.4 %) |
| **Total cost** | **32,647.4** = $26.12 million | **100 %** |

Appendix 7

# Structure of the Georgian State Railways' revenue Year 1995

| Item | Amount 1995 '000 laris/year | Share of total revenue |
|---|---|---|
| **Revenue from goods transport** | | |
| Revenue from transportation services | 43,425.6 | 93.0 % |
| Revenue from additional charges | 2,659.0 | 5.7 % |
| *Sum of revenue from goods transport* | *46,084.6* | *98.7 %* |
| **Revenue from passenger transport** | | |
| Revenue from transportation services | 605.4 | 1.3 % |
| Revenue from seat reservation | 6.4 | (0.0 %) |
| Revenue from luggage | 9.9 | (0.0 %) |
| Revenue from mail transportation | 3.4 | (0.0 %) |
| *Sum of revenue from passenger transport* | *625.1* | *1.3 %* |
| **Total revenue** | **46,709.7** | **100 %** |

Appendix 8

## Table of selected parameters of the Georgian State Railways

| Item | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| *Performance parameters*<br>Passenger kilometre<br>Ton kilometre charged | | | | | | |
| *Expenditure parameters in US $*<br>Original cost of passenger transport<br>Original cost of goods transport<br>Cost rate US $/pkm<br>Cost rate US $/tkm | | | | | | |
| *Revenue parameters in US $*<br>Revenue of passenger transport<br>Revenue of goods transport<br>Revenue rate US $/pkm<br>Revenue rate US $/tkm | | | | | | |
| *Profit in US $*<br>Profit from goods transport<br>Profit from passenger transport<br>Total profit<br>Available profit | | | | | | |

**Appendix 8**

| Item | 1994 | 1995 | 1997 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|
| *Profit appropriation*<br>Consumption fund<br>Accumulation fund | | | | | | |

# Annex 3

# Trans-Caucasian-Logistic-Express

## A. CHARACTERISTICS OF THE SYSTEM

## B. MEASURES OF INTRODUCING THE SYSTEM

**Accorded between**
**the Azerbaijani State Railways,**
**the Georgian Railways**
**and the Traceca Project Team**
**„Trans-Caucasian Railway“**

**Tbilisi**
**14.08.1996 - 16.08.1996**

## Contents

## Tables



## Figures



## Appendices

# A. Characteristics of the System

# 1 Fundamentals of the System

Both Azerbaijan and Georgia were important transit countries for railway traffic up to the start of the 90s. Some 37 million tons of transit constituted more than a third of the entire transport volume of the Azerbaijani Railways in 1989. However, the volume of transit railway goods transports through Azerbaijan was down to a mere 0.2 million tons in 1995.

There are three main railway transit corridors from Western Europe to Asia:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | Britain<br>France<br>Switzerland<br>Austria<br>Benelux | → | Poland | → | Belarus<br>(Brest) | → | Russia | → | Kazakhstan<br>China |
| B | Britain<br>France<br>Switzerland<br>Austria<br>Benelux | → | Czech &<br>Slovak Re-<br>publics<br>Hungary<br>Romania<br>Bulgaria | → | Black Sea | → | Georgia<br>(Poti, Ba-<br>tumi) | → | Azerbaijan<br>(Baku) → |
| | Caspian<br>Sea | → | Turkme-<br>nistan<br>Uzbekistan<br>Kazakhstan | → | China<br>India | | | | |
| C | Britain<br>France<br>Switzerland<br>Austria<br>Benelux | → | Czech &<br>Slovak Re-<br>publics<br>Hungary<br>Romania<br>Bulgaria | → | Turkey | → | Iran | → | Pakistan → |
| | India | → | China | | | | | | |

The three railway transport corridors are competing with one another.

It is possible to develop railway corridor B into the fastest and cheapest transport link between Western Europe and Asia.
The section between the Black Sea and the Caspian Sea, i.e. from Poti/Batumi in Georgia to Baku in Azerbaijan, plays a key role.
This section is of extraordinary significance both for the railways as well as the overall economic development, on the backdrop of the current political situation in the two countries.

Some 90 per cent of Azerbaijani railways' transport services related to the line section between Baku and the border of Georgia in 1995. About 75 per cent of the export goods transported by rail and approx. 55 per cent of the imports were channelled through this corridor.

The above mentioned corridor is more or less the only access of the Georgian Railways to the international network, at the moment. And some 75 per cent of transport services of the Georgian Railways in 1995 related to the line section between Tbilisi and Batumi/Poti.

Transports via Tbilisi - Batumi/Poti are the only possibility of railway transports from and to Armenia at present.

The main goods flows, especially of high-quality industrial goods and industrial plant are on the road, at the moment. In view of the economic development to be expected in the region of the Caucasus and Central Asia, the volume of road transport will continue to rise unproportionally, if one does not manage to offer the customer a competitive railway link.

Apart from Azerbaijan and Georgia, it is especially the Central Asian countries of Uzbekistan and Turkmenistan who have a strong interest in developing the transit corridor from the Caspian to the Black Sea. Multi-lateral inter-state treaties between these countries as well as Azerbaijan and Georgia on economic cooperation and in the area of railways only serve to emphasise the significance of this railway link.

Train traffic on the entire line between Baku and Poti/Batumi is characterised by disruptions with considerable time losses as compared to the timetable. The main causes of disruption are signal faults and a delayed provision of engines. On the section between Kishli (Baku) to the Georgian border (Beyuk-Kyassik) freight trains have an average delay of 7 hours.

The objective of the system called "Trans-Caucasian-Logistic-Express" is that of participating more than before in the growing volume of transport of high-value goods, especially in container transport.

The task of the Trans-Caucasian-Logistic-Express system is to establish a

- stable
- regular
- reliable
- safe
- fast and
- inexpensive

rail link between Poti/Batumi and Baku and make it competitive as compared to the goods transport on road.

The main features of the system are:

1. During the first stage of implementation, a train is to be offered

   - from Poti/Batumi to Kishli (Baku) and
   - from Kishli (Baku) to Poti/Batumi

   at a fixed time and day, once a week.

2. The transport time between the two terminal points is regarded as guaranteed transport period, which shall be adhered to at least.

3. During the first stage of implementation, the train shall run as a container block train only, with a minimum number of 20 container wagons and a maximum number of 30 container wagons. Other goods wagons shall not be used during the first steps of implementation.

4. The consignments from and to Batumi will be added or taken off at Tbilisi as a group of wagons, according to the requirements. Thus the train has the nature of a feeder train for the relation from and to Poti and Batumi.

5. The train will run with a high security standard. It will be protected by an armed escort of the transport police. This escort will influence the planned and proper treatment of the transport at stations and at the border, and they will protect the train against criminal assaults.

6. The introduction of the train will be supported by a broad-based marketing campaign in the countries of Azerbaijan, Georgia, Uzbekistan and Turkmenistan.

7. The conditions of the goods transfer and the subsequent overseas shipment in Baku and Poti/Batumi will be harmonised with the departure and arrival times of the train.

8. The customers as well as all the institutions involved in implementing the train will be provided with a system of transport advance and transport accompanying logistic information.

# 2 Stages of implementation

The system of the Trans-Caucasian-Logistic-Express will be built up and completed step by step over several stages of implementation:

1. The service offered to the transport customer will be introduced with a basic offer at first (container consignments, weekly departure, three operational locations), which is to be extended step by step.

2. The local railway authorities of the two countries need an introductory phase for treating the train according to the quality requirements.

3. Experience has to be gathered over a certain period of time for the trouble-free cooperation between the two railways, especially at the border crossing, this is to take place during the first stage of implementation, in particular.

***1st Stage of implementation*** ⇨ ***October 1996***

The train will operate between the three transport nodes of Poti - Tbilisi - Baku and vice versa. All three nodes are equipped with container terminals for the handling of 20' containers. The train will be run as a container train with 20 container wagons, i.e. 60 spaces for 20' containers. Its maximum capacity is to be 30 container wagons, i.e. 90 spaces for 20' containers.
Container wagons with containers from Batumi in the direction of Baku will be added to the train in Tbilisi, and on the other hand, container wagons from Baku in the direction of Batumi will be taken off in Tbilisi and put onto a directly linking train from Tbilisi to Batumi.

***2nd Stage of implementation ⇨ April 1997***

The train will operate between Poti - Samtredia - Tbilisi - Gyandsha - Baku and vice versa. All five transport nodes are equipped with a container terminal, the prerequisite being that the container terminals at Samtredia and Gyandsha are put back into operating condition by April 1997.
The train will run as a container train like in the first stage.
Container wagons with containers from or to Batumi will be added to or taken off the train at Samtredia.

***3rd Stage of Implementation ⇨ October 1997***

Just as during the 2nd stage, the train will operate between Poti - Samtredia - Tbilisi - Gyandsha - Baku and vice versa.
The train will operate with a constant number of container wagons as during the 1st and 2nd stages and, in addition, with a variable number of loaded covered goods wagons, according to the concrete volume of goods at the transport nodes.

# 3 Customers

The scope of customers for the Trans-Caucasian-Logistic-Express system comprises

- forwarding companies
- trade firms
- production companies of the
  - light industry (electrical engineering, foodstuffs, etc.)
  - investment goods industry (mechanical engineering, terotechnology etc.)

