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**RESTRUCTURING AND REVITALIZING THE KALININGRAD REGION*
(PHASE I-A)**

TF/RUS/94/001 and US/RUS/93/134

RUSSIAN FEDERATION

Technical report: Study on infrastructure**

Prepared for the Kaliningrad Administration
by the United Nations Industrial Development Organization

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1. Introduction

1.1 Overall objective

The UNIDO-project, Restructuring and Revitalization of the Kaliningrad Region (Phase 1. a), aims at preparing a detailed regional development survey of the Kaliningrad region, identifying industrial development projects, and advising on policy and institutional measures. Particular emphasis is put in identifying concrete projects and areas for development to be further developed in subsequent project phases.

1.2 Objectives of infrastructure sector study

This sector report deals with the physical infrastructure: road, rail, air and marine transport and water supply, waste water and solid waste handling as well as telecommunications.

Other sector studies deal with the institutional ("soft") infrastructure.

The objectives of this study are to assess strengths and weaknesses in the infrastructure's ability to support a short medium term industrial development. This means that the study is not primarily focusing on strategic long term infrastructure developments.

1.3 Methodology

Basic information about existing situation and (by the sector authorities) planned developments was obtained through public sources (newspapers, official statistics) and, when possible, directly from the authorities.

Again, when possible, our conclusions were discussed with the authorities.

1.4 Limitations

Within the limited scope of this sector study some strategic aspects may have been missed. We feel, however, confident that the conclusions and recommendations form realistic assessment of how the infrastructure can support a short to medium term industrial development.

1.5 Study team

The study has been carried out by Mr Alexander Alexeev, Mr Igor Maltsev, Mr Igor Akmanov from Investment Research Centre, Kaliningrad, together with Mr Bo Björk, UNIDO-expert.

2. Summary and Conclusions

2.1 General

At large the existing infrastructure for roads, rail, air and marine transport is adequate to support a short to medium term industrial development. Minor improvement areas are suggested. Supply of clean water and collection of sewage water are critical in certain areas. A principal issue, which will govern the strategy for infrastructure development, is whether Kaliningrad will position itself as a Russian gateway to Europe. Although many infrastructure plans exist for development in this direction, it is not clear whether national policies support this. However, the short to medium term needs for industrial revitalization will not depend on this.

2.2 Road Transport (See special map)

The regional road network is fairly well developed. Although many roads have low geometric standard and are poorly maintained, all parts of the region are accessible.

The street network in Kaliningrad city is to a large extent badly maintained, in particular in some industrial areas in the outskirts. The rapidly increasing traffic demonstrates the need for improved connections over river Pregol. The existing bridges are in acute need for rehabilitation and traffic flow improvements and additional bridge(s) will most probably be required.

The inter-regional east-west road connecting Kaliningrad to "main land" Russia is under reconstruction to high standard. Other roads connecting Kaliningrad to Poland and Lithuania are of low standard or, as the Berlinka road, not connecting to a trafficable road in Poland.

Priority developments in the road sector would include

- The road Gusev - Goldap to improve connections with Poland, including transport corridor No. 2
- Completion of Kaliningrad Ring Road and improvement of connecting streets in order to improve connection to the harbour and off-load traffic from the city streets
- Improvement of bridges in the Kaliningrad city, possibly also new bridge(s)
- Complete the Berlinka motorway when the Polish part is being reconstructed
- Spot improvements, e.g. pot hole repair, geometrical lay-out changes in order to improve traffic flow and safety.

2.3 Rail transport (See special map)

The rail network is quite extensive, connecting almost all major towns in the region with Kaliningrad city.

The inter-regional rail links cross the Lithuanian border at two locations and the Polish at three. European track width line goes all the way to Kaliningrad city from Poland.

There are substational repair/rehabilitation needs e.g. the line to Baltysk, and the regional rolling stock has large replacement needs.

The prime weaknesses of the inter-regional rail transport are the high transit costs through Lithuania and complicated customs procedures. These are also the most important areas for improvement.

2.4 Air transport

The main civil airport is Khabrovo airport located 17 kms north-west of Kaliningrad city. The airport is equipped for all-weather landing and take-off. The runway length allows only middle-distance aircrafts. In 1994 the passenger turnover was 190 000, down from 339 000 in 1985, and 900 tons of cargo were handled. There are several other airports in the region, from simple unpaved "sport" fields to large military airports. The biggest of them, Chkalovsk airdrome 7 km to the west of the Kaliningrad city centre, can receive large aircrafts.

The passenger and cargo turnover at Khrabrovo airport corresponds to a small to medium sized regional airport by western standards. It would consequently be difficult to find an economical justification for large investments.

The airport service is adequate for the current passenger and cargo flow. However, short term improvements could include:

- introduction of modern passenger and cargo handling systems
- improved passport and and customs handling procedures
- renovation of terminal buildings
- improved car parking facilities

2.5 Marine transport

The "Kaliningrad Port" is not one port but a complex of ports at different locations between Kaliningrad city and the Baltic Sea. These complexes have also different ownerships (see special map). Some complexes are established since long (Trade Port, Fishing Port, River Port), while others are under construction (Terminal Pregolsky, Terminal Svetly). In addition, there is the military port in Baltysk, for which plans for a development to a civil port exist.

One draw-back for the inner ports are the long access time from the Baltic and the difficult navigation through the Marine Channel. The Marine Channel also draws high maintenance costs.

The current turn-over is far below the capacity; it has decreased from about 10 million tons/year before 1990 to approximately 5 million tons/year in 1994. Reasons for this include:

- the general economic decline
- high transit tariffs through Lithuania
- long distance from the main markets in Russia
- competition from neighbouring ports and the protectionist policies in the Baltic states.

The above implies that the existing port facilities are adequate for supporting an industrial development in the region.

The key issue for the long term position of the port is, besides the general economic development, its competitiveness compared to other Baltic ports. The situation today is not very encouraging. St. Petersburg, ports in the Baltic countries and Poland appear to have the competitive edge.

Any plans for the development of Kaliningrad port to be based on a long-term strategy how to improve the competitiveness. It is therefore recommended that a strategic port development plan is carried out.

2.6 Water supply, waste water, waste

The water and waste water systems in the region and in the city are very old and under-dimensioned. Leakages in the jointly located systems cause danger for contamination of clean water. In Kaliningrad city there is a deficiency in water supply.

Solid waste handling is not very developed, but trials using modern european collection systems have started.

Work is continuously carried out to improve the situation, but lack of funds make any major improvements difficult at the time.

Certain areas of Kaliningrad city lack water/waste water infrastructure, making it impossible to develop these areas for residential/industrial purposes.

The shortage of water supply may also be a restriction on industrial development. There is plenty of water in the ground, why one option is to establish own wells.

The environmental situation with respect to untreated waste water is particularly serious in Kaliningrad city and in Neman, where the pulp and paper industries are severe pollutants.

Priorities to improve the water supply/waste water handling situation include:

- completion of the new main water collector in Kaliningrad city and treatment plant. Building of secondary collectors to be connected to the main collector

- waste water treatment facilities in Sovetsk, Neman, Baltysk etc.
- installation of water meters, being one measure to reduce clean water consumption

2.7 Telecommunications (See chapter 8)

3. Road Transport

3.1 Description of current situation

Annually road transport of Kaliningrad region transports 30% of all cargoes.

Long distance transportations are not developed in the region. Mainly road transport transports cargoes and passengers on high ways within the region. Approximate distance of cargo and passenger transportations is 30 and 8 km.

There is a gradual decrease in number of passengers and cargoes going by road transport. Especially decreased the volume of transportations by road transport in 1993 (64,2% from the level of 1992), it was caused by unstability in prices for fuel, spare parts, etc., and general economical situation in Russia.

In the region operate 267 bus lines, including 123 in the region.

Today by bus you can go from Kaliningrad to Elblong, Olshtyn, Essen and other cities of Poland and Germany.

The main part of reconstruction works on the motor-way Dorozhnoe-Berlin have been completed (Old motor-way Kaliningrad-Berlin). Putting this road into operation is delayed because Polish part of the road (Kaliningrad boarder-Elblong) is not ready. By the efforts of Russian-German enterprise "Rossban" were reconstructed sectors of the road to Kaliningrad-Airport. In Kaliningrad city was repaired the surface of the road on Nevskogo str. nad Portovaya str. and also road surface of two-tiered bridge.

The road A - 229 Kaliningrad-Nesterov is under reconstruction now.

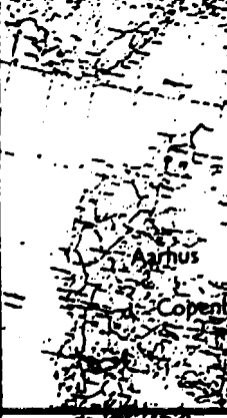
3.2 Network. Cars and roads

Schematic look of the network you can see on the map. Below we are giving description of network.

3.2.1 Roads of international importance

On the territory of Kaliningrad region there are two roads with improved, modernized road surface, which in times of USSR were considered as interrepublical and now they are considered as international. These are motor-ways A - 216 Riga - Kaliningrad and A - 229 Vilnius - Kaliningrad. Total length of this roads on the territory of the region is 243 km.

With the territory of Poland our region is connected by main roads Kaliningrad-Mamonovo (boarder) A 194 and Kaliningrad-Bagratiouovsk(boarder) A 195. The length of first road is 43 km, and second - 30 km.



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3.2.2 Roads of regional importance

Kaliningrad region has the highest density of roads per thousand sq. km of the territory in whole Russia. This exponent in the region is 306 km (it is 13 times higher than usually in Russia). In the region the length of every day use roads is 4629 km. The length of all kind of roads in the region is 8057 km. All regional roads have surfaces of cement-concrete, asphalt-concrete or macadam-gravel. Classification of roads in percents to the total quantity looks like this:

- state importance 33%
- regional 35%
- local 32%

The roads differ in type of surfacing. Here you can see comparative data in percents:

- asphalt 69%
- macadam-gravel 29%

Absolute majority of the roads in Kaliningrad region does not meet requirements of European standards. First of all it is connected with the big quantity of old trees on road sides. Besides the width of the roads is very small and there are slopes which are bigger than allowed. On few sectors the radiuses for U-turns are small. Close to the majority of roads are growing old trees.

From all roads we can underline following roads of state importance:

- Kaliningrad - Nesterov- Chernyshevskoe A 229;
- Talpaki -Sovietsk A 216 (boarder), connects A 229 in direction to Kaliningrad;
- Chernyahovsk-Zheleznodorozhnyi (boarder)-Pravdinsk A 197;
- Kaliningrad- Baltysk - A 193;
- Kaliningrad -Zelenogradsk - A 191;

- Kaliningrad- Pravdinsk - A 196;
- Prymorsk - Svetlogorsk - A 192;

3.2.3 Automobile park

The automobile park of Kaliningrad region consists of passenger cars, trucks, buses and special cars.

Kaliningrad region was always on the last place in Russia by the quantity of buses per 100 thousand people. In 1991 this exponent was 72. In 1994 the quantity was 50 in whole Kaliningrad city (412 thousand of population).

There are 483 buses working on different lines in the region in 1994, which is less than it used to be in 1993 (517). Presently working buses are have run out of their operation time range and must be replaced. Often repairs and brakes really make the passenger transportation difficult. To solve this problem the administration of the region already bought some second-hand buses from Germany, and this process is still going on.

During 1994 year 1014 different trucks worked on the regional roads, most of them were made in the USSR. There are over 57 000 private cars in Kaliningrad region. About 40 - 70 cars are being regestred each day, brought from Germany, Poland and Holland. Majority of these cars are really in a bad state.

3.3 Passengers and Cargo flows on the roads of the region

During the last two years several enterprises were acting on the an road transport market. Below you can see some data in short:

Item	1993	1994
Cargoes,thous. tons	4831	2721
Passengers,millions	161	158

In 1994 2 609 000 tons of cargoes were delivered by trucks within the cities and towns; 74 000 tons - inter city transportation; 38 000 tons - international transportation. During one day 7 000 tons of cargoes were delivered by road transport in average. The decrease of cargo and passengers flows were caused by increase in the prices for gasoline, repair works and etc., leading to increased transport tariffs.

3.4 Organizations and authorities

All questions, connected with cargo and passengers transportation are dealtwith by the different transport companies, and state organizations. Below you can see some data:

Transportation	Enterprise	Adress
Cargoes within the region	"Transagenstvo"	236000 Kaliningrad, Sovetsky prospect, 49
Cargoes to CIS states	JS "Concord"	236000, Kaliningrad, K.Marx str., 54
Cargoes to Europe	ASMAP	236023 Kaliningrad, Alyabyeva str.,22
Passengers within the region	The union of auto-station	236039 Kaliningrad, Kalinina square
Passengers to CIS states	JS "KoenigAvto"	236006 Kaliningrad, Moscovsky prospect, 184
Passengers to Europe	JS "KoenigAvto"	236006 Kaliningrad, Moscovsky prospect,184.

Road transportation is controlled by Regional Department of the Tranport Complex: 236000 Kaliningrad, Vali Kotic str, 6-a.

All customs problems can be solved in the office of the Kaliningrad customs: 236000 Kaliningrad, 4th Prichalnaya str., 1.

3.5 Economical conditions

The majority of commercial cargoes come to Kaliningrad oblast from Moscow, St. Petersburg or from western Europe countries by road transport.

Today some companies in Kaliningrad have modern trucks as Volvo, Scania, MAN, for example JS "Avtokolonna - 1359", JS "West-Avto", "Kaliningradavto", "Popov & K" and others. Present tariffs for loaded truck to Europe DM1,7/km or \$0,75/km in CIS direction.