The service offer of the Trans-Caucasian-Logistic-Express is aimed at the domestic market as well as the import and export market of the countries of Georgia and Azerbaijan as well as at logistic companies for the transit from Europe via the Poti - Baku railway line to Central Asia and the opposite direction.
Container customers represent a special target of acquisition. The container consignments arriving at the harbour of Poti have increased considerably in 1996 as compared to 1995. The number of containers handled rose from a monthly average of 200 TEU in 1995 to some 500 TEU per month in 1996.

The acquisition for the Trans-Caucasian-Logistic-Express demands the employment of effective marketing methods.

1. Use of brochures and print media
   - a multi-language prospectus with graphic images of the service offer for the domestic markets of Georgia and Azerbaijan
   - advertisements in the high-circulation newspapers of Georgia and Azerbaijan as well as the countries of Central Asia

- ♦ advertisements and specialised articles in the largest European transport magazines such as
  - ⇨ Deutsche Verkehrszeitung (German Transport Magazine)
  - ⇨ Internationale Transportzeitschrift (International Transport Magazine)

2. Workshops including press conferences with large forwarding companies and the trade and industry chambers of Germany (Berlin and Cologne).

3. Meetings with customers on location in Georgia and Azerbaijan. A list of important transport customers of the Georgian and Azerbaijani railways is included in Appendix 1. A list of important forwarding companies in Georgia and Azerbaijan is contained in Appendix 2.

4. The Task Force formed by experts of the EU shall support the marketing work for winning additional potentials for the Trans-Caucasian-Logistic-Express.

# 4 Goods potential

The goods volume to be acquired will decide on the degree of utilisation of the Trans-Caucasian-Logistic-Express.
One has to assume that there is a direct connection between the high logistic quality and stability of the Trans-Caucasian-Logistic-Express and a growing demand for its utilisation.

For assessing the goods potential of the Trans-Caucasian-Logistic-Express, it is assumed that the current actual potential is formed by adding

- a substitution potential of road transport and
- 
- a growth potential on the basis of the economic development

to form a total potential.

Table 1 contains an assessment as to the goods potential to be expected.

Based on the estimated initial goods potential per month of 212 TEU in both directions, one train per week to Tbilisi would be utilised to approx. 90 % (53 TEU) and to Baku to approx. 60 % (35 TEU).

The estimated total potential per month, at the end of 1997, would already permit to run two trains per week twice a month and that at an average 75 % utilisation (44 TEU) to Tbilisi and 50 % (29 TEU) to Baku.

## Table 1 Components of the Trans-Caucasian-Logistic-Express`goods potential in the relations Poti - Baku and Baku - Poti[1)]

| state of destination / state of sender | real volume for the first 6 month in 1996 railways (TEU / month) | substitution potential road transport (TEU / month) | growth potential (01.07.1996 - 31.12.1997) (TEU / month) | total potential (31.12.1997) (TEU / month) |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Georgia | 14 | 45 [(2)] | 16 | 75 |
| Azerbaijan | 28 | 34 [(2)] | 15 | 77 |
| Russia | 6 | 7 [(2)] | 3 | 16 |
| Central Asia | 2 | 2 [(2)] | 1 | 5 |
| Armenia | 42 | 32 [(3)] | 14 | 88 |
| **total** | **92** | **120** | **49** | **261** |

1) The numbers show the potential in one direction. They are provided by the both railways on the basis of the number of transported containers and sended containers in the port of Poti. For the Baku-Poti-direction was taken the the same potential of empty containers.

2) The assumtion is that road traffic will rise by 15% and the substitution share will increase to 65%.

3) The assumtion is a 15% growth

The following two examples emphasise the prospects of success in securing the necessary goods potential for the Trans-Caucasian-Logistic-Express.

***First example: Azerbaijan International Operating Company (AIOC)***

According to statements by the logistics manager, there is a pressing need to use a reliable and quality rail link from Poti to Baku for equipment and supplies, in the form of the Trans-Caucasian-Logistic-Express.
At the moment, these goods are driven to Baku from Turkish harbours on road by various forwarding companies.
The potential quoted by the customer from today's point of view would be 250,000 tons per year.

***Second example: Container-terminal at the harbour of Baku***

The container-terminal is being set up with a high priority in the reconstruction of the harbour.
HPTI estimate that as of 19xx, the handling of xx containers is to be expected per day.
A certain scope of these containers, both in the transport to as well as from the harbour, constitute a potential for the Trans-Caucasian-Logistic-Express.

# 5 Dispatch and Reception Stations

The train is to service the main transport nodes between Poti and Baku. The terminal nodes are

- Poti Station
- Batumi Station
- Kishli (Baku) Station.

Following refurbishment work on the container station of Chyrdalan (Baku), Kishli (Baku) Station will be replaced as a terminal node by Chyrdalan (Baku) Station.

The following are intermediate nodes

- Samtredia Station (as of 2nd implementation stage)
- Tbilisi Station
- Gyandsha Station (as of 2nd implementation stage).

There are the following border stations

Gardabani Station in Georgia and
Beyuk-Kyassik Station in Azerbaijan.

The joint border check is carried out at Beyuk-Kyassik Station. The Georgian customs clearance is conducted at Gardabani and the Azerbaijani customs clearance at Beyuk-Kyassik.
The terminal nodes and intermediate nodes bear the function of dispatch and reception stations.

There will be further intermediate stops of the train for operational reasons such as switching engines or the crew.
The terminal and intermediate nodes are fitted with the following goods transport equipment, serving to handle the Trans-Caucasian-Logistic-Express:

### *1. Poti Station:*

- sidings for the formation and splitting-up of trains
- sidings for storage of goods wagons
- sidings with a weighbridge
- sidings for washing goods wagons

Furthermore there are extensive rail installations at the Harbour of Poti. The inter-change point between the station and the harbour is some 200 metres away from the station.
The following goods transport installations at Poti Harbour are of significance for the Trans-Caucasian-Logistic-Express:

- container-terminal with rail installations, including 15 positions for container wagons
- gantry cranes (40 tons) at the container terminal for loading and unloading the container wagons
- storage areas in the container terminal for the interim-storage of the containers
- ramps for the interim storage and handling of high-value goods
- storage sheds with unloading side ramps for interim storage of goods requiring protection from the weather

The container terminal run by the company CAUCASTRANS FORWARDER LTD (KAWTREX), situated near Poti Harbour is also of significance.
The short-term plan of the Georgian Railways is to build a container terminal with two tracks of some 250 metres length and crane installations with 40 t load-carrying capacity at Poti Station. Irrespective of the time of completion for this terminal, all the necessary operations for handling the goods of the Trans-Caucasian-Logistic-Express may be carried out at Poti Harbour.

## 2. *Batumi Station*

- sidings for the formation and splitting-up of trains
- storage sidings goods wagons
- loading sidings for handling high-value goods

- The containers are handled at Batumi Harbour.

## 3. *Samtredia Station*

- sidings for the formation and splitting-up of trains
- sidings for the storage of goods wagons
- 2 tracks of some 200 metres length for handling containers
- crane installation for handling 20' containers
- handling and storage area for containers of some 2 500 m²
- loading sidings for handling high-value goods
- storage shed with head ramp and side ramp for handling high-value goods

The crane has not been in operation since 1992 due to destruction (crane driver's cabin, dismantling of cables) and one track has been taken up. The repair of the crane installation is recommended urgently to the Georgian Railway Administration.

### 4. *Tbilisi Station (Towarni)*

- sidings for the formation and splitting-up of trains
- sidings for the storage of goods wagons
- loading sidings for handling high-value goods
- 2 tracks of some 200 metres length for handling 20' containers
- crane installation in operation for the handling of 20' containers
- handling and storage area for 20' containers of some 2,500 $m^2$
- storage shed with side ramps for the handling of high-value goods

### 5. *Gardabani Station*

- 2 main tracks
- 4 passing sidings
- 3 storage sidings

### 6. *Beyuk-Kyassik Station*

- 2 arrival and departure tracks
- 2 sidings for handling the goods

### 7. *Gyandsha Station*

- 15 arrival and departure tracks
- 3 shunting sidings
- 2 storage sidings for passenger trains
- 2 storage sidings for freight trains
- 2 sidings for train formation
- 1 siding for unloading cement

### 8. *Kishli (Baku) Station*

- 15 arrival and shunting sidings
- 7 shunting sidings
- 19 sidings for handling goods
- 4 train formation sidings
- 2 storage sidings

### 8. *Chyrdalan Station*

- 4 dispatch and reception sidings
- 5 shunting sidings
- 2 safety sidings
- 1 siding for repairing tank wagons
- 1 train formation siding

Container wagons with 20' containers and 40' containers as well as covered wagons can be fed from Kishli (Baku) Station for transit via the ferry harbour or to the Harbour of Baku for overseas shipment.
Goods wagons (container wagons and covered wagons) for the transit to Russia can also be transferred from Kishli (Baku) Station to the shunting yard of Baladshary.
The Trans-Caucasian-Logistic-Express is be completed to attain its standard capacity of 20 to 30 container wagons at Kishli (Baku) Station for the container wagons to be transported further in the transit relations. A permanent container wagon reserve will be kept at the station for this purpose.

The same shall apply to the container wagons to be transported further from Tbilisi to Armenia.

The Azerbaijani and Georgian railways do not have handling installations for 40' containers at their disposal at present. However, such containers can be handled at other terminals (e.g. Poti Harbour and Baku Harbour).

# 6 Technical service

The technical service side of the Trans-Caucasian-Logistic-Express is characterised by five complexes of tasks:

***1. Rigid timetable***
***2. Engine switch or crew switch***
***3. Formation and splitting-up of trains***
***4. Provision and loading deadlines***
***5. Provision and exchange of container wagons***

All technical service tasks will be conducted in line with the traffic instructions of the Georgian and Azerbaijani railways.

## *1: Rigid timetable*

The consistent adherence to a rigid timetable is a significant quality feature of the Trans-Caucasian-Logistic-Express. The customer expects absolute reliability in the departure and arrival times. The timetable includes certain time reserves for this end.
In designing the timetable, adherence to arrival and departure times takes priority over the exhaustion of technically possible running and operating reserves.
The travelling and stopping times of the train in the direction of Baku - Poti and Poti - Baku are contained in tables 2 and 3.

The proposal is to arrange the departure and arrival times for the introduction stage of the Trans-Caucasian-Logistic-Express as follows:
Table 2

# Tab. 2: Travelling and Stopping Times of the Trans-Caucasian-Logistic-Express, Direction from Baku to Poti

| No | Line / Station | Distance [km] | Time[1] [h,min] |
|---|---|---|---|
| 1 | Kishli-Baku - Baladshary | 4 | 35' |
| 2 | Baladshary - Kasi-Magomed | 110 | 2h 10' |
| 3 | Kasi-Magomed (engine & crew switch) | - | 50' |
| 4 | Kasi-Magomed - Udshary | 122 | 2h 35' |
| 5 | Udshary (crew switch) | - | 35' |
| 6 | Udshary - Gyandsha | 112 | 2h 30' |
| 7 | Gyandsha (engine & crew switch) | - | 50' |
| 8 | Gyandsha - Akstafa | 95 | 1h 45' |
| 9 | Akstafa - Beyuk-Kyassik | 43 | 55' |
| 10 | Beyuk-Kyassik (border check) | - | 2h 00' |
| | **AGZD line section** | **486** | **14h 45'** |
| 11 | Beyuk-Kyassik - Gardabani | 12 | 15` |
| 12 | Gardabani (border check) | - | 40` |
| 13 | Gardabani - Tbilisi | 28 | 51` |
| 14 | Tbilisi (container waggon switch) | - | 40` |
| 15 | Tbilisi - Khashuri | 123 | 4h 08` |
| 16 | Khashuri (engine & crew switch) | - | 20` |
| 17 | Khashuri - Zestafoni | 61 | 2h 07` |
| 18 | Zestafoni (crew switch) | - | 20` |
| 19 | Zestafoni - Samtredia | 58 | 2h 19` |
| 20 | Samtredia (crew switch) | - | 20` |
| 21 | Samtredia - Poti | 65 | 2h 33` |
| | **GRZD line section** | **347** | **14h 33`** |
| | **Total distance** | **833** | **29h 18`** |

[1] In the future the stations of engine and crew switches in Azerbaijan will be changed. The partners will be informed by AGZD.

## Tab. 3: Travelling and Stopping times of the Trans-Caucasian-Logistic-Express, Direction from Poti to Baku

| No | Line / Station | Distance [km] | Time[1)] [h,min] |
|---|---|---|---|
| 1 | Poti - Samtredia | 65 | 2h 41` |
| 2 | Samtredia (crew switch) | - | 20` |
| 3 | Samtredia - Zestafoni | 58 | 1h 46` |
| 4 | Zestafoni (crew switch) | - | 20` |
| 5 | Zestafoni - Khashuri | 61 | 1h 53` |
| 6 | Khashuri (engine & crew switch) | - | 20` |
| 7 | Khashuri - Tbilisi | 123 | 3h 28` |
| 8 | Tbilisi (container waggons switch) | - | 40` |
| 9 | Tbilisi - Gardabani | 48 | 46` |
| 10 | Gardabani (border check) | - | 40` |
| 11 | Gardabani - Beyuk-Kyassik | 12 | 16` |
| | **GZD line section** | **347** | **13h 10`** |
| 11 | Beyuk-Kyassik (border check) | - | 2h 00' |
| 12 | Beyuk-Kyassik - Akstafa | 43 | 46' |
| 13 | Akstafa - Gyandsha | 95 | 1h 55' |
| 14 | Gyandsha (engine & crew switch) | - | 50' |
| 15 | Gyandsha - Udshary | 112 | 2h 10' |
| 16 | Udshary (crew switch) | - | 40' |
| 17 | Udshary - Kasi-Magomed | 122 | 2h 10' |
| 18 | Kasi-Magomed (engine & crew switch) | - | 50' |
| 19 | Kasi-Magomed - Baladshary | 110 | 2h 30' |
| 20 | Baladshary - Baku-Kishli | 4 | 40' |
| | **AZD line section** | **486** | **14h 31'** |
| | **Total distance** | **833** | **27h 41`** |

1) In the future the stations of engine and crew switches in Azerbaijan will be changed. The partners will be informed by AGZD.

- Direction from Baku to Poti

  - Departure from Kishli (Baku) Station: Monday, 20.00 hours
  - Arrival at Poti Station: Wednesday, 02.00 hours

- Direction from Poti to Baku

  - Departure from Poti Station: Thursday, 20.00 hours
  - Arrival at Kishli (Baku) Station: Saturday, 02.00 hours

Thus, one train unit is required for the circulation Poti - Baku - Poti during the introductory stage.
If the capacity of one train is exceeded, due to an increased demand, a second train should be employed, so that there is a departure on Thursdays and Mondays each, both from Poti Station and as well as from Kishli (Baku) Station.

Should there be a reduction in the volume of goods to be transported, the railways can cancel the train, with the consent of the partners. The two railways shall agree on a minimum utilisation of the train.

### *2: Engine switch or crew switch*

The engine switch or crew switch should be reduced to a minimum, determined only by technical service and staffing matters.
The technology of the Trans-Caucasian-Logistic-Express provides for opportunities in

- Samtredia
- Zestafoni
- Khachuri
- Tbilisi
- Beyuk-Kyassik
- Gyandsha
- Udshary and
- Kasi-Magomed.

### *3: Formation of trains and splitting-up of trains*

Due to the line profile (gradients and descending gradients) in the Georgian section of the line between Zestafoni and Khachuri, the train load is limited to 2,500 t. Thus the train may be formed by a maximum of 30 goods wagons.
Due to the still unstable situation in the provision of electricity for railway operations on the Georgian side, the employment of diesel traction is necessary. Two diesel engines have to be used on the section between Zestafoni and Khachuri because of the gradients.

The train formation and splitting-up tasks will be determined locally at the terminal and intermediate stations. At the intermediate nodes, the container wagons with the destination containers will be shunted and made available separately at the container terminal, during the first and second implementation stages. And on the other hand, the container wagons with the source containers will be shunted to the train formation sidings for forming the train at the intermediate nodes. This arrangement allows for short stoppage times of the trains at the intermediate nodes.

At the terminal nodes of Poti and Batumi, the container wagons will be made available for handling the containers at the harbour terminal.
At the terminal node of Baku, the container wagons with transit containers in the direction of Russia will be transferred to Baladshary and be included in the next train formation. The container wagons with transit containers to Central Asia, via the ferry to Turkmenistan, are transferred to the ferry port of Baku in the same manner. The container consignments to be made ready for overseas shipment are treated accordingly at Baku Harbour.

In the case of replacements of container wagons from the determined stock, due to transit transports to Central Asia, Russia and Armenia, the numbers of the newly provided container wagons shall be communicated to the other side.

### *4: Provision and loading deadlines*

The customer is guaranteed binding provision and loading deadlines at the terminal and intermediate nodes in the system of the Trans-Caucasian-Logistic-Express. The individual times are laid out in Table 4 (1st stage of implementation).

## Tab. 4: Guaranteed Provision and Loading Dead-lines at the Terminal and Intermediate Nodes for the 1st Stage of Implementation

| Train arrival | End of Loading | Provision | | Train arrival | End of Loading | Provision |
|---|---|---|---|---|---|---|
| | | | Poti | | | |
| | | | Tbilisi | | | |
| | | | Baku | | | |

## 5: *Provision and exchange of container wagons*

The express shall run with a fixed number of container wagons.
The loaded wagons will be exchanged for empty wagons at the stations (Poti, Tbilisi, Baku). There shall be a small stock of container wagons at every station. Furthermore, there will be a repair reserve stock at the stations of Kishli (Baku) and Poti.

| | | | |
|---|---|---|---|
| **Circulation:** | one train unit with | | 20 container wagons |
| | wagon stock in | - Poti | 20 container wagons |
| | | - Tbilisi | 10 container wagons |
| | | - Baku | 20 container wagons |
| | working stock | | 70 container wagons |
| | repair reserve stock | | 10 container wagons (Kishli/Baku) |
| | | | 10 container wagons (Poti) |
| | **total stock** | | **90 container wagons** |

45 container wagons each shall be provided by the Azerbaijani and the Georgian railways for the container wagon stock. It shall be used as a closed stock.
Wagons which arrive in Tbilisi with loaded containers from Batumi for further transportation with the Trans-Caucasian-Logistic-Express in the direction of Baku, shall be included in the system against the exchange of empty container wagons, just as with the local stock.
The same procedure applies to container wagons arriving in Baku off the ferry from Turkmenistan for further transportation with the Trans-Caucasian-Logistic-Express.