Based on these data we made below the table of road transportation prices:

Direction	Distance, km	\$, cost
Lipetsk	1564	1173
Kotlas	2194	1646
Belgorod	1374	1031
Novgorod	1000	750
St. Petersburg	1031	773
Moscow	1294	970
Yaroslavl	1312	984

In the directions of Europe:

Direction	Distance, km	\$, Cost
Warsaw	340	367
Bremen	1039	1122

3.6 On-going improvement/development work

3.6.1 In 1994 in the region 6,6 km new automobile roads was built. During the same year 110 km roads was repaired including 125 m of bridge roads, 79 km of them are local roads.

3.6.2 During 1994 for the purpose transportation in country areas the Administration of the region bought 10 small "Elcz" from Poland. Second-hand "MAN" are being bought for Kaliningrad city traffic.

3.6.3 Almost completed the part of the new road A 229 from Kaliningrad to Gvardeysk, the works on Gvardeysk-Chernyakhovsk and Chernyakhovsk-Nesterov parts are going on.

3.6.4 Within the framework of an initiative headed by the European Commission, a number of countries cooperate to develop transport corridors between Eastern Europe and EU. In the Baltic region these include:

- Via Baltica (corridor No. 1: Tallinn-Riga-Kaunas-Warsaw)
- Via Hanseatica (corridor No. 9: Riga-Kaliningrad-Gdansk)
- Crete (corridor No. 2: Berlin-Warsaw-Minsk-Moscow)

The realisation of Via Hanseatica will be very important for the long term development of the Kaliningrad region.

3.7 Projects under consideration

3.7.1 To repair and to make wider the roads to Gvardeysk, Baltysk, Sovetsk, Zelenogradsk, Bagrationovsk, Nesterov.

3.7.2 Reconstructions of the Romanovo - Jantarny, Kaliningrad - Khabrovo airport roads.

3.7.3 Restoration of the bridges near Kaliningrad over river Pregol (653 m) and near Chernyakhovsk (107).

3.7.4 Building of a new bridge over river Deima (1 km) near Gvardeysk.

3.7.5 Completion of Berliuka motorway in direction to the border in Mamonovo-2.

3.7.6 Building the bypassing roads around Chernyakhovsk, Gvardeysk.

3.7.7 Reconstruction of Gusev - Goldap - Suvalki (both Poland) - Grodno(Belorussia), aiming to create an alternative to Transit through Lithuania.

3.7.8 Improving the south part of Kaliningrad Ring Road.

3.8 Bottlenecks and deficiencies

3.8.1 Road transport infrastructure is worn out (the repair capacity and etc.).

3.8.2 The most part of the regional road network is not adequate to European standard.

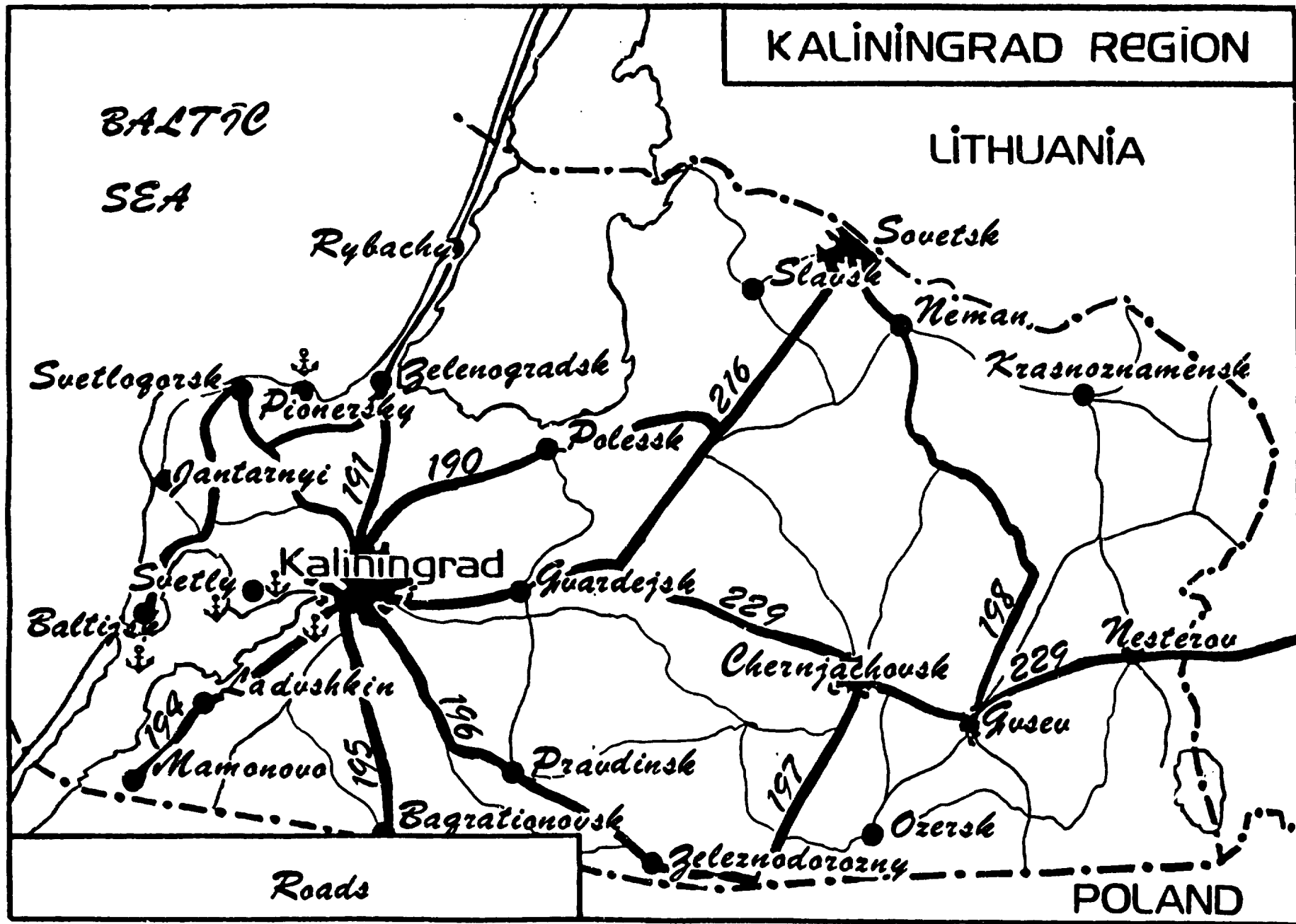
3.8.3 Problems connected with division of the road network between Russia and the states of Baltia.

3.8.4 Worsening traffic situation in Kaliningrad.

3.9 SWOT - analysis

STRENGTHES	WEAKNESSES
1. Well developed regional road network	1. Lack of service along the roads, e.g. petrol stations
2. The main highway Kaliningrad - Nesterov, almost completed at motorway standart, work is going on	2. Bad state of many streets in Kaliningrad City, low standart of traffic management
	3. Roads Gusev - Goldap (Poland), Kaliningrad - Bartoshice (Poland), Kaliningrad - Branevo (Poland), Gvardeisk - Sovietsk (to Lithuania) have limited capacity (two lane roads)

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	4. No connection on the Polish side to the Berlinka motorway
	5. Low standart of roads from Kaliningrad to the coast
CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. Build road Gusev - Goldap	1. Many bridges, both in the city and the region
2. Build southern part of the planned Ring Road	2. Bad connection to the Port
3. Berlinka - Polish port	3. Border - crossing
4. Improvement of bridges in Kaliningrad City	

4. Railway Transport

4.1 Description of existing situation

4.1.1. Introduction

Kaliningrad region is connected with the rest of the territory of Russia by railways, which pass through the territories of Lithuania, of Latvia and also Belorussia which is a part of CIS. There is a whole network of railways on the territory of the region.

Starting from 1988 there is a gradual decrease of cargo flow transported by railway transport in the region. The decrease of cargo turnover is illustrated by the following data:

1988 - 24,4 mln. tons;
 1990 - 22,3 mln. tons;
 1992 - 17,5 mln. tons;
 1993 - 13,6 mln. tons;
 1994 - 9,3 mln. tons;

It is caused by the decrease of export deliveries through Kaliningrad ports, by the fact that in 1993, 1994 local authorities refused to buy Polish coal and by decrease in deliveries of construction materials and fuel to the region. As one of the main reasons of cargo turnover decrease we can also call limited solvency of clients of railroad.

Kaliningrad railroad makes passenger transportation on suburban and long distance trains. Passenger transportation by railway transport starting from 1988 can be illustrated by following data (mln. people):

1988 - 26,24
 1990 - 26,32
 1992 - 23,02
 1993 - 21,40
 1994 - 17,12

One of the biggest problem in Kaliningrad railroad transport is the necessary transit through the territory of Lithuania. This requires constant coordination of working schedules between Kaliningrad and Lithuanian railroads. Besides this Lithuanian transit tariffs are higher than average Russian and there is a problem to escort goods through Lithuania.

4.1.2. Railroad network

Different cargoes transported from the region and to the region are distributed to the consumers by special transport networks which also include rail.

Scheme of this network is shown on the enclosed map.

4.1.2.1. Railroads to/from the region

Railroad connection with Russia is carried out on two independent lines: through Lithuanian station Radvilishkes (through the territory of Lithuania & Latvia - 425 km) or through Lithuania station Vilnius - only through the territory of Lithuania - 470 km).

North & North-West of Russia & Northern Ural are connected with Kaliningrad region by railways: Pytalavo (Russia) - Rezekne (Latvia) - Daugavpils (Latvia) - Radvilishkes (Lithuania) - Sovetsk.

Western Siberia, Kuzbass, Middle Ural, Central regions of Russia are connected with Kaliningrad region by railways (the shortest way) - Novosokolniki (Russia) - Zilupe (Latvia) - Rezekne (Latvia) - Daygavpils (Latvia) - Radvilishkes (Lithuania) - Sovetsk.

Today, because of additional boarder & customs formalities, connection with "main land Russia" is carried out by the shortest & the most optimal way: Kaliningrad - Nesterov - Kazly - Ruda (Lithuania) - Kaunus (Lithuania) - Palemonas (Lithuania) - Kaishiadores (Lithuania) - Molodechno (Belorussia) - Minsk (Belorussia) - Borisov (Belorussia) - Orsha (Belorussia) - Smolensk (Russia).

Kaliningrad is connected with Poland by Kaliningrad-Elblag railroad through border transition point Mamonovo-Branevo. Earlier trains were going to the Dzerzhinskaya-Novaya station where the track changing was taking place. In 1993 the European track was built from Dzerzhinskaya-Novaya station to Kaliningrad, thus trains from Poland go right to Kaliningrad South Train Station.

4.1.2.2. Main railroad lines within region

Railroad network within the region includes 1113,8 km railroad. About 200 km of this are on the wooden ties, which need to be changed as they have been used from late sixties. The main, constantly used roads are 190 km.

Kaliningrad is the main transport junction. It is connected with other cities of the region by following main lines:

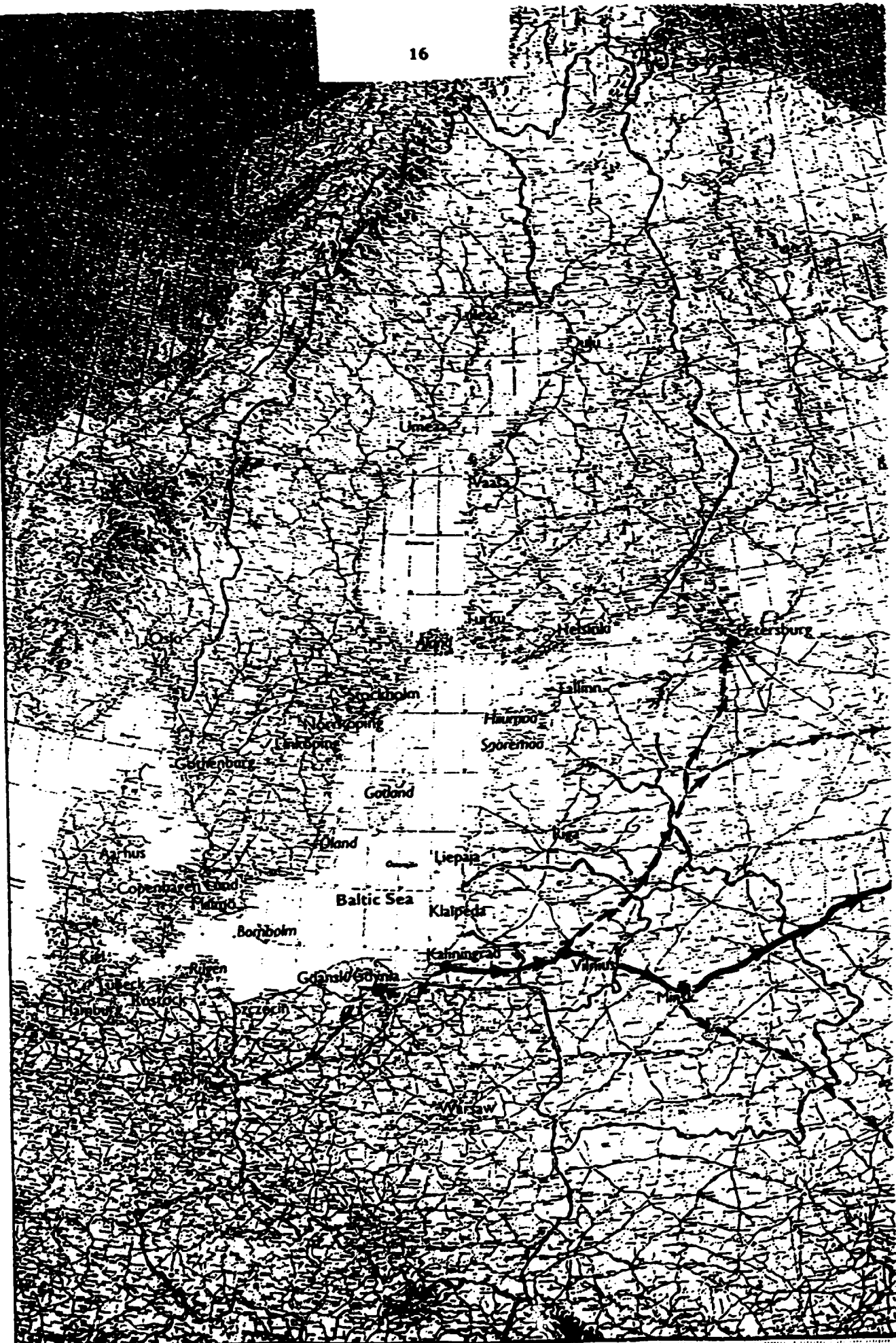
- two way line Kaliningrad-Chernyahovsk-Nesterov, length 152 km; capacity of the line is 45 four-axled railroad cars;

- one way line Kaliningrad - Sovetsk, length 124 km, capacity of the line 57 four-axled railroad cars;

- one way roads with two way intersections:

- Kaliningrad - Bagrationovsk, length 36 km;

- Kaliningrad - Mamonovo, length 50 km;

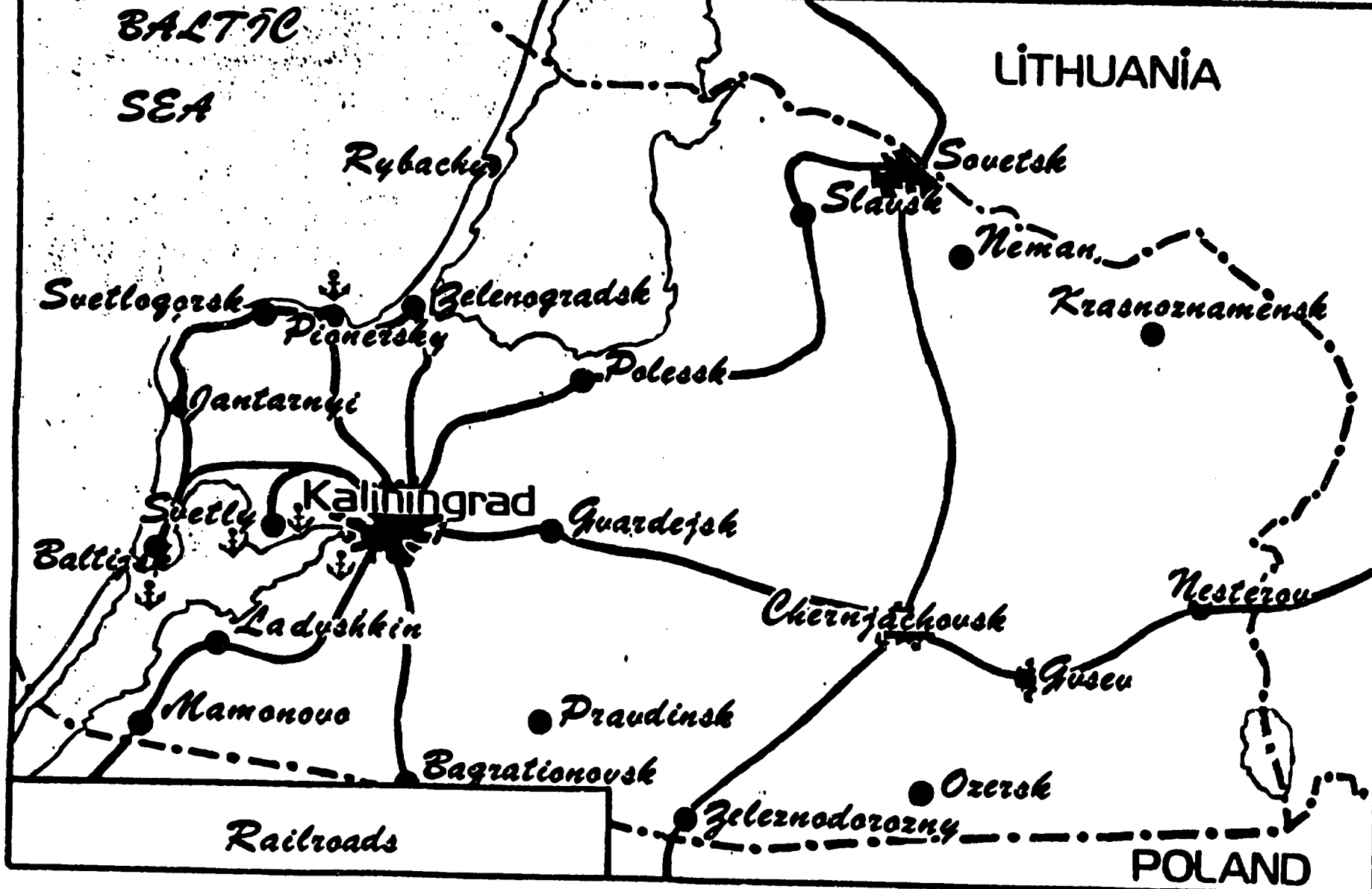


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- Kaliningrad - Chernyakhovsk - Zheleznodorozhny, Length 135 km,
- Kaliningrad - Baltijsk, length 47 km,
- Kaliningrad - Svetlogorsk, length 32 km,
- Kaliningrad - Zelenogradsk, length 27 km.

These lines are shown on enclosed map. To carry out passenger and load transportation the following sections are also used:

- Kaliningrad - Baltyskiy - Les (Svetlyi), length 26 km,
- Chernyakhovsk - Sovetsk, length 58 km,
- Sovetsk - Neman, length 13 km,
- Baltyskiy - Svetlogorsk 44 km.

In 1993 a railroad was built with width 1435 mm towards the direction of state boarder from the station Dzerzhinskaya-Novaya and Kaliningrad-Passazhirskiy.

4.1.3. Railroad stations

Kaliningrad railway junction is the biggest in the region and includes cargo stations Kaliningrad - Sortirovochniy, Dzerzhinskaya - Novaya, Kaliningrad - port, Kaliningrad - Mamonovskiy, Kaliningrad - Zapadnyi and others. Through these stations the main turnover of cargoes for industrial enterprises of the city is carried out and also they are used for deliveries of cargoes to the boats in Kaliningrad port. On the map you can see where these stations are placed.

During the period of 1988-1994 the maximum cargo turnover was:

Kaliningrad-Sortirovochniy (8149 thousand tons per year), Kaliningrad-Zapadnyi-Novy (2219 thousand tons per year), Kutuzovo-Novoe (1147 tons per year), Dzerzhinskaya-Novaya (771 thousand), Guriyevsk-Novy (312). Comparing these data you will understand the relative importance of these stations. You can see that the main thing for the city is Kaliningrad-Sortirovochniy, through this station main cargo turnover goes.

The station Dzerzhinskaya-Novaya is also very important for the city because there railroad cars are changed from European track (1435 mm) to Russian (1520 mm) track.

The station of Chernyakhovsk is the second biggest station in the region after the Kaliningrad station and it is situated 90 km to the east from Kaliningrad. It has passenger, cargo functions and the function of switchyard. Up to 1000 rail road cars are serviced in this station and 24 trains are being formed there each day. There are three special terminals suitable for coal transshipment from Poland, and also there is a special container terminal. There also available changing from/to European track.

Totally on the territory of Kaliningrad region 41 cargo stations are operating. Nevertheless only 15 of them supply 90 % of cargo turnover.

The cargo turnover of other stations in the region is

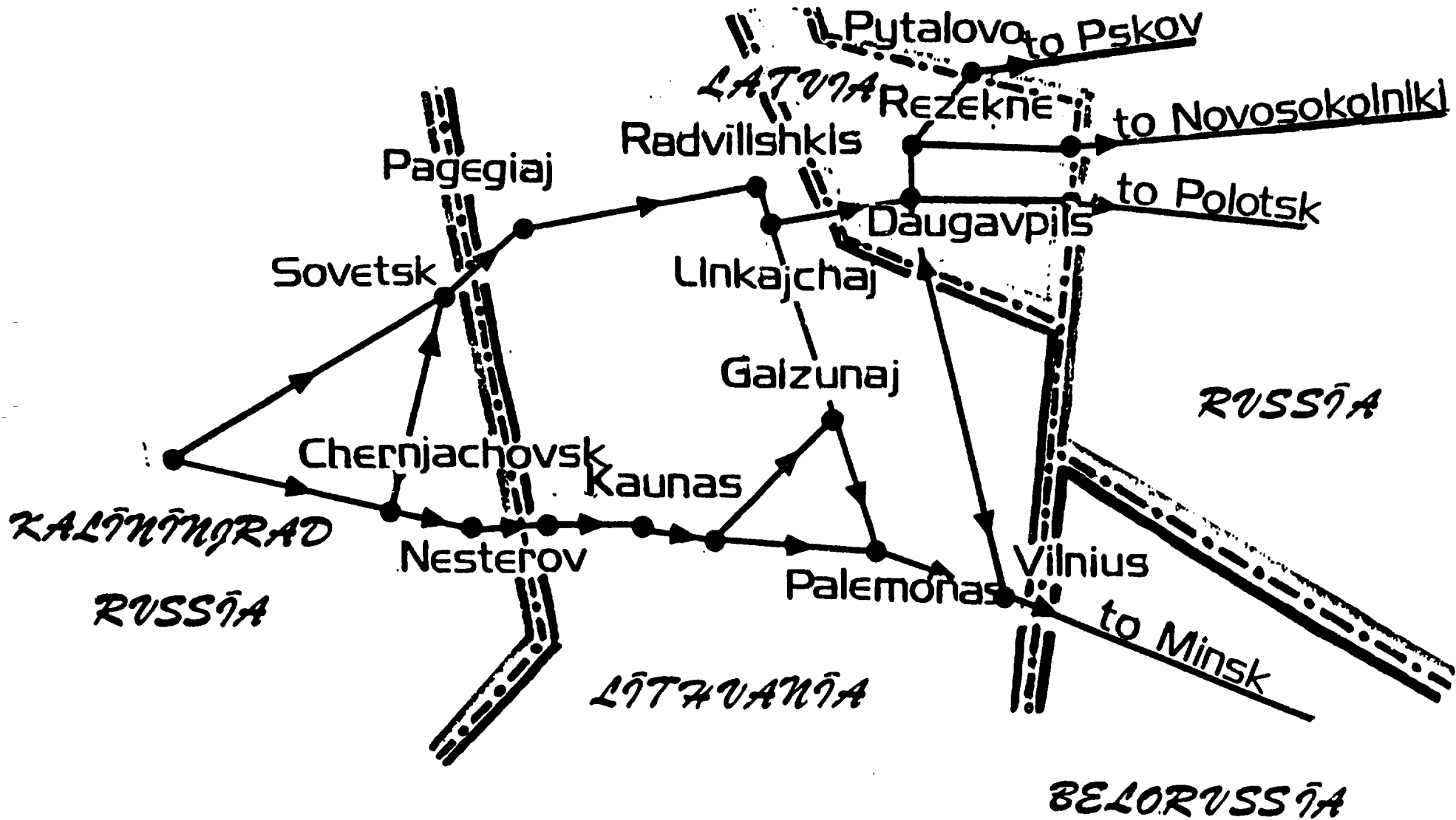


Chart of railroad network

Name of the station	Maximum cargo turnover, thousand tons/year
Sovetsk	1847
Nesterov	892
Chernvakhovsk	889
Neman-Novy	712
Gusev	704
Mamonovo	487
Gvardeysk	436
Baltiysk	301
Bagratiyovsk	170
Pionersky Kurort	130
Polessk	116
Slavsk	76
Jantarny	65
Zelenogradsk	54
Ladushkin	51

* We did not consider the station Zheleznodorozhny: maximum cargo turnover through which is 2519 thousand tons. However as we said above this turnover consists of Polish silez coal delivery what happened just once.

Through boarder railway stations (boarder crossings) in 1988-1994 some goods export-import are handled. The main role here is played by Kaliningrad-Port station through which coal, coke, ores, metals, timber loads, construction materials, fertilizers and grain cargoes were exported. Through the same station coal, ores, metals and grain cargoes were imported.

Through Mamonovo-Branevo boarder crossing (border with Poland) mainly mineral fertilizers were exported and grain cargoes were imported. This boarder crossing has international boarder status.

Through Zheleznodorozhny-Skandava border crossing (border with Poland) mainly coal was exported and also construction materials were imported. This boarder crossing does not have international status (only cargo trains can cross the border, no passenger trains).

Through Bagratiyovsk-Bartoshice border crossing (boarder with Poland) grain cargoes were imported. This boarder crossing has international boarder status.

4.1.4 Cargo and passengers flows

Cargo flows on the railroads of Kaliningrad region consist of goods produced in the region and also export-import cargoes coming from Russia, to Russia through Kaliningrad ports.

In 1994 types and quantities were.