The exchange in Tbilisi shall be between empty and loaded wagons of the Georgian Railways

The container wagons included in the closed stock, have to be in a technically adequate condition, according to the respectively valid technical stipulations.
This regulation of providing and exchanging container wagons secures

- a high degree of reliability in providing the container wagons
- satisfaction of peak demand
- a high bonus of trust among the West European partners.

By exchanging the empty and loaded container wagons, a special empty wagon regulation is rendered unnecessary.

# 7 Commercial conditions

*(Point 7 shall be supplemented following the conclusion of bilateral negotiations between the Azerbaijani State Railways and the Georgian Railways)*

# 8 Staff Accompaniment and Security

The train will be accompanied at all times between the terminal nodes of Poti and Baku, in both directions. The staff will have the following two tasks:

1. to influence the elimination of disturbances, which endanger the planned implementation of the train journey and the stops;

2. to render armed protection of the train against criminal assaults throughout the journey as well as during the scheduled and unscheduled stops.

The accompanying and security staff will be provided both for the Georgian and the Azerbaijani section of the line respectively. A written report shall be produced for each journey, including any special events. The proper hand-over of the trains at the border will be documented by the signature of both the Azerbaijani and Georgian staff. This also applies to the hand-over of the trains by the accompanying staff at the terminal nodes of Poti and Kishli (Baku).

# 9 Logistic Information System

The logistic information system is an important quality feature of the Trans-Caucasian-Logistic-Express.

Thus, the customers (dispatchers or recipients), who use the train, are offered a special service. At any time, they may enquire and receive complete data about the current location of their consignment. And the logistic information also secures

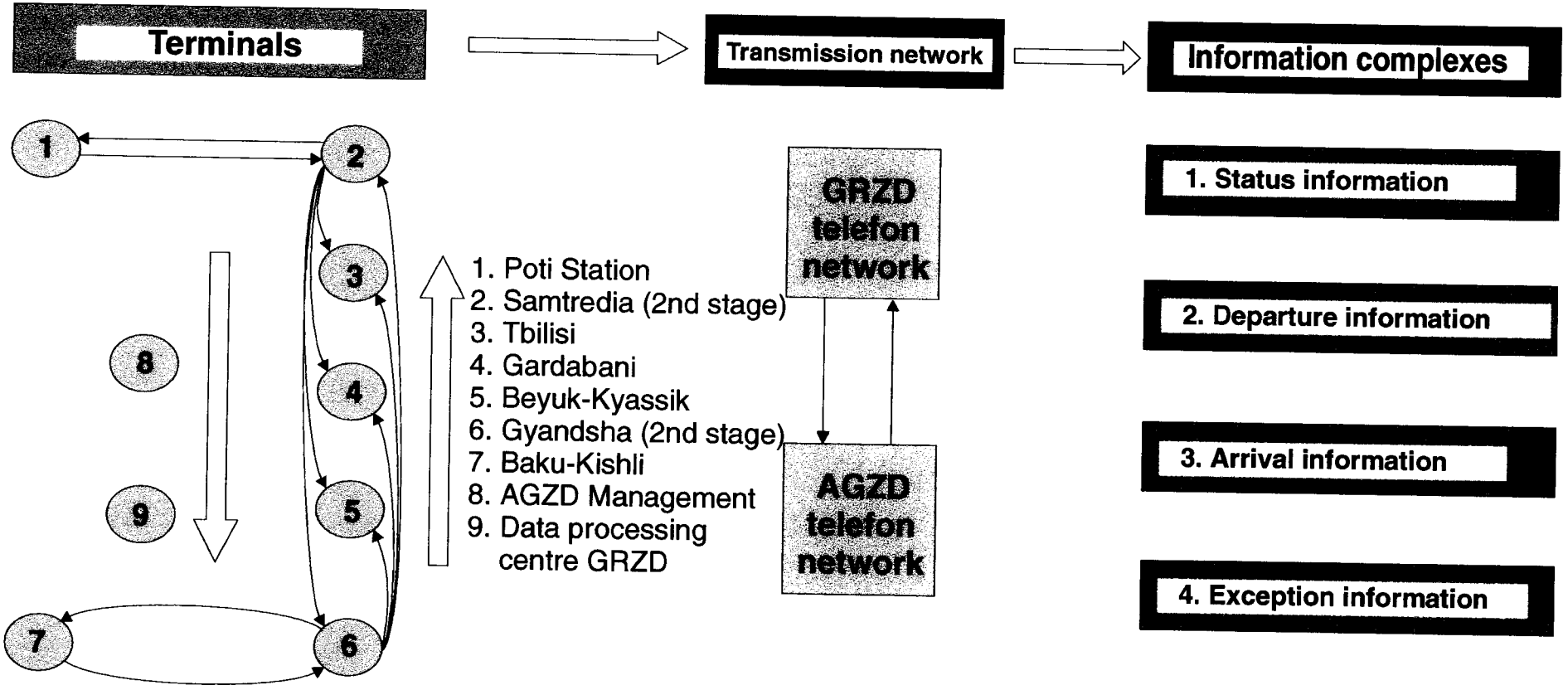
- transport advance and
- transport accompanying

messages on the current status.
Figure 1 shows the functional chart of the logistic information system.

During the first stage, there will be the following information terminals

- Poti Station
- Tbilisi Station
- Gardabani Border Station
- Beyuk-Kyassik Border Station
- Kishli (Baku) Station
- AGZD Management
- GRZD Management

# Fig. 1: Logistic Information System
## Functional chart for the 1st and 2nd Stages



During the 2nd stage, information terminals will also be installed at

- Samtredia Station and
- Gyandsha Station

Figure 2 shows the configuration of the hardware at the information terminals

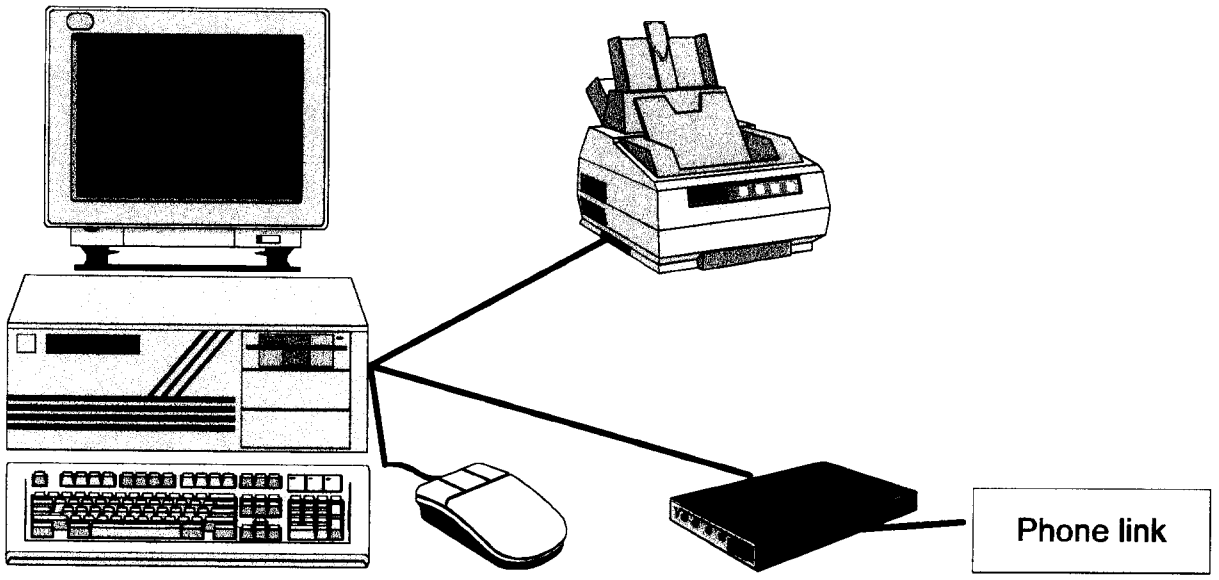
It consists of

- 1 Pentium computer
- 1 colour monitor
- 1 keyboard
- 1 laser printer
- 1 modem.

The telephone networks of the Azerbaijani and Georgian railways shall be used as a means of transmission.
Figure 3 shows an overview of the transmission paths with the existing telephone lines.
The terminals in the lines of the Azerbaijani and Georgian railways have the function of transmission nodes, which secure the information chain between all terminals included in the system.