Incoming thousand tons		Outgoing thousand tons	
Coal	+459	Grain	-576
Fuel oil	+883	Oil	-836

RAILROAD STATIONS NEAR KALININGRAD



Diesel fuel	+530	Coal	-864
Petrol	+353	Pulp,	
Timber	+201	paper,	
Sawn-timber	+11	cardboard	-253
Metals	+106		
Fertilizers	+283		
Other cargoes	+706	Other loads	-3232
Total amount	+3532	Total amount	-5760

Analyzing these data we can come to this conclusion. Because outgoing of cargoes exceeds incoming by 2228 thousand tons the development of the regional railroad depends a lot on the state of industrial and import policy of Russian government. If economic situation in the whole country is favorable then cargo flow of goods produced in the region and import deliveries through the ports of Kaliningrad will be increased.

An important part of the passengers flows took suburban lines that carried 16,2 mln. passengers during the 1994.

During the same year the long distance trains to Moscow, St. Petersburg, Chelyabinsk, Kharkov (Ukraine), Gomel and Brest (both Belorussia) carried over 2,5 mln. passengers.

International destinations were Riga, Vilnius, Gdynia and Berlin (one car following with Gdynia train). Except Vilnius, other trains are usually not so full because of the customs and border crossing problems. Besides this we shall recognize that some lines only meet the political interest of the government and are not popular.

4.1.5 Companies and authorities

All transportation of goods and passengers by railroad are carried out by the state enterprise - Kaliningrad Railroad. The address of Kaliningrad Railroad Directorate is: 236039 Kaliningrad, Kievskaya street, 1.

At the regional administration all the questions of railroad communication are dealt with State Regional Transport Complex Directorate. The address of it is: 236000 Kaliningrad, Vali Kotic 6-a.

All Customs formalities: R.R. Directorate and Kaliningrad Custom's Office. Address: 236000 Kaliningrad Chetvertaya Prichalnaya str., 1.

4.1.6 Economical conditions

Kaliningrad railroad has economic problems because of cargo turnover and passenger flow decrease during last few years. Constant shortage of financial means does not allow to keep rail lines: locomotives and cars, stations and so on in good working order. Rail company has to maintain suburban communication which is unprofitable.

For cargoes transported to/from other parts of Russia, Lithuania, Belorussia charge for transport through their respective territories. Comparative data on these payment of cargo transportation to different cities:

	Station	km	Delivery cost of 1 ton of cargo, \$
1	Minsk (Belorussia)	515	11,2
2	Moscow	1201	14,5
3	Ekatininburg	2998	23,2

The passenger tariffs are:

	Station	\$, ticket price
1	St. Petersburg	33
2	Moscow	54
3	Svetlogorsk	0,9

As mentioned above, suburban lines are very problematic for Kaliningrad railroad company. Under the pressure of local authorities the company is not able to raise up the ticket prices to make the lines profitable. To cancel or to cut some trains greatly is impossible for they bring workers from suburban districts and connect Kaliningrad with summer houses area and etc.

In 1994 Kaliningrad railroad company had \$4,300,000 total profit.

4.2 On-going improvement / development work

4.2.1 In 1994 the reconstruction of 30 km railroad was finished. Was started the construction of the automatic control information station.

4.2.2 In the first part of 1995 two locomotives have been repaired on Velikiye Luki repair plant.

4.3 Projects under consideration

All projects were initiated by Kaliningrad railroad company and by the regional State Department of Transportation.

4.3.1 The project of building a new railroad to Grodno (Belorussia) avoiding Lithuanian transit. The 220 km of the road would include stations Gusev (Russia), Suvalky and Goldap (Poland). As the regional administration considers it would allow to avoid dependence from Lithuanian transit tariffs and to quicken cargo flows on railroad.

4.3.2 The reconstruction of the Kaliningrad railway junction project. The project includes reconstruction of the Kaliningrad South Train Station. Also there is planned to make an additional track for Kaliningrad switchyard area; to install a switching system on suburban stations Kaliningrad-Port, Zapadny-Novy, Dzerzhinskaya-Novaya.

4.3.3 The project of reconstruction of the Chernyakhovsk railway junction includes reconstruction of the station of Chernyakhovsk and equipping up the switches on Chernyakhovsk and Krasnovka stations.

4.3.4 The "Development of Other Stations" project includes building a new station Chernyshevskaya, reconstruction of the border and customs offices on Mamonovo-2 station and also rearranging of Lugovoye-Novoye, Pushkarevo and Gusev stations. The project is that the stations of Golubevo, Mamonovo-1,-2, Primorsk-Novy, Nesterov, Ugryumovo, Frunzenskoye, Mozyr-Novy and Zheleznodorozhny would be equipped with modern switching systems.

4.3.5 The project of building a new electrical supply line 10 kv capacity for locomotives on Kibartai (Lithuania) - Gusev road and on Mezhdurechye - Znamensk road.

4.3.6 The project of building a new track on the roads Kutuzovo-Novoye - Zelenogradsk and Pionersky Kurort - Svetlogorsk.

4.3.7 The project to install an automatic blocking system on the road Zelenogradsk - Pionersky Kurort and parts of the main road to Russia: Kaliningrad - Nesterov.

4.4 Disadvantages and bottlenecks

4.4.1 Not all stations have the capacity for switching and the capacity for forming trains.

4.4.2 The majority of stations are small to serve big cargo trains.

4.4.3 The territory of Kaliningrad switchyard station is crossed by an automobile road which makes difficult to operate the switchyard.

4.4.4 Many roads do not have an automatic blocking system, most of the roads don't have an electrical supply lines. Many roads don't a second track.

4.4.5 Locomotives and cars are worn out and cannot operate without constant repair.

4.5 SWOT - analysis

STRENGTHES	WEAKNESSES
1. Rail transport system adequate for supporting the needs of the industry	1. Increased transportation costs due to transit costs (This transport "tarif" will not occur for Russian goods transported to Lithuania ports)
2. Free capacity	2. Repair /reconstruction needs (big)
3. European track width to Kaliningrad City	3. Customs services not adequate
CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. Improving condition for transit through Lithuania, e.g. tarif compensation	1. Transit through neighbouring countries
	2. Line in Baltysk
	3. Rolling - stock for regional destinations

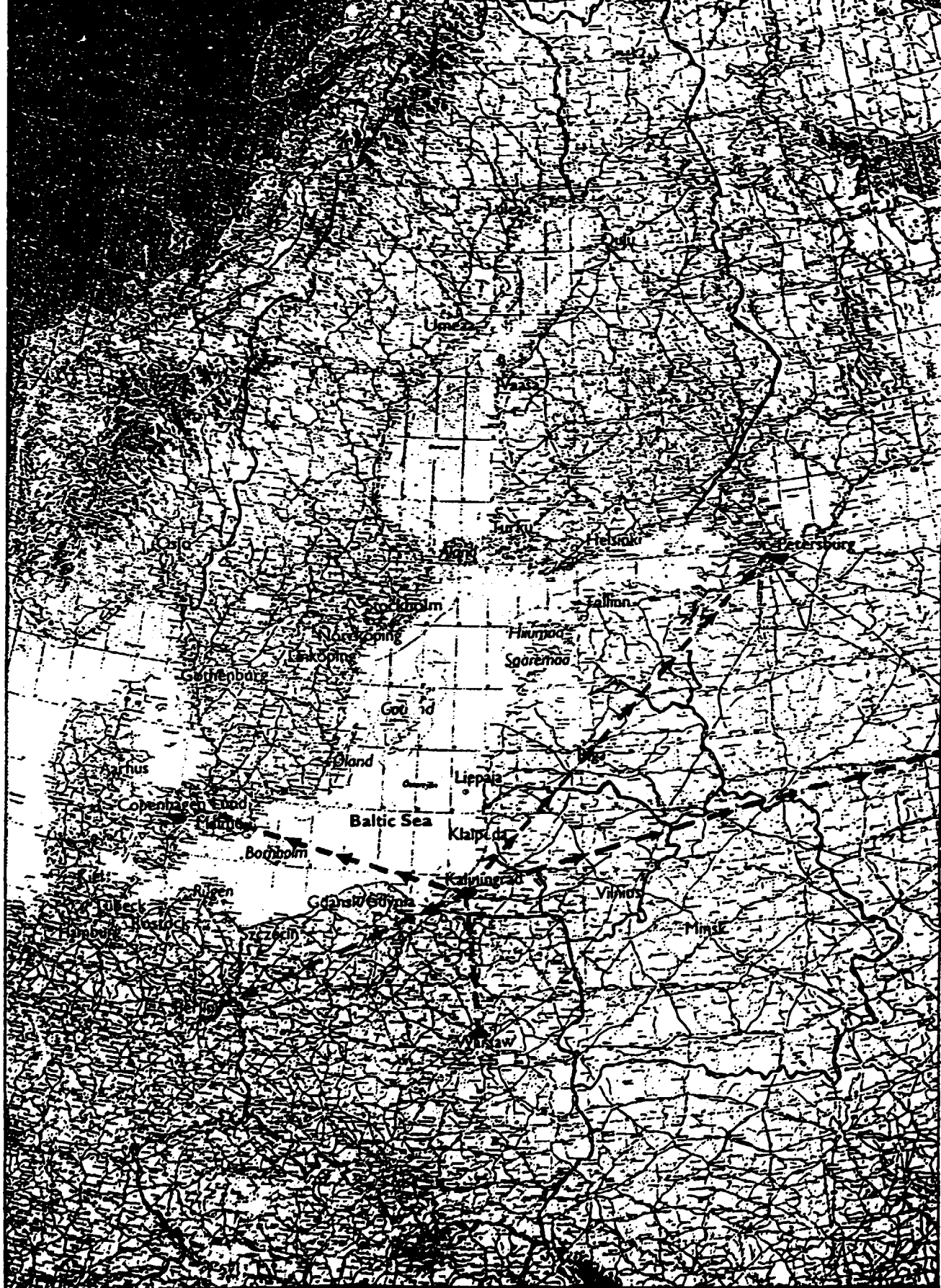
5. Air Transport

5.1 Description of existing situation

The main air transportation company in Kaliningrad region is the Kaliningrad state air enterprise. In 1994 190.000 passengers and 900 t of loads went through this company, 1956 flights were performed. Mostly the flights were performed from Khrz'brovo airport, which also has an international status. The majority of passengers flow went to Moscow and other Russian big cities. During last year there were regular flights to Berlin (by Aeroflot) and to Copenhagen (by SAS). "Aeroflot" performed several charter tourist flights and special flights with fisherman's crews from/to different countries.

5.1.1 Destination to / from Kaliningrad (Khrabrovo Airport)

Destination	Country	Aircraft	Flights per week
Moscow	Russia	TU-134	25
Arkhangelsk	Russia	TU-134	3
Voronezh	Russia	TU-134	3
Volgograd	Russia	TU-134	2
Ekaterinburg	Russia	TU-134	2
Krasnodar	Russia	TU-134	3
Krasnoyarsk	Russia	TU-154	1
Mineralnye Vody	Russia	TU-134	4
Murmansk	Russia	TU-134	5
N.Novgorod	Russia	TU-134	1
Omsk	Russia	TU-154	1
Perm	Russia	TU-134	2
Rostov	Russia	TU-134	4
Samara	Russia	TU-134	1
St. Petersburg	Russia	TU-134, TU-154	8
Sochi	Russia	TU-134	1
Ufa	Russia	TU-154	2
Ulianovsk	Russia	TU-154	1
Khabarovsk	Russia	TU-154	1
Cheliabinsk	Russia	TU-134	3
Alma-Ata	Kazakhstan	TU-154	3
Bishkek	Kirgizstan	TU-154	2
Kustanay	Kazakhstan	TU-154	1
Simferopol	Ukraine	TU-134	2
Tashkent	Uzbekistan	TU-134	2
Kiev	Ukraine	TU-134	2



KALININGRAD

AIR TRANSPORT

DESTINATIONS

As you could see above during 1994 there were regular international flights, in August 1995 appeared one more flight - to Warsaw. You can see relevant table below:

Destination	Country	Company	Flights
Hamburg	Germany	Aeroflot	once a week
Berlin	Germany	Aeroflot	2 times a week
Warsaw	Poland	Aeroflot	once a week
Copenhagen	Denmark	SAS	4 times a week

5.1.2 Airports in the Kaliningrad region

On the territory of Kaliningrad oblast there are paved airports and unpaved airfields which are able to receive passenger aircrafts of most classes and light engine business-class aeroplanes. The civil part of Khrabrovo Airport is managed by civil authorities. This airport provides passengers flights to Russia, CIS, Germany and Denmark. From this airport there are few charter flights to different states of Europe and Africa.

Though Khrabrovo airport equipment is not modern it is in good condition. This allowed to increase passenger and cargo flows in the last years.

5.1.2.1 Khrabrovo Airport

Khrabrovo Airport is situated in 17 km north-west from the city of Kaliningrad. It is intended to serve middle distance aircrafts. Total airport area is 150 hectares.

The run way is used by both military and civil authorities. The length is 2500 m, the width - 60 m. Lighting and radio equipment allow landing in meteorological conditions corresponding to the minimum of 1 category of ICAO. When landing with this minimum condition a straight visibility of 800 m horizontally and 60 m vertically should exist to the crew of aircraft. At the end of the run way special landing equipment is situated (6/24).

Besides the run way Khrabrovo Airport includes a turning way, area for aircraft parking and two terminal buildings (old and new). Presently the new building is used for passengers on Russian and CIS states airlines. The old building was re-equipped for service to passengers on international airlines. It has the capacity up to 400 people a day.