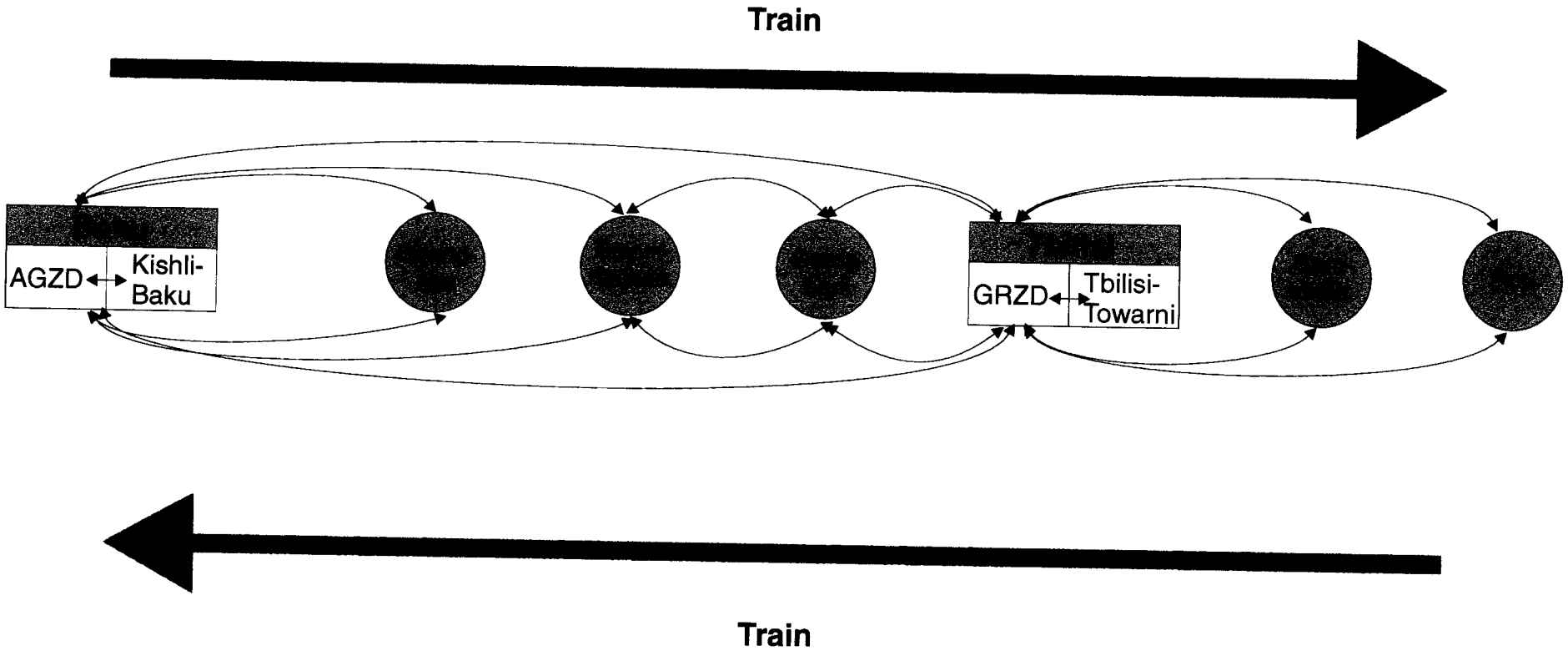
The description of the micro locations for the information terminals is contained in Table 5.

# Fig. 2: Logistic Information System Terminal Configuration and Price Calculation




| Component | Number | approx. price in DM |
|---|---|---|
| Computer 120 MHz<br>Hard disk 800 MB<br>RAM 16 MB<br>incl. software | } 1 | 4,000.- |
| Keyboard | 1 | 200.- |
| Mouse | 1 | 100.- |
| Colour monitor 17 inch | 1 | 1,500.- |
| Laser printer | 1 | 200.- |
| Modem 28,800 Baud<br>incl. software | 1 | 200.- |
| Programme for entering the data of the train | 1 | 1,000.- |
| | **Sum** | 8,500.- |

# Fig. 3: Logistic Information System
# Transmission Paths in the AGZD and GRZD Telephone Networks



## Tab. 5: Logistic Information System Terminal - Micro Locations

| No | Macro Location | Micro Location Street, Number, Building, Room | Name of person in charge and of operator | Extension |
|---|---|---|---|---|
| 1 | Poti Station | | | |
| 2 | Tbilisi Station | | | |
| 3 | Gardabani Station | | | |
| 4 | Beyuk-Kyassik Station | | | |
| 5 | Kishli-Baku Station | | | |
| 6 | AGZD Management | | | |
| 7 | GRZD Management | | | |

The information fund of the system consists of four messages on the location and time of the consignment:

### ◻ *Status information*

The consignment, i.e. the container, is registered for the first time by the system in this message. It is drawn up at the three stations. Every consignment thus acquires an information status. This message remains at the location of the dispatch station.

### ◻ *Departure information*

On the train's departure, the status information is extended to become the departure information. It contains the train number and the departure time as well as the number of the container wagon, in addition. The departure information is transmitted to all information terminals.

### ◻ *Arrival information*

On the train's arrival at the next station, an arrival message is drawn up. It is the continuation of the information available on the consignment in the system prior to that time. The arrival time of the train and, in the case of a delivery to a recipient, the time of the written hand-over confirmation form the contents of this continuation. Should the consignment be passed on from Baku via the ferry or via Baladshary to the Russian border as a transit consignment, the hand-over time (departure from Kishli (Baku) Station) is registered in the arrival message. And in Poti, the hand-over time at the Harbour of Poti is also registered in the arrival message. The arrival information is then transmitted to all other information terminals, too.

### ◻ *Exception information*

Should there be disturbances and deviations from the scheduled transport, an exception information is drawn up. It contains place, nature and time of the irregularity as well as the probable time of the elimination of this disturbance. This information is then also passed on to all information terminals.

The principle of dispatch responsibility is applied to any enquiries by customer about the status of his consignment. That is to say, for consignments dispatched in the area of the Azerbaijani Railways or which have been taken over in cross-border transport, the information terminal of the AGZD Management is responsible and vice versa, the information terminal of the GRZD Management is responsible for any consignments dispatched in the area of the Georgian Railways.

The Rationale (Appendix 5) shows details of the information system.

# B. MEASURES OF INTRODUCING THE SYSTEM

The introduction of the train is planned as of October 1996.
The first train from Poti will run

on 14th October 1996 from Kishli (Baku) to Poti and
on 17th October 1996 from Poti to Kishli (Baku).

In order to secure these dates, the following tasks have to be carried out in joint responsibility by the Azerbaijani and Georgian railways.

# 1. Tasks for providing staff

1.1 The overall responsibility for inaugurating the system lies with

- *for the Azerbaijani Railways*
  Mr Nariman Nagiev, Chief Engineer for Technical Service
  Telephone: 99 44 34
  Fax:

- *for the Georgian Railways*
  Mr Kinkadse Mamuli
  Telephone: 99 45 00
  Fax: 95 27 47

1.2 A joint working group will be set up for the following tasks. The persons listed are responsible for the respective tasks, on behalf of the railways:

| No | Tasks | AGZD | GRZD |
|---|---|---|---|
| 1.2.1 | Operational tasks | Nagiev, N. | Kinkadse, M. |
| 1.2.2 | Commercial tasks | Askerov, V. | Berishelili |
| 1.2.3 | Engine service | Aslanov, K. | Popov, M. |
| 1.2.4 | Wagon service | Gasanov, K. | |
| 1.2.5 | Information system and communication | Kasumov, P.<br>Karayev, V. | Davitaya Arveladse |
| 1.2.6 | Accompaniment & security | Tagiyev, A. | Tabatadse |
| 1.2.7 | Marketing | Achudnov | Tatshivili |

# 2. Tasks for securing technical service

2.1 A timetable graph shall be drawn up for both directions of the train, on the basis of the following departure times:

- Thursday, 20.00 hours from Poti and
- Monday, 20.00 hours from Kishli (Baku)

R.: AGZD
GRZD

D.: 25th August 1996

2.2 Station operating plans are to be drawn up on the basis of the timetable graph for the stations of

- Kishli (Baku)
- Poti
- Tbilisi

R.: AGZD
GRZD

D.: 30th August 1996

2.3 A technical service instruction is to be issued for all stations along the line from Poti to Kishli (Baku) and for the coordinators on the priority of the train before all passenger and goods trains.

R.: AGZD
GRZD

D.: 30th August 1996

# 3. Tasks concerning engines

3.1 Plans on the use of engines are to be drawn up for those engines to run on the Georgian and Azerbaijani parts of the line. Beyuk-Kyassik is the station of interchange.

R.: AGZD
GRZD

D.: 20th August 1996

# 4. Commercial tasks

4.1 The guaranteed transport times as well as the provision and loading deadlines at the stations of

- Kishli (Baku)
- Tbilisi and
- Poti

are to be coordinated and published through public notices and suitable publications.

R.: AGZD
GRZD

D.: 15th September 1996

4.2 The conditions for insuring the goods for the respective transports are to be determined

R.: AGZD
GRZD

D.: 15th September 1996

# 5. Tasks for installing the logistic information system

5.1 The hardware configuration to be used shall be harmonised with regard to the types and makes. One supplier is to be commissioned for the equipment of all information terminals.

R.: AGZD
GRZD

D.: 25th August 1996

5.2 The software for entering, processing, output and storage the logistic information is to be drawn up and tested.

R.: AGZD
GRZD

D.: 15th September 1996

5.3 The micro locations for installing the connections of the information terminals are to be established.

R.: AGZD
GRZD

D.: 30th August 1996

5.4 The installation of the hard- and software is to be carried out on location. The operators have to be briefed. The communication links between the information terminals have to be established.

R.: AGZD
GRZD

D.: 15th September 1996

5.5 Test files are to be prepared and the entire system is to be tested.

R.: AGZD
GRZD

D.: 30th September 1996

# 6. Further Tasks

6.1 A joint marketing campaign is to be organised for Georgia and Azerbaijan.

- marketing-prospectus
- advertisements in newspapers
- talks with customers

R.: AGZD
GRZD
project team

D.: 15th September 1996

Appendix 1

# List of important forwarding companies the Georgian Railways cooperate with

| No | Name | Address | Contact | Telephone |
|---|---|---|---|---|
| 1 | Gruzzeldorexpeditzia | 380012 Tbilisi, Zaritza Tamara, prospect, 15. | | |
| 2 | Kavtransterminal | 380012 Tbilisi, Zaritza Tamara, prospect, 15. | | |
| 3 | Karavan XX | 380012 Tbilisi, Zaritza Tamara, prospect, 15. | | |
| 4 | Vector-Line | Tbilisi, David Agmashenebeli, 154 | | |
| 5 | Karlo | Tbilisi, ul. Nitzkevitsh, 29 a | | |
| 6 | Kontrans | 380060 Tbilisi, Kazbegi prospect, 19 a | | |
| 7 | "George" joint Georgian - Ukrainian venture | Rustavi, ul. Mira, 8 | | |
| 8 | "Tero" Maritime Agency | Batumi, ul. Gogebashvili, 32, Kv. 12 | | |
| 9 | Transfer-Izekavshiri Forwarding Company | 380007, Tbilisi, pl. Svobody, 7, Komnata 421 | | |

Appendix 2

# List of important goods dispatchers in Georgia

| No | Name | Address | Contact | Telephone |
|---|---|---|---|---|
| 1 | Poti-Harbour | Poti | | |
| 2 | Batumi Oil Refinery | Batumi, ul. Mayakovski, 4. | | |
| 3 | Batumi | | | |
| 4 | Samtredia | | | |
| 5 | Kutaisi Car Plant | Kutaisi, ul. Avtostroitelya, 88 | | 6-96-40 |
| 6 | Kutaisi Bread Factory | Kutaisi, ul. Shevtshenko, I per, 18. | | |
| 7 | Zestafoni Iron Alloy Plant | Zestafoni, ul. Sakartvelo, 9 | | 5-34-69 |
| 8 | Hashuri Oil Base | Surami, Imeretinskoye Shosse, 15 | | |
| 9 | Hashuri Quartz Sand Quarry | Marpeuli, post box 383+36 | | |
| 10 | Kaspi "Kaspizement" Production Association | Kaspi, post box 3883440 | | |
| 11 | O.O.O. Koka-Kola Kavkasioni | Tbilisi, prospect Tzereteli | | |
| 12 | Tbilisi Machine Tool Plant | Tbilisi, ul. Magnitogorskaya, 1 | | |
| 13 | Tbilisi "Mercurij-92" Cold Storage | Tbilisi, ul. Tevdora Mgdveli, 23 | | |
| 14 | "Agot" Production Association, Rustavi | Rustavi<br>ul. Mira, 2 | | |
| 15 | Rustavi Metal Combine | Rustavi<br>Gagarin St. 12 | | 192-010 |
| 16 | Rustavi Cement Works | Rustavi<br>ul. Stroiteley | | 192-410 |

Appendix 3

# List of important goods recipients in Georgia

| No | Name | Address | Contact | Telephone |
|---|---|---|---|---|
| 1 | Poti-Harbour | Poti | | |
| 2 | Batumi Oil Refinery | Batumi, ul. Mayakovski, 4. | | |
| 3 | Batumi | | | |
| 4 | Samtredia | | | |
| 5 | Kutaisi Car Plant | Kutaisi, ul. Avtostroitelya, 88 | | 6-96-40 |
| 6 | Kutaisi Bread Factory | Kutaisi, ul. Shevtshenko, I per, 18. | | |
| 7 | Zestafoni Iron Alloy Plant | Zestafoni, ul. Sakartvelo, 9 | | 5-34-69 |
| 8 | Hashuri Oil Base | Surami, Imeretinskoye Shosse, 15 | | |
| 9 | Hashuri Quartz Sand Quarry | Marpeuli, post box 383+36 | | |
| 10 | Kaspi "Kaspizement" Production Association | Kaspi, post box 3883440 | | |
| 11 | O.O.O. Koka-Kola Kavkasioni | Tbilisi, prospect Tzereteli | | |
| 12 | Tbilisi Machine Tool Plant | Tbilisi, ul. Magnitogorskaya, 1 | | |
| 13 | Tbilisi "Mercurij-92" Cold Storage | Tbilisi, ul. Tevdora Mgdveli, 23 | | |
| 14 | Tbilisi Bread Factory | Tbilisi, Moskovski pr. 15 | | |
| 15 | Tbilisi Furniture Factory | Tbilisi, ul. Dzavahis....21 | | |
| 16 | Tbilisi Aero Association | Tbilisi, post box, a -1186 | | |
| 17 | Tbilisi Bed Furniture Company | Tbilisi, ul. Kindzmaraulskaya, 7 | | |
| 18 | Rustavi "Azot" Production Association | Rustavi, ul. Mira, 2 | | |
| 19 | Rustavi Smelting Plant | Rustavi, ul. Gagarina, 12 | | 19-20-10 |
| 20 | Rustavi Cement Plant | Rustavi, ul. Stroitelei, 70 | | 19-24-10 |
| 21 | Georgian Heating Plant | Gardabani, post bos 383010 | | |

Appendix 4

# Customer letter

on the

# Trans-Caucasian-Logistic-Express

1. Advantages of the train

2. Questionnaire

3. Contacts at AGZD and GRZD

## 1. Advantages of the train

The Azerbaijani State railways (AGZD) and the Georgian Railways (GRZD) are offering their customers a new transport product.

The

***Trans-Caucasian-Logistic-Express***

runs once a week

***from Poti Station to Kishli-Baku***

and

***from Kishli-Baku to Poti Station***

as a container train.

The quality features of the train are:

| | |
|---|---|
| **Stability:** | The Express runs regardless of the respective utilisation. |
| **Regularity:** | The Express runs once every week<br>♦ on Thursday, 20.00 hours from Poti Station<br>♦ on Monday, 20.00 hours from Kishli-Baku. |
| **Speed:** | The Express has a transportation time of 30 hours for each direction. |
| **Security:** | The Express is accompanied by armed security staff and protected against assaults at all times. |
| **Reliability:** | The Express has guaranteed travelling times as well as fixed departure and arrival times at the stations. |
| **Competitiveness:** | The Express transports the containers at a tariff which is about 20 % under the comparable price for road transportation. Customers with a high transport volume will benefit from discounts. |

During the 1st stage, as of October 1996, the Express will run between Poti and Baku and back again with an en-route stop in Tbilisi (loading and unloading) and in Beyuk-Kyassik (customs clearance).

During the 2nd stage, as of mid 1997, it is planned for the Express to have two more en-route stops, which are Zamtredia (Georgia) and Gyandsha (Azerbaijan).

During the 3rd stage, as of the end of 1997, it is planned to offer the Express also for the transportation of high-value goods, which are not delivered in containers.

## 2. Questionnaire

| |
|---|
| Name of company (stamp): |
| Address: |
| Contact: |
| Telephone: |

| | | yes | no |
|---|---|---|---|
| 2.1 | Are you interested in using the Express in principle? | ☐ | ☐ |

| | | yes | no |
|---|---|---|---|
| 2.2 | Are regular container transports being conducted? | | |
| | per year | ☐ | ☐ |
| | per month | ☐ | ☐ |
| | per week | ☐ | ☐ |

2.3 The own container volume for the Express will be

- ♦ ≤ 10 containers/month ☐
- ♦ > 10 ≤ 50 containers/month ☐
- ♦ > 50 ≤ 100 containers/month ☐
- ♦ > 100 containers/month ☐

2.4 The main relations of the container transports are

- ♦ Poti - Tbilisi ☐ %
- ♦ Poti - Baku (Azerb.) ☐ %
- ♦ Poti - Baku (transit to Russia) ☐ %
- ♦ Poti - Baku (transit to Central Asia) ☐ %
- ♦ Baku (Azerb.) - Tbilisi ☐ %
- ♦ Baku (Azerb.) - Poti ☐ %
- ♦ Baku (transit from Russia) - Poti ☐ %
- ♦ Baku (transit from Central Asia) - Poti ☐ %

We would like to ask you to send back the completed questionnaire to the following contacts at the railways.

## 3. Contacts

3.1 Azerbaijani Railways
Mr Nariman Nagiev,
Chief Engineer of Technical Service

Telephone: 99 44 34
Fax:

3.1 Georgian Railways
Mr Mamuli Kinkadse

Telephone: 99 45 00
Fax: 95 27 47

Appendix 5

# Rationale

of the

# Logistic Information System

Contents:

# 1. Information requirement

The information system provides

- transport accompanying and
- transport advance

information.