Airport co-ordination service of air traffic is equipped with instrumental system of landing which condition now satisfy the requirements of 1 category of ICAO. Military and civil specialists jointly control the air traffic in the sphere of the airport.

The airport has a big amount of additional equipment for technical service of aircrafts including hangars, fuel storehouse etc..

On average 25 aircrafts of different classes take off and land daily at Khrabrovo airport.

5.1.2.2 Sport airdrome "Devau"

The former Königsberg airport "Devau" was built in 1922 and situated at border of Kaliningrad city (the end of Gagarina st.).

REGION

MAP 3
SCALE 1:1 500 000

**ENTFERNUNGEN/
DISTANCES
FROM
KALININGRAD**

Kaliningrader Gebiet/ Kaliningrad oblast	
Gvardejsk	83 km
Tschernjachovsk	110 km
Gusew	147 km
Berlin	600 km
Kaunas	250 km
Klaipeda	210 km
Kopenhagen	680 km
Kiew	850 km
Minsk	550 km
Moskau	1.245 km
Oslo	850 km
Riga	390 km
Stockholm	650 km
St. Petersburg	950 km
Tallinn	650 km
Vilnius	350 km
Warsaw	400 km

KHRABROVO AIRPORT

**БАЛТИЙСКОЕ МОРЕ
BALTIJSKOE MORE**

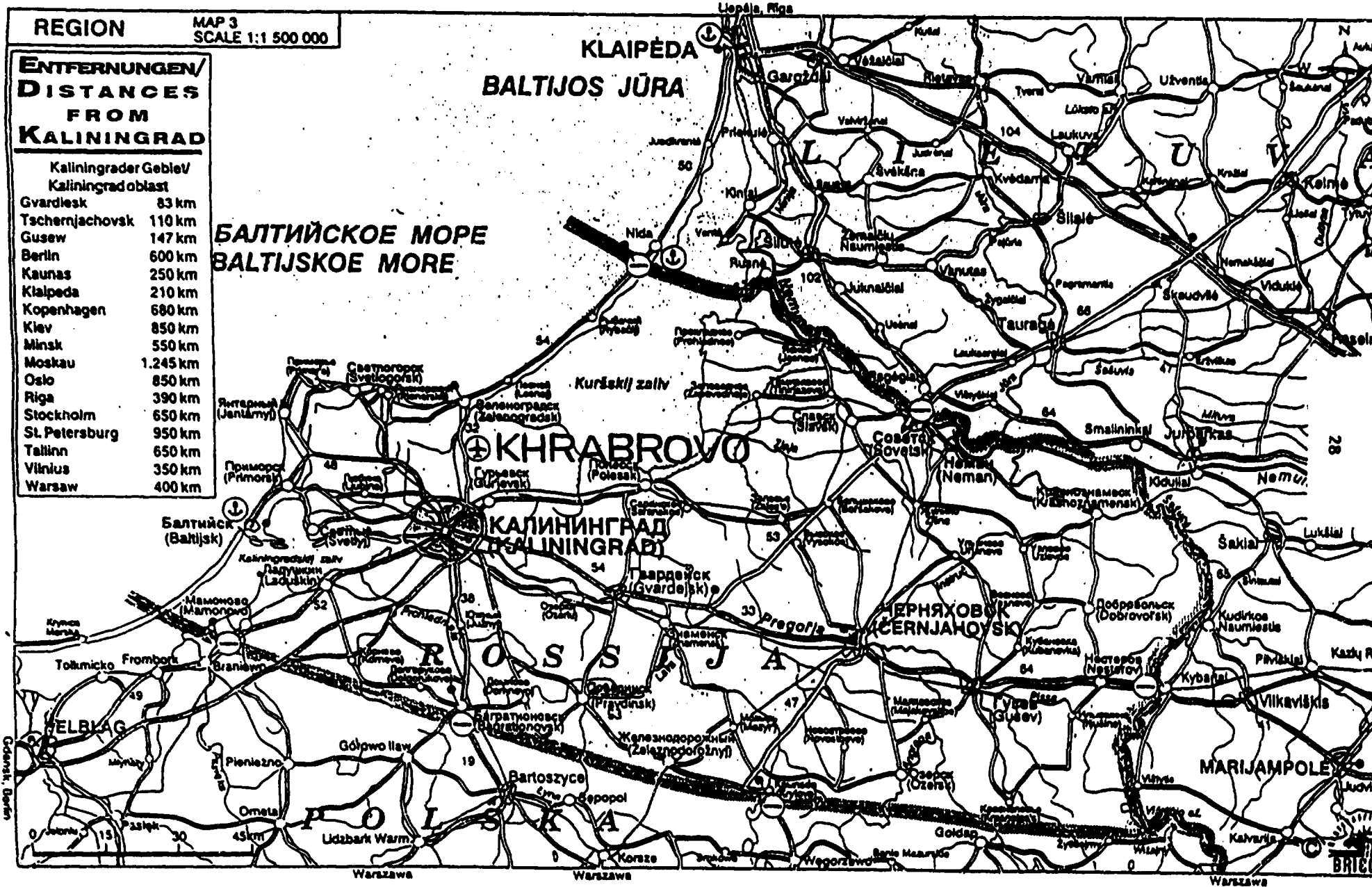
**KLAIPEDA
BALTIJOS JURA**

КХРАБРОВО

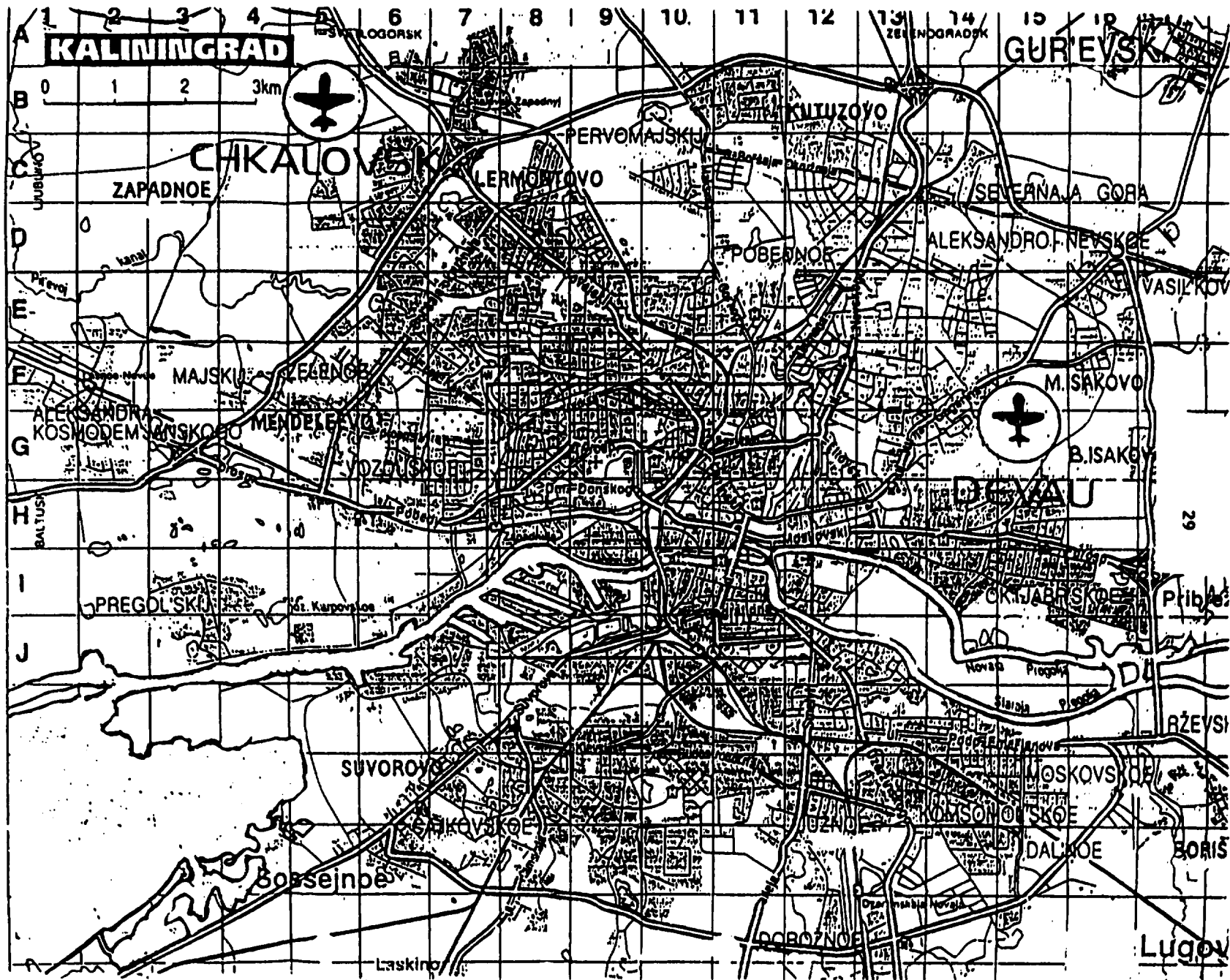
**КАЛИНИНГРАД
KALININGRAD**

**ЧЕРНЯХОВСК
CERNJACHOVSK**

MARIJAMPOLE



AIRPORTS CHKALOVSK AND DEVAU NEAR KALININGRAD



The main element of the airport is a ground run area with appropriate attributes. The area is paved with special metal constructions meant for smoothing of the flying field and providing its safety from damage. By the present time this covering requires considerable major repairs.

Airport "Devau" was originally designed for light passenger aircrafts. Nowadays this airport is used to aeroplanes and helicopters of the military-sport organisation "ROSTO" ("ROSTO" teaches pilots and parachutists from the city and oblast population).

5.1.2.3. Unpaved civil airfields

Since the time before the war there are about 30 unpaved airfields. One of them for example is in Pokryshkino town (Nesterovsky rajon). They are not equipped with radio and lighting and can therefore not be used for landing of middle class passenger aircrafts. It is possible to use such areas for small business-class aircrafts, however in this case it would be necessary to provide adequate equipment.

5.1.2.4. Military airdromes

In Kaliningrad oblast there are several military airdromes. One is located on the north-west border of Kaliningrad city (about 7 km from the centre of the city). Chkalovsk airdrome, which is the biggest them, its run way and equipment allow to serve big passenger and transport aircrafts. By the request of local authorities this airdrome was used several times for landing of IL-86 aeroplane that brought crews of fishing ships to the oblast from the Southern America .

5.1.2.5. Own aircraft park

Kaliningrad state air enterprise shares Khrabrovo airport with the Baltic Fleet airforce. Presently Kaliningrad state air enterprise owns 2 TU-154m planes and 10 planes. TU-154m aeroplanes are 2 years old and they usually spend 1340 hours in the air per year. TU-134 aeroplanes are 18 years old and they spend 910 hours every year, they technically outdated and their lifetime will come to an end to 1997.

5.3 Passenger and cargo flows

Passenger and cargo flows from the Khrabrovo airport to Russia and CIS:

Name	1985	1992	1993	1994
Passengers	339000	284000	174000	190000
Cargo, incl. mail (tons)	1150	460	560	900

This shows that passengers flow since 1985 have greatly decreased. Such a decrease was caused by increasing the ticket's prices and transportation tariffs which happened with economical reformation. Yet, since 1993 we can see a constant increase of cargo and passengers flows which shows that the critical point in development of the airport may already

have passed. So during the first quarter of 1995 through the airport went 37.000 passengers and 400 tons of cargoes.

During 1994 cargo aeroplanes were not used for mail delivery, but all the mail was transported with passengers planes. About 45.000 passengers took international flights (including charters), and about 180 kg of cargoes was transported to/from aboard. Since October 1993 about 3.000 passengers used Kaliningrad-Copenhagen line flights. You can see below ratio of passengers travelling to the cities of Russia and CIS:

Airport of destination	% out of all passengers
Moscow	26
St. Petersburg	8
Arkhangelsk	2
Baku	2
N.Novgorod	2
Kiev	6
Krasnodar	4
Samara	3
Mineralnye Vody	4
Murmansk	3
Rostov-on-Don	3
Ekaterinburg	3
Simferopol	3
Sochi	3

From these data we can say that majority of the passenger travelled to Moscow (Vnukovo airport), to St. Petersburg (Pulkovo airport), to Kiev (Borispol airport) - the main political and industrial centres; and to resorts: Krasnodar, Mineralnye Vody, Simferopol.

5.1.4 Organisations and authorities

Type	Organisation	address
Air transportation by "Aeroflot" planes	Agency of air communications	236039 Kaliningrad, Kalinina prospect, 3
Transportation of passengers and loads, service for air crafts	Kaliningrad united air group	township Khrabrovo, Zelenogradsk area
Air transportation by the aeroplanes of military-transport aviation	Baltic fleet	Khrabrovo airport
Air transportation by "SAS" planes	Agency of company "SAS"	Khrabrovo airport
Regional air transportation	Limited partnership "Balt-Aero"	236000 Kaliningrad, Gorkogo street, 162

Customs formalities are handled by appropriate aviation company and Kaliningrad Custom's Office which is situated in the international sector of Khrabrovo airport.

5.1.5 Passenger taxes and economical conditions

Since aviation is the most comfortable transport for businessmen travelling to Western Europe, Russia and CIS the passengers flow increased for the last two years. This allows the aviation companies ("Aeroflot for example") to increase ticket prices constantly about four times per year. Below some prices of September 1995 are listed

Direction	\$
Kaliningrad - Moscow	55
Kaliningrad - Khabarovsk	343
Kaliningrad - Kiev	37
Kaliningrad - Copenhagen	220

For 1994 Kaliningrad state air enterprise had \$775.000 profit. During the first quarter of 1995 the profit is \$68.000.