There is the following structure of requirement:

| Requirement source | Requirement contents | Requirement period |
|---|---|---|
| Transport customer | Location of the container in the logistic chain | During the time of the container's handling by AGZD or GRZD |
| | Regularity of container transport | During and 30 days after the container's handling by AGZD or GRZD |
| | In case of irregularity - nature of disruption | During and 30 days after the container's handling by AGZD or GRZD |
| Stations | Number of containers on the train | During the time of the container's handling by AGZD or GRZD |
| | Destination station of the containers | Before the arrival of the train |
| | Irregularity of the train | On irregularities occurring |
| Management of<br>- AGZD and<br>- GRZD | Information on the status of the containers and trains in the logistic chain | Time of issuing the message |
| | Irregularity of trains and containers | Time of irregularity occurring |

# 2 Structure of the data stock

The central stock of data constitutes the core of the information system, which consists, on the one hand, of messages on containers, trains and disruptions and, on the other hand, secures the ability of the railways to provide the customers with information.

## 2.1 Container data BDAT1[1]

This file is the basis for any information regarding the container and disruptions.

| | | |
|---|---|---|
| **Container number**[2] | key to identification | |
| Acceptance station | | |
| Destination Station | | =Target station |
| Destination country | | |
| Case history (take-over from whom) | | |
| Dispatcher | | |
| Recipient | | |
| Contents | | |
| Status | | |
| Time of acceptance | date/time | |
| Loading | train number | |
| Loading time | date/time | |
| Departure time | date/time | |
| Passage station | station name | These two fields are over- |
| Time of message | date/time | written per passage station |
| Destination station | name of station | |
| Arrival time | date/time | |
| Unloading time | date/time | |
| Delivery | take-over | |
| Delivery time | date time | |
| Container disruption | | |
| Type of disruption | This data segment | |
| Reporting station | may occur repeatedly. | |
| Reporting time | Differentiation by reporting station and reporting time | |

[1] BDAT = Stock file
[2] The data printed in italics and bold are the identifying keys (primary indices)

## 2.2 Train data

**BDAT2**

This file constitutes the basis for information relating to the trains (and the added containers) including any disruptions of the train.

| | | |
|---|---|---|
| **Train number** | | key to identification |
| **Departure day** | date | |
| Station 1 | | =starting station of train |
| Departure | date/time | per train and wagon |
| Wagon and container on departure | | |
| Wagon marking (WKZ) | | max. 3 containers per wagon |
| Container number | | |
| Station 2 | | |
| Arrival | date/time | |
| Departure | date/time | |
| Wagon and container at arrival | | |
| Wagon marking (WKZ) | | |
| Container number and marking for unloading | | |
| Wagon and container at departure | | |
| Wagon marking (WKZ) | | |
| Container number and marking for loading | | |
| Station 3.....station 6 as station 2 | | =en-route stations of train |
| Station 7 | | = terminal station of train |
| Arrival | date/time | |
| Wagon and container at arrival | | |
| Wagon marking (WKZ) | | |
| Container number | | |

Train disruption

| | | |
|---|---|---|
| Type of disruption | | This data segment |
| Reporting station | name of station | may occur repeatedly. |
| Reporting time | date/time | Differentiation by reporting station and reporting time |

# 3 Structure of the messages

The stations involved are the registration points of the information system. They send the data to the central points and the other stations in the form of messages.

## 3.1 Container supply message MART1[3]

This message is to be issued per container on its acceptance.
From the data preparation point of view, this message is the first registration.

| | |
|---|---|
| **Reporting station** | name of station |
| (=Acceptance station | name of station) |
| Reporting time | date/time |

**Container number**

Acceptance time date/time

Case history (take-over from whom)

Destination station
Destination country

| | |
|---|---|
| Dispatcher | name, address, telephone, telefax |
| Recipient | name, address, telephone, telefax |

gross weight

[3] MART = Type of message

## 3.2 Train departure message MART2

This message is to be issued per train.
It contains all containers on the train at the departure of the train. The containers loaded additionally receive a special marking.
The departure message of the previous station serves as an aid for the registration of all containers on the train.

| | | |
|---|---|---|
| **Reporting station** | name of station | (=acceptance station) |
| Reporting time | date/time | |
| | | |
| Train loading | **train number** | |
| Loading time | date/time | |
| Departure time | date/time | |

Wagon and container list — per train and wagon
- Wagon marking (WKZ) — max. 3 containers per wagon
- Container number + marking for additional loading + destination station

## 3.3 Train arrival message MART3

This message is to be issued per train.
It contains all containers on the train at the arrival of the train. The containers unloaded receive a special marking in the message.
The departure message of the previous station serves as an aid for the registration of all containers on the train.

| | | |
|---|---|---|
| **Reporting station** | name of station | (=passage or terminal station) |
| Reporting time | date/time | |
| | | |
| Train number | **train number** | |
| Arrival time | date/time | |
| Departure time | date/time | |

Wagon and container list
- Wagon marking (WKZ)
- Container number + marking for unloading

## 3.4 Container delivery message

MART4

This message is issued per container on its delivery.

| | |
|---|---|
| **Reporting station** | name of station |
| Reporting time | date/time |
| **Container number** | |
| Hand-over | hand-over to company and person |
| Time of hand-over | date/time |

## 3.5 Train disruption message

MART5

This message is issued in case of irregularities per train.

| | |
|---|---|
| **Reporting station** | name of station |
| **Reporting time** | date/time |
| Train | **train number** |
| Departure day | date/time |
| Nature of disruption | |

## 3.6 Container disruption message

MART6

This message is to be drawn up per container in the case of irregularities.

| | |
|---|---|
| **Reporting station** | name of station |
| **Reporting time** | date/time |
| **Container number** | |
| Nature of disruption | |

## 3.7 List of the types of messages

| MART | Contents | Issuer | Time | Use for file |
|---|---|---|---|---|
| 1 | Container supply message | Acceptance station | 3 times daily, at train departure at the latest | Container file BDAT1 |
| 2 | Train departure message | Station with train departure | until 30 mins after train departure | Container file BDAT1 and train file BDAT2 |
| 3 | Train arrival message | Station with train arrival | until 30 mins after train arrival | Container file BDAT1 and train file BDAT2 |
| 4 | Container delivery message | Unloading station (destination station) | daily | Container file BDAT1 |
| 5 | Train disruption message | Reporting station | on identifying an irregularity | Train file BDAT2 |
| 6 | Container disruption message | Reporting station | on identifying an irregularity | Container file BDAT1 |

# 4 Hardware

Only such hard- and software components were considered which allow for a simple and speedily realisable solution, heeding the conditions on location.

PC stand-alone (no network), with modem via telephone dialling line.

# 5 Software

| | |
|---|---|
| Operating system for PC | Windows 95 or Windows 3.11 |
| Communication software | Data transmission (File transfer of messages) via modem with freely selectable terminal-software under Windows, e.g. pcANYWHERE from SYMANTEC or ProkommPlus from Datastorm |
| Data bank operating system | Proposal is ACCESS 2.0 from Microsoft[4] as uniform standard software for the central points and the stations, for data administration and development of application programs |
| Application programs | Drawn up with ACCESS as well as using the communication software, for the central points and the stations with the following functions: |

| Functions | Stations | for management of AGZD, GRZD |
|---|---|---|
| Prepare messages | Messages 1-6. For messages 2 and 3 by taking over and updating Message 2 from previous station | --- |
| Send off messages | Messages 1-6 | --- |
| Receive messages | Messages 2 and 5 | Messages 1-6 |
| Include messages in data stock | Use message 2 for drawing up messages 2 and 3 | Messages 1-6 |
| Queries | --- | about containers, trains and disruptions |

4 ACCESS is available in a Russian version. Price is approx. DM 1,000.-, delivery time in Germany is about 3-6 weeks.

Later version of extension:

PC of the managements (AGZD, GRZD) are equipped to function as WINDOWS-NT-servers.
Stations use the RAS component (Remote-Access-Service) from Windows 95 or Windows 3.11 for dialling into the server and entering their data directly into the central point's stock of data.

# 6 Organisation

The organisational rules serve to secure

- a proper availability of data,
- a reliable operation of the information system and thus
- the ability of the system to provide information for customers and the railways.

These are the main points of the organisational regulations:

## 6.1 Data provision

Duties of the station for registration
- message about all trains and containers
- completeness of the messages
- adherence to the time schedule for sending off the messages

Stipulations for emergency versions
In cases when the registration or data transmission is disrupted, the data shall be passed on to the central points by telephone, where they shall be entered into the system.

## 6.2 Operation and maintenance of the data bank

The duties of the AGZD and GRZD managements as well as at the stations have to be supplemented and staffed in such a way that the following tasks can be solved in a stable manner:

- global tasks for the information system, i.e. looking after and maintaining the system,

- central tasks of the central points, consist mainly in
  readiness for receiving the messages and
  readiness for providing information

- decentralised tasks at the stations, consist mainly in
  readiness for receiving the messages,
  readiness for registering data and
  sending off the messages

## 6.3 Communication with the customer

Customers of the railways are able to enquire at the AGZD and GRZD managements by telephone or telefax and receive the requested information.

Multi-language forms for standard enquiries of international customers can be prepared and provided. The customer enquiry (entered in the form) is then sent to the AGZD and GRZD managements by telefax.