In present time (October 1995) to operate 1 hour TU-154 aeroplane cost \$273, 1 hour operation of TU-134 aeroplane costs \$113. Commercial price of delivery depends on distance.

5.2 On - going Improvement / development works

5.2.1. Efforts are made by Kaliningrad state air enterprise to lease a new aeroplanes IL-114, TU - 204 and TU - 334 from the factories of Russia and CIS (Tashkent). These aeroplanes would allow to start the process of writing off outdated planes TU - 134.

5.2.2. Feasibility study carried out by German firms "HOCHTIEF" and "Gamburgerzainclines" with the objective of upgrading Khrabrovo to the international standard, according to the requirements of ICAO.

5.2.3. In Khrabrovo airport works were done on reconstruction and expanding of the parking areas. They continue their work on creating second turning way.

5.2.4. In the military airdrome Chkalovsk were made trial landings of heavy passenger aeroplane IL-86, it was a charter flight Lima - Kaliningrad.

5.3 Projects under consideration

5.3.1. Project of re-equipment and reconstruction of Khrabrovo airport. This project foresees extension of existing run way by 960 meters, creation of second steering way, construction of additional tanks for fuel (21,2 thousand cubic meters), reconstruction of communications of the airport, construction of 2 hangars for the aeroplanes TU-154, Organisation of warehouse platforms (4 thousand sq. meters). Project belongs to Kaliningrad state air enterprise.

Implementation of this project will allow to receive in Khrabrovo airport heavy passenger long distance planes and improve the service quality.

The project is still in the planning stage.

5.3.2. Project of development airdrome "Devau" for the needs of small aviation and business-class aviation.

The project was initiated by JS "Balt-Aero" and is still in the planning stage.

5.4 Disadvantages and bottlenecks

5.4.1. In Khrabrovo airport there is only one run way. It leads to the fact that planes have to make U-turns right on the run-way.

5.4.2. The type of aeroplanes which are mainly used do not meet requirement of ICAO on security of flights. In 1996 - 1997 the service life for this type of aeroplanes will come to an end.

5.4.3. Khrabrovo airport has out dated booking systems. Cargo handling has low level of productivity and quality and satisfies only 26% of demand. Customs and passport control is not organised to meet western standards. Passengers facilities are of low standard.

5.4.4. Airport does not have opportunities for receiving heavy passenger and transport aeroplanes (IL - 76, 86, 96) first of all because there is no run way with appropriate length. The airport has 20% lack in air traffic co-ordination equipment capacity.

5.4.5. Equipment of turning command block of air traffic in Khrabrovo airport does not meet ICAO requirements 11 category and international level.

5.4.6. On the outskirts of summer field of "Devau" airport kaliningrad company "Fakel" is laying high-tension line of electrical transmission. If this line will be laid than the airport will not be able to receive planes because of direct danger for their flights.

5.5 SWOT - analysis

STRENGTHES	WEAKNESSES
1. Airport equipment functions to international standart	1. Only middle - distance aircrafts in Khrabrovo Airport (biggest aircraft 110-115 passengers - TU-154); only one run way, length - 2500 m
2. Can be expanded; no enviromental problems	2. Inefficient passenger and cargo handling systems including booking, ticceting etc.
3. Organization and staff used to service international airlines	3. Low standart of terminal building and facilities
	4. Under both military and civil authorities, military interests have higher priority
	5. Too low passenger turn - over on international flights

CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. To obtain a higher international passenger turn - over	1. Car parking
2. Assess the possibility of using Vilnius Airport for international destinations	2. Service level

6. Marine Transport

6.1 Description of current situation

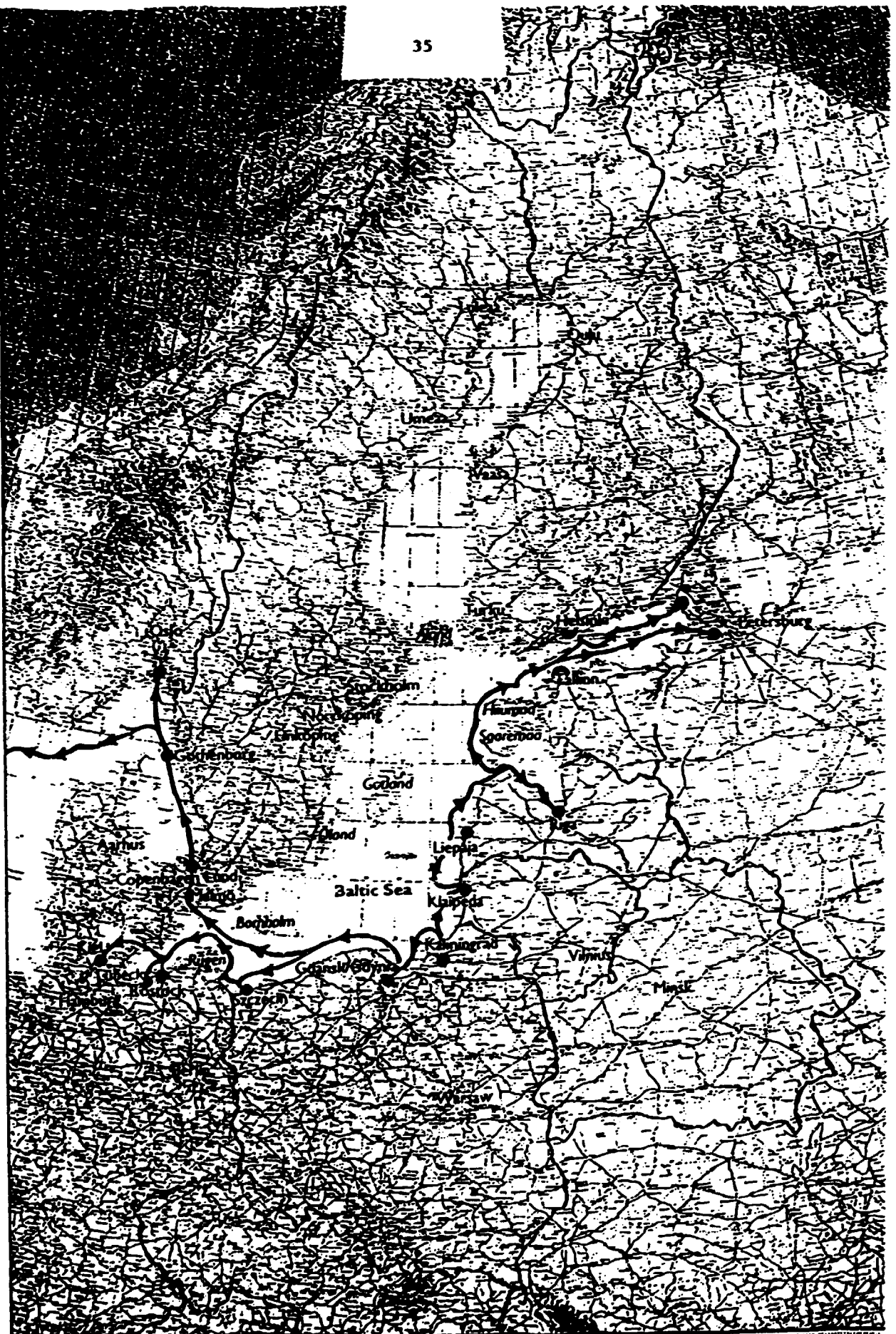
6.1.1 Introduction

The Kaliningrad port is the second (after St-Petersburg) Baltic Russian port. It doesn't freeze in the winter time. That's why through the port terminals of Kaliningrad annually passes a big quantity of different loads for the needs of the region, and for Russia & states of CIS in general. During the period from 1989 to 1994 Kaliningrad port handled goods to/from more than 20 foreign countries. The most important are Germany, France, Sweden, Cuba, Norway. Export is dominated by coal, wood, black & colour metals, paper, cars. Imports by metal goods, tubes, rain, coal, foodstuffs, goods.

The table below shows characteristic cargo flows through Kaliningrad ports during 1992 - 1994. All data are given in millions tons:

The name of the port	1992	1993	1994	Maximum
Trade port Kaliningrad	4,0	3,8	2,4	4,6
Fishing port Kaliningrad	0,9	1,2	1,6	3,4
Fishing port Pionersky	0,1	0,1	0,1	0,5
Port Baltysk	0,2	0,2	0,3	not estimated
Terminal Pregolsky	Under construction	Under construction	Under construction	5,0
Terminal Svetly	Under construction	Under construction	Under construction	2,5
River port Kaliningrad	1,4	1,7	0,9	2,0
Totally	6,6	7,0	5,3	18,0

Total cargo turnover of Kaliningrad ports compared with the main competitors (Klaipeda, Ventspils, Riga, Gdansk, Tallinn, St. Petersburg) is small. For example during last years there were up to 30 million tons of loads through the Ventspils port annually, the port of Riga - 6 millions tons, the Klaipeda port - 14,4 millions tons. In there turnover mostly



KALININGRAD **MARINE TRANSPORT** **DESTINATIONS**

dominate metals, oil, lumber, fertilisers and etc., which exported from Russia and CIS, and foodstuffs imported by Russia and CIS from America and Europe.

In the time of USSR the Kaliningrad ports were taking annually about 10 millions tons of loads. Since 1990 there has been a constant decrease in cargo flow passing through Kaliningrad ports. Absence of continental boarder with Russia is the main reason of decrease in load flood during last years.

The general economic decline, high transit tariffs through neighbouring countries, competition from other Baltic ports are other factors behind this decline. Another reason for this is the policy of protectionism of Baltic states concerning Russian cargoes and the fact that Kaliningrad is too far from the biggest wholesale market of Moscow. The decline in fish industry also influenced on port decline.

6.1.2 Port network

See enclosed map.

6.1.2.1. Navigable Marine Channel

Kaliningrad port is connected with the Baltic sea by the Kaliningrad Marine Channel. The length is 39 km and it is located along the north bank of the Kaliningrad bay, separated from it by artificial islands. The islands protect the channel from sand & silt from the bay. The depth is 8.5-9.0 m, which limits the possibilities for large draft oceanic ships to enter.

Navigation within the channel can be difficult. In periods with constant east winds part of the water moves to Kaliningrad bay decreasing the depth of the channel to 8.0 m. During this time only small & middle-tonnage ships can enter the channel. Navigation also is difficult when strong south & north winds are blowing. Width of waterway varies from 30 to 50 m with no opportunity for two way motion of the ships & it decreases its capacity.

The channel is frequently damaged by inflow of sand & silt. The channel needs constant repair. Also there is a lot of work to maintain artificial islands which are washed out to the bay. The cost of this work is very high. Up to 1989 there were regular works on maintaining the channel, costing 300.000.000 rubles annually. Since 1991 such works were not carried out because Kaliningrad marine trade port (owner of the channel) does not have enough finances. All equipment for such kind of works now is in Kunda (Estonia).

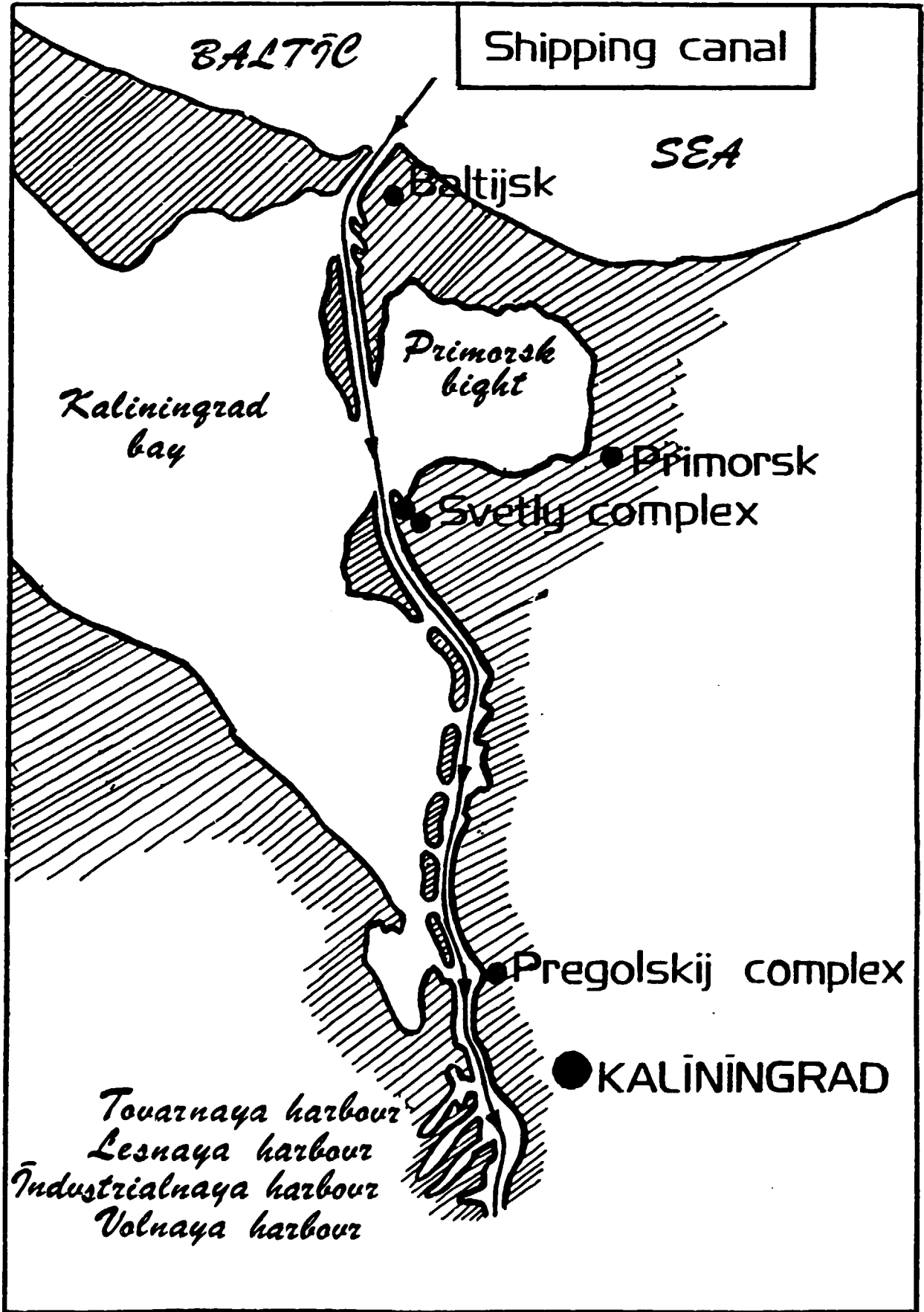
As a result of this the depth of the Kaliningrad Marine Channel decreased by 0.5 m.

All these complications lead to the fact that ships spend 4 hours passing the channel to the Kaliningrad port.

Kaliningrad Marine Channel is the weakest element of the Kaliningrad port and it decreases opportunities for its development.

6.1.2.2. Kaliningrad marine trade port

Kaliningrad marine trade port is situated on the left bank of river Pergol (Baltyisky area) in two harbours: Industrialnaya & Volnaya. The port is connected with Baltic sea by the Marine Channel



Production capacities of the port for different kinds of goods :

Type of goods	Capacity, mln. tons
Cargoes in packages and containers	2,5 - 3,0
Grain cargoes and row-sugar	2,0 - 2,5
Scrap iron, coal, timber, etc.	2,0
Food stuffs and citrus fruits	0,2 - 0,3

So the maximum capacity of the port is 7,8 mln. tons per year of different cargoes. In 1994 actual production of the port was 2.4 mln. tons.

Total length of quays is 2654 m, depth near harbours up to 9,75 meters. Besides, the port owns a berth on a section of The Marine Channel (peninsula Korovij) length 110 m.

Peninsula Korovij is situated near the place where river Pergol falls to Kaliningrad bay, 3 km to the west from the main part of the port.

The port is fully supplied with electric power, water, gas & heat, which are delivered by the city network. Railroad switch yard, length 0,8 km, is located at the port. Port is connected to the city by roads of common use.

Legal form of the port is a limited partnership. The land was given to the port company for an indefinite period.

Trade port has warehouses with the following specialisation (thousand sq. meters):

Type	Capacity, mln. tons
Covered warehouses for dangerous cargoes	3,0
Covered warehouses for perishable	2,8
Container area	80,0
Timber and mass loads area	19,6

In 1993, in port special berth for reception & service to the ships "Ro-Ro" started to operate. Besides there're port & floating cranes; loading capacity from 5 to 32 ton, autoloading.

6.1.2.3. Kaliningrad marine fish port

Kaliningrad marine fish port is situated near the trade port on the left bank of river Pergol (Baltiysk area) in two harbours: Industrialnaya & Lesnaya. Port is connected with Baltic sea by the Marine Channel.

Capacities of fish port (mln. tons per year):

Type of goods	Capacity, mln. tons
General cargoes	0,6 - 0,65
Oil and oilproducts	0,5 - 0,55
Refrigerator cargoes	0,4 - 0,42

Total length of quays is 1670 m, depth near berths - till 8,0 m. Besides port owns berths on Ship Repair Factory "Pregol" & Baltic fish cannery (Svetly) total length of them is 1355 m.

The port has its own power substation, fed from city network. Water & gas are also supplied from city network. Heat & steam are supplied from its own boiler room. The port is connected with Railroad switch yard, by railroad track, the length of it is 1.0 km. There're 10 roads on the territory of the port, total length of it is 13,5 km. Port is connected to the city roads.

Kaliningrad marine fish port is a state enterprise (federal ownership).

The port has warehouses with following specialisation:

The name of warehouses, tanks, areas	Capacity
4 warehouses for general cargoes	5,5 thousand sq. meters
3 warehouses for refrigerator cargoes	16,0 thousand t.
60 tanks for oilproducts	35,0 thousand t
Tanks for liquid products	15,0 thousand cube m
Areas for piled goods	3,0 thousand sq. meters
Additional areas	5,0 thousand sq. m

Also there're port and floating cranes with capacity from 5 to 32 t., autoloading.

Presently the fishing port handles less than 1,0 mln t. of fishing products per year. Reorientation to the other types of goods has started.

The fish is coming from the fish boats of the western pool. Almost all fishproducts are sent to Russia.

From 1993: liquid mineral fertilisers, other chemical cargoes, pig aluminium etc. (KAS 0,3 mln t. per year) are delivered through fish port to western Europe.

6.1.2.4. Kaliningrad river port

Kaliningrad river port is situated on Pregol river 9 km from the estuary of the river and 44 km to the sea (by Kaliningrad Marine Channel). The port operates with river ships and river-sea ships which are good also for the sea. Kaliningrad river port owns many quays on Kaliningrad and Visla bays, also on Pregol river up to Chernyakhovsk and Deima river up to Polessk.

Kaliningrad river port has several cargo areas, which described below:

Cargo area	The number of moorings	Type of loads
Nizhnyaya perevalka	2	coal, lumber
Svetlaya	2	coal, lumber
Reid	1	lumber, construction materials
Gravijno-sortirovochny zavod	3	sand-gravel mixture

Kaliningrad river port consist of two main areas: Baltyisky cargo area (1 8 mln t) and Svetlovsky cargo area (0 5 mln. t). These areas are traditionally work with coal and lumber only.

The river port has two open storage areas (total 12 800 sq. m) for different loads. The port has 14 port cranes and 13 on-the-water cranes.

Maximum capacity of the port is 2 mln. t of different loads per year. Factual turnover in 1994 is 0.9 mln. t.

Kaliningrad river port is a Joint Stock Company. The port has received its land for unlimited period of time.

6.1.2.5. Navy base in Baltyisk

The navy base in Baltyisk is the main base of the Baltic fleet. It's situated near the outlet of Kaliningrad Marine Channel to Baltic sea. It has about 100 berths and all needed infrastructure. It is presently used only by the military.

This is now changing. The military and regional administration have signed an agreement to build a marine terminal for transport, export-import operations and for passenger's transport.

In May 19, 1994, this agreement was approved the government. JS "Rosbaltport" (founders - JS "Gazoil" and "Rosban", also JS "Cargotrans" from St-Petersburg) was founded, with the aim to build and operate the marine terminal. There are plans also to build a sea port 12 mln. t capacity on Vostochny Point.

6.1.2.6. Fishing port in Pionersky

Pionersky is situated on the north coast of Zemland peninsula; 42 km to north-west from Kaliningrad & in 4 km to the east from resort-city Svetlogorsk.

Pionersky is also a resort.

The biggest enterprise in the city is "Base of ocean fishing fleet", which has its own port. Pionersky port is under the Kaliningrad Marine Fish Port. It has a small area of water & it is not very deep, why it can receive only small & middle tonnage boats. It is protected by 2 breakwaters.

The main function of the port is to receive fish from the boats and serve the boats from Pionersky base. Pionersky port is not used for other purposes. There is no possibility to expand production capacity.

6.1.2.7. Cargo port terminal - Pregolsky cargo area

Complex is situated on the left bank of Kaliningrad Marine Channel not far from the western board of regional centre. It was built by excavating land close to the channel. The size of the harbour is 450 * 250 m; depth 6-8m. Along the east bank of the harbour (section with length 150m) there're piled construction. A road has been built, length 1.5 km, which connects complex to the road Baltyisk-Kaliningrad.

The planned capacity is 5.0 m. t of dry cargoes per year. In the future they plan to increase this capacity to 9.0 m. t. Apart from the 37 hectares for this harbour, 263 hectares of land are reserved for building 2 additional harbours with required infrastructure (2, 3 step of the project). Harbour is 10.0 m.

The complex is owned by the limited partnership "Pregol port company Ltd.", which was founded by the regional administration and JS "Zapadnoe parahodstvo". It is aimed to refine export & import cargoes mainly for Russia & European countries.

6.1.2.8. Svetly cargo passenger terminal JS "Svetport"

Cargo and passenger complex JS "Svetport" is planned to handle piled goods, piece cargoes, containers, and also receive ferries from Europe with passengers, automobiles & other loads.

The complex is situated in Svetly on the right bank of marine channel 26 km from Kaliningrad and in 14 km from exit to Baltic sea. The territory which it occupies is 15 hectares, the length of the bank line is (in the future) 1020 m.

The depth of marine channel near berths of the complex 10 m. Presently berth length 130 m & depth 5.2 m are in operation. The following berths are being built now- 170*7.0 m, 165*8.7 m, 170*10 m, 145*10 m, 60*7.0 m. A groove wall is being built to strengthen the edges of the berths (total length 180 m & depth from 5.2 to 10 m). Two railroads were built to the operating berth. Also 2 more railways are being built to the new uncompleted berth. Carrying capacity of highways is sufficient.

Total capacity of berth equipment varies depending on type of cargo & it can be more than 2.5 m. t per year. Capacity of port cranes is 20 - 40 t.

Automobile roads provide good connection with Kaliningrad, Russia & other countries.

The owners of the complex are JS "Zapadflot", JS "Mihailovskiy GOK", Kaliningrad river port JS "Zapadflot", Fund of property of Svetly & JS "TransSvet".

Total cost of uncompleted construction \$4.000.000.

6.1.3 Cargo flows in the ports

Cargo flows consist of goods produced in Kaliningrad and also export-import cargoes. In 1994 types and quantities were:

Export deliveries, mln. tons		Import deliveries, mln. tons	
Oil and oil products	- 0,3	Grain, grain-products	+0,8
Coke	- 0,02	Raw sugar	+0,2
Pulp	- 0,05	Machines and equipment	+0,01
Paper	- 0,001	Corruptible cargoes	+0,44
Saw-materials	- 0,002	Other loads	+1,15
Fertilisers	- 0,19		
Coal	- 0,1		
Balance wood	- 0,9		
Networking metals	- 0,24		
Total amount	-2,20	Total amount	+2,20

Analysing these data we can come to the conclusion that because of outgoing cargoes do not exceed incoming that private ports turnover higher than state value. Their development depends a lot on the policy of Russian government. If the economic situation in the whole country is favourable and the Kaliningrad port is given a favoured political position then cargo flows of goods produced in the region and import deliveries through the ports of Kaliningrad will increase.

6.1.4. Organisations and authorities

The name of the port	The owner of the port	The address of the owner
Kaliningrad trade port	Limited partnership "Kaliningrad trade port"	236030 Kaliningrad, Portovaya str., 24
Kaliningrad fish port	Fishing state committee	Moscow
Pionersky fish port	JSC "Pionerskaya base of oceanic fishing fleet"	238503 Pionersky, Portovaya str., 1
Port Baltysk	Russian ministry of defence	Moscow
"Pregolsky" terminal	Limited partnership "Pregol port company Ltd."	236017 Kaliningrad, Kashtanovaya alleya, 28.
"Svetly" terminal	JSC "Svetport"	238340 Svetly, Sovetskaya st., 47

At the Regional Administration all questions of marine transport are dealt with on State regional transport complex directorate. The address is: 236000 Kaliningrad, Vali Kotic 6-a.

Customs formalities: R.R. Directorate and Kaliningrad Custom's Office. Address: 236000 Kaliningrad Chetvertaya Prichalnaya str., 1.

6.1.5. Economical conditions

Kaliningrad ports because of cargo turnover decrease during last few years has a lot of financial problems. Difficulties with Lithuanian transit, high railroad tariffs make the ports to keep their prices low compare to other Baltic ports.

The name of operation	Rate in \$
Transshipment of fishproduction	4,25 - 9,0
Transshipment of tare (per ton)	7,0 - 21,5
Transshipment of oilproducts	2,5 - 7,0
Operations with loaded container (per 5 tons)	3,0
Operations with empty container	2,3
Storage in warehouse a ton of cargo (per day)	0,1
Storage of cargo on the open ground (per day)	0,05
The work of portal crane (per ton an hour)	4,4
Berth rate (for 1 m of berth for hour)	0,02
Port rate (for 1 ton of water per day)	0,01
Supply of water (per ton)	4,4
Sorting of cargo in the hold (per ton)	2,2 - 3,0

In some operations service prices in Kaliningrad ports are 15-25% of the prices for the same services in the ports of Baltia countries, Poland and St. Petersburg. Yet it is less more expensive to use Kaliningrad ports for railway transit tariffs. To illustrate this we offer you to compare prices for delivery sea container ISO 20 feet to Moscow.

The name of operation	Port of Kaliningrad	Port of St. Petersburg
Transshipment of the container	\$7,2	\$20,0
Operations with a crane	\$4,4	\$7,0
Keeping the container (5 days)	\$3,0	\$28,5
Total	\$14,6	\$55,5

After all the customs operations, 5 days of storage the container goes to Moscow in an open railroad car.