The answer to the enquiry is communicated back to the customer either over the telephone or by telefax.

# Annex 4

# *Minutes*

of the joint meeting of the Azerbaijani State Railways (AGZD) and the Georgian Railways (GRZD) with the Trans-Caucasian-Railway project team within the scope of the TRACECA Programme

**on the subject of**

**Trans-Caucasian-Logistic Express**

---

*Time:* 14th - 16th August 1996

*Place:* Department of the Georgian Railways, Tbilisi

*Participants:* see Annex 1

The meeting took place within the framework of the "Trans-Caucasian-Railway" TRACECA Programme, at the invitation of the Georgian Railways.

The subject of the joint meeting was the draft of system characteristics of the *Trans-Caucasian-Logistic-Express*, representing the result of the project work during the period of June to August 1996.

The draft was drawn up in bilateral cooperation of the project team with the respective specialised services of the two railways.

During the meeting, principal agreement was reached on the contents of the system characteristics.

The following supplements and amendments were agreed for the individual components of the system characteristics:

**Point 1:**

1.1 Table 1 is no longer part of the system characteristics. The results of the analysis on page 3 are substituted by a general statement, saying that on average, freight trains on the line section of Baku - Beyuk-Kyassik have a delay, caused by interruptions, of about 5 to 7 hours.

**Point 2:**

2.1 The composition of the train planned for the first and second stages of implementation is revised in accordance with the statement on goods wagon provision and goods wagon exchange newly introduced in Point 6.

**Point 3:**

3.1 It was agreed to coordinate the planned marketing measures with the two railway administrations.

3.2 The marketing measures listed are supplemented by a new point 4:
"4. The Task Force formed by experts of the EU shall support the marketing work for winning additional potentials for the Trans-Caucasian-Logistic-Express."

**Point 4:**

4.1 The figures missing in the tables for goods volumes are to be filled in on the basis of the topical values handed over by the railways.

**Point 5:**

5.1 The characteristics of the stations Kishli (Baku), Gyandsha and Beyuk-Kyassik shall be completed in accordance with the details provided by AGZD.

5.2 A remark of the following content is made as regards the terminal node of Kishli (Baku):
"Following refurbishment work on the station of Chyrdalan, Kishli (Baku) Station will be replaced as a terminal node by Chyrdalan Station."
The respective details on Chyrdalan Station will be handed in later by AGZD

5.3 The statement made on page 20 is supplemented as follows:
"The Azerbaijani and Georgian railways do not have handling installations for 40' containers at their disposal at present. However, such containers can be handled at other terminals (e.g. Poti Harbour and Baku Harbour)."

**Point 6:**

6.1 The complexes of tasks listed are supplemented by a new complex "5. Provision and exchange of container wagons". The material handed over by the project team was approved, under consideration of the deletion of the last sentence and revision of lines 4 and 5 on page 2.

6.2 Possible future changes in the engine or crew switching points in Azerbaijan, shall be communicated to the partners by AGZD.

6.3 Tables 5 and 6 are supplemented by the details provided by GRZD.

6.4 The engine switching points on the Georgian section of the line are supplemented by the stations of Zestafoni and Khachuri.

6.5 The statements on the utilisation of the train's capacity are supplemented by the following:
"Should there be a reduction in the volume of goods to be transported, the railways can cancel the train, with the consent of the partners. The two railways shall agree on a minimum utilisation of the train."

6.6 In the case of replacements of container wagons from the fixed stock, due to transit transports to Central Asia, Russia and Armenia, the numbers of the newly provided container wagons shall be communicated to the other side.

**Point 7:**

7.1 There shall be separate negotiations between the railways shortly on the commercial conditions of operating the Logistic-Express. Point 7 shall be revised after these negotiations.

**Point 8:**

8.1 There shall be an additional meeting of the relevant bodies of both sides, including the customs officials and commercial services of the railways on regulations concerning the issues of accompaniment and security of the train.

**Point 9:**

9.1 There shall be further coordination between the respective specialised services of both railways for supplementing the logistic information system.

9.2 Both railways deem an improvement of the communication link between the stations of Tbilisi and Akstafa as necessary for the ability of the information system to function.

9.3 Both railways requested to check in how far material support may be rendered for establishing the said communication link within the scope of this TRACECA project

9.4 The two railways shall hand over to the project team a respective cost estimate.

**Point 10:**

10.1 The plan of action was revised as regards the above mentioned points, as a result of the meeting. The updated version is part of the minutes (Annex 2)

10.2 In addition, the two railways agreed to run a trial train, according to the system characteristics, on 7th October from Baku and on 10th October 1996 from Poti.

The minutes have been drawn up in three copies, in the Russian language.

For the delegation of the Azerbaijani Railways

signed Nagiev

For the delegation of the Georgian Railways

signed Kiknadse

For the TRACECA project team

signed Kupec

Approved:

Head of the
Azerbaijani State Railways

signed Mamedov

Head of the
Georgian Railways

signed Chkaidze

**Annex**

List of participants

- of the Georgian Railways
- of the Azerbaijani State Railways
- of the EU project team

(in Russian)

# СПИСОК

участников совещания представителей АГЖД и ГРЖД по подготовке "Закавказского магистрального эеспресса" с 14.08.1996 по 16.08.1996 г. в Тбилиси

| NN | фамилия | АЖД/ГЖД | должность | телефон |
|---|---|---|---|---|
| 1. | Чхаидзе А. | ГЖД | Председатель департ.Гр.ж.д. | 99-40-12<br>95-51-84 |
| 2. | Мелкадзе И. | "-" | Гл.инж.Гр.ж.д. | 99-44-12<br>95-44-12 |
| 3. | Чхиквадзе Д. | "-" | Гл.экон. Гр.ж.д. | 99-35-80<br>95-78-92 |
| 4. | Кикнадзе М. | "-" | Нач.сл"Д" Гр.ж.д. | 99-45-00<br>95-00-20 |
| 5. | Арвеладзе Г. | "-" | Нач. сл. "Ш." Гр.ж.д. | 99-45-40 |
| 6. | Табатадзе Г. | "-" | Нач. полиции | 99-37-09 |
| 7. | Абзианидзе Н. | "-" | Нач.сл. НТИ. | 99-32-60 |
| 8. | Зибзибадзе А. | "-" | Гл. инж. сл."П" | 99-46-06 |
| 9. | Попов И. | "-" | Гл. инж. сл."Т" | 99-45-22 |
| 10. | Давитая А. | "-" | Нач. "ВЦ" | 99-31-01<br>96-63-28 |
| 11. | Татишвили Т. | "-" | Нач.отд."М0" | 99-47-06 |
| 12. | Гонгладзе У. | "-" | Зам.нач.от."М0 " | 99-47-64 |
| 13. | Ростомашвили Н. | "-" | Зам.нач.от."М0 " | 99-47-06 |
| 14. | Цомая Г. | "-" | Президент "Кавказ-трансэкспд" | 29-19-63 |
| 15. | Каладзе В. | "-" | Гл.инж.сл."В" | 99-46-32 |
| 16. | Петриашвили Г. | "-" | Нач.сл. "К" | 99-47-00<br>95-35-09 |
| 17. | Чигогидзе В. | "-" | Нач. отдела Груз.жел.эксп. | 99-38-64 |
| 18. | Беришвили Л. | "-" | Гл.инж.сл."К" | 99-47-05 |
| 19. | Афакидзе В. | "-" | Нач.отд."К" | 99-37-06 |
| 20. | Морчиладзе Р. | "-" | Зам.нач.сл."Л" | 99-41-23 |
| 21. | Мшвилдадзе Г. | "-" | Зам.сл."Д" | 99-45-04 |

# СПИСОК

участников совещания представителей АГЖД и ГРЖД

по подготовке "Закавказского магистрального эеспресса" с 14.08.1996 по 16.08.1996 г. в Тбилиси

| NN | фамилия | АЖД/ГЖД | должность | телефон |
|---|---|---|---|---|
| 1. | Нагиев Нариман | АЖД | Гл.инж.службы перевозок | 99-44-34 |
| 2. | Гасанов Кямиль | "-" | Гл.инж.вагонной службы | 99-45-19 |
| 3. | Кулиев Физули | "-" | Гл.инж.службы пути | 99-45-28 |
| 4. | Аскеров Вахид | "-" | Гл.инж.Грузовой и коммер. работы | 99-46-31 |
| 5. | Асланов Хаким | "-" | Гл.инж.локомот. службы | 99-45-01 |
| 6. | Касумов Джафар | "-" | Зам.нач.технич. отдела дороги по вычислительной технике | 99-49-29 |
| 7. | Наджафов Ага-Керим | "-" | Зам.нач.технического отдела дороги | 99-47-07 |
| 8. | Ахундов Эльдар | "-" | Зам.начальника службы внешней связи | 99-43-41 |
| 9. | Мустафаев Рафаель | "-" | Зам.начальника экономической службы | 99-43-76 |
| | Купец, Клаус | ЕС | Зам. руководителя проэкта | |
| | Тесман, Гюнтер | ЕС | Специалист по грузовым перевозкам | |
| | Майсель, Фриц | ЕС | Специалист по финансовым вопросам | |