Items	Kaliningrad - Moscow	St. Petersburg - Moscow
To cross Lithuania (1 ton/1 km)	\$0,033	
Trace on Lithuania	234 km	
Cost through Lithuania	\$93,3	
Transit Russian tariffs	\$0,05	\$0,05
Distance	808 km	630 km
Cost through Russia	\$484,8	\$378
Total cost	\$577,8	\$378,0

Thus final cost is:

Kaliningrad - Moscow	\$592,4
St. Petersburg - Moscow	\$433,5

** Note: Kaliningrad - Moscow trip take 30 hours, St. Petersburg - Moscow trip - 14 hours.

The example above shows that it is more profitable to deliver the container through St. Petersburg port. The same preferences have the ports of Baltia countries.

6.2. On - going improvement / development work

6.2.1. Improvement work on mooring #2 of Svetly cargo complex (JS "Svetport") have been completed. Laid out railway track for the crane. A new 20 tons capacity port crane was bought. New electrical transformation substation was built.

6.2.2. Started ferry line Rostok-Kaliningrad-St. Petersburg (Vyborg) Ferry goes through Kaliningrad fish port.

6.2.3. Kaliningrad fish port started to operate new packing equipment and storage vessels for fertilisers.

6.2.4. Kaliningrad trade port put into operation a new loading complex for fertilisers and chemical cargoes 300.000 t capacity, which consist of several moorings, one warehouse

and open storage area. Built an control area for passengers. The "Ro-Ro" complex will be built soon.

6.3. Projects under consideration

6.3.1. Reconstruction of the trade and fish ports. The project initiated by the company "Kaliningrad sea trade port Ltd." and to the administration of the fish port. This reconstruction would increase capacity of the Kaliningrad trade port up to 6.5 million t and the Kaliningrad fish port - 3.5 million t.

There also planned reconstruction of the oil terminal (to build a new mooring for oil products, to deepen the aquatic area, to repair 4 existed moorings). The project includes full repair of 24 port cranes.

6.3.2. Building of new cargo moorings near Pregolsky town. The project initiated by JS "Pregel port company Ltd." A new port 5 mln. t capacity would be built as a result.

6.3.3. Building of new cargo moorings and passenger terminal near the city of Svetly. The project initiated by JS "Svetport". The plan is to build a new port 2.5 million t capacity.

6.3.4. Building of a new cargo terminal for the Kaliningrad trade port on the Korovij peninsula. The project initiated by "Kaliningrad sea trade port" company. It is planned to build a new cargo terminal 4 million t capacity.

6.3.5. To build a new high depth port 12.5 million t capacity in Baltyisk. The project initiated by JS "Rossbaltport".

6.3.6. To build a passenger terminal in the port of Pionersky. The project initiated by the "Base of ocean fishing fleet" company. The capacity of the terminal would be 150.000 passengers.

6.4. Disadvantages and bottlenecks

6.4.1. The depth of the Kaliningrad Marine Channel is constantly decreasing. Over 2 years there were not performed any works to deepen the channel.

6.4.2. The quays constructions of the trade and fish ports are 30% worn out, cranes - 25%. There is a serious need for reconstruction.

6.4.3. There are two borders between the ports of Kaliningrad and the main port consumers (Russia and CIS).

6.4.4. The port services which deal with preparing documents and supplying works very slow and ineffective.

6.4.5. Bad railroad quality to Baltyisk and small capacity of the old railroad bridge in Kaliningrad are the problems what hinder the building of a new port in Baltyisk

6.5 SWOT - analysis

STRENGTHES	WEAKNESSES
1. Free capacity available; well functioning port organisation, system and equipment	1. Cannot compete (Russian cargoes) with other Baltic ports
2. Close to western markets	2. Long access times throught the Marine Channel to the Trade Port; difficult navigation
CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. High level strategic port development plan in the Baltic context. What is the future role of Kaliningrad port ?	1. Enclave position makes it expensive and sometimes difficult to transport goods to/from Kaliningrad
2. Marketing of the Port	2.
3. Improving customs and administrative systems and services	3.

7. Water supply and sewerage

7.1. Description of existing situation

7.1.1 Introduction

Clean water supply comes from lakes, reservoirs, artesian wells. In most cases water goes through clearance cycle that includes removal of hard sediment, emulgation and chlorinating. After the clearance process water is given to consumers by waterpipe net. When taking water from artesian wells such clearance is done only in several cases. Water supply nets in the region are 70% worn out and require replacement. To avoid to the year 2000 current deficit of the water in Kaliningrad region there several water pump stations 130 000 cubic meters capacity should be built and put over 40 km of water supply pipes.

A large part of industrial and common liquid waste go directly to the lakes, rivers and to the Baltic sea. Present cleanning constructions are not adequate. Solid waste are being brought out of the cities only.

7.1.2. Clean water supply

7.1.2.1. Reservoirs

The main consumer of the water in the region is the Kaliningrad city. Centralny and Oktyabrsky areas of the city are provided with water from clean water lakes. Central Pipe Station Reservoir has the capacity of 7,9 mln. m³ of water.

New Southern Waterpipe Station Reservoir is situated 3,5 km from Borisovo township, but is not working yet. The capacity of this reservoir is able to provide Kaliningrad with clean water for 15-17 days.

7.1.2.2. Artesian wells

Small towns of the region are mainly supplied with water from special artesian wells. For example Gusev is supplied this way.

In the summer of 1994 in Lipovo township near Gusev city the third part of water extraction complex containing 4 artesian wells started functioning. It provides the city with all clean water. However there are some difficulties connected with getting magnetite quartzite filters for clearance of water. In other areas where artesian wells are used there are the same problems. Some food industry enterprises use their own artesian wells in the process of their production.

7.1.2.3. Pump stations

Leningradsky area of Kaliningrad is supplied with water from Eastern Pump Station situated in Ozerki township in Gvardeysky region. From it 35 thousand m³ of clean water comes to the city every day. Electric pumps get energy from separate open electric substation of Western Electric Nets.

In 1979 in Kaliningrad the second part of Southern Waterpipe Station started functioning. From that time till now there have been no new watersupply objects started. In order to eliminate the deficit of water in Kaliningrad it is necessary to start the first part of Eastern Pump Station in Ozerki township 30 000 cubic meters of water capacity, Moskovskaya Pump Station #2 and Southern Pump Station #2 in Borisovo township.

7.1.2.4. Waterpipes and pressure lines of watersupply

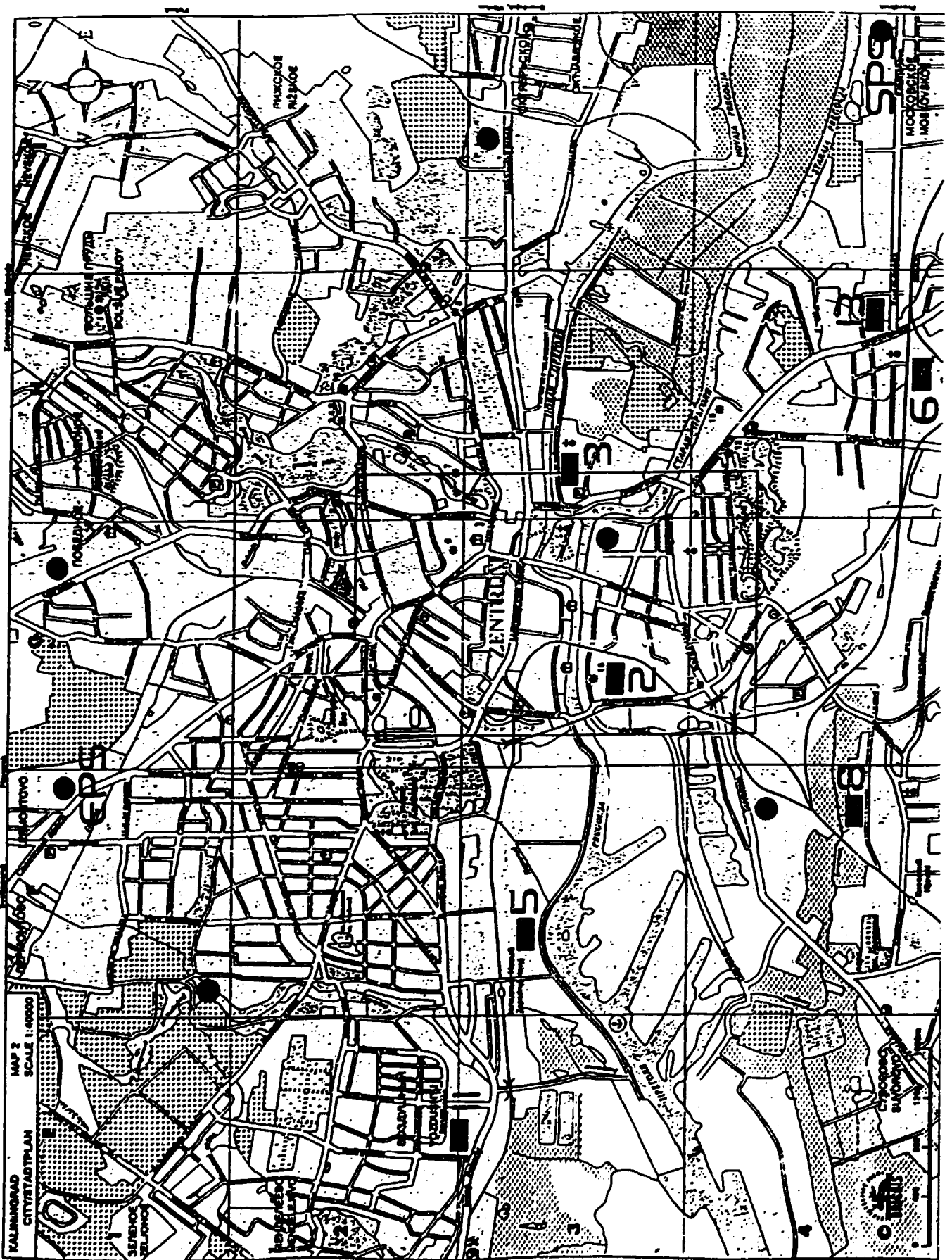
Kaliningrad waterpipe net consists of 670 km of water pipes. Annually 6,5 km of these pipes are repaired. Since the waterpipe net include some parts of 20-30 years old and large part which stayed from the time before the World War II the net is not adequate. Totally by now about 200 km of water pipes in the city need repair. Condition of the waterpipe net does not allow secure water supply for the city. The leakings is usual what lead to cutting of the water supply, and donot give an opportunity to raise the pressure up and deliver water to the last flours of high buildings.

We can consider Sovetsk as an example of the water supply in the other cities of the region.

Before giving to the city nets of Sovetsk at a waterpump station water goes through the cycle of disinfection and chlorinating by liquid hypochlorite taken from AO "Sovietsky CBZ". In general the situation with watersupply in this city remains quite bad. So in 1994 separate cases of complete water pressure fall in the city net occured for the reason of obstruction of filters of water counterflow. As a result of that many times the danger of pollution of underground waterpipes by surrounding swamp and faecal waters occured.

The crisis of water supply is now in Baltysk. Because of lack of the water only few ours during the day there is a water supplied. Building of the special waterpipe line to Baltysk is stopped now for there is no financing now.

KALININGRAD SEWERAGE (■) AND WATER (●) PUMP STATIONS



7.1.3. The network of waste

7.1.3.1. Closed collector and drainage system for sewage

In the present time sewerage system of Kaliningrad is overloaded by 2,5 times comparing with norms. In sewerage net there are areas older than 100 years. The closed sewerage net is also transport industrial waste water. Present condition of this collector we estimate by considering the part of it under Oktiabrskaya street.

Part of city sewerage collector situated in Oktiabrskaya street district is overloaded and is functioning according to temporary scheme. In 1994 in this part three accidents occurred. Regarding the opinion of experts in this area a complete change of engineering networks including collector and drainage system is necessary. This will demand \$14 000 000 investments.

Small cities use in the most part a sewerage system left from the time before the war, what became outdated many years ago. And only bigger cities have modern sewerage system. In the city of Sovetsk for example sewage is taken by special sewerage pump stations and pumped to city clearance facilities.

City rainstorm collector goes into Goluboy stream. Part of industrial sewage and rainstorm sewerage flows to Goluboy, Severny and Botanichesky streams that fall into Verhnee Lake and to river Pregol. The same kind of situation we can see in other cities which are situated on rivers Lava, Sheshupe, Neman, Instruch etc.

7.1.3.2. Clearance facilities

Annually industrial and civil sources up to 320 mln. m³ of sewage to different reservoirs of Kaliningrad oblast.

The main clearance facility in Kaliningrad is the united clearance facilities. These facilities have been being constructed since 1977. In present time they are 60% ready. Total capacity of the facilities is 462 thousand m³ of sewage per day. Total length of the now main collector is 17 km.

Clearance facilities in resort area are situated in Zaostrovie township in Zelenogradsky region. After their start untreated sewage discharge into the Baltic Sea has decreased by 65% compared with 1989 (the quantity of organic materials decreased by 44%, phosphorus - by 24%, nitrogen - by 18% etc.). In 1994 in Krasnoznamensk clearance facilities with biological treatment were started. Before the sewage there was directly discharges into Sheshupe river.

7.1.3.3. Solid waste

In the territory of Kaliningrad oblast there are over 100 everyday and industrial waste dumps. Annually these dumps receive 2 mln. ton of different waste.

The biggest place for receiving everyday waste is situated in A.Kosmodemianskogo township - suburb of Kaliningrad.

Nowadays in Centralny and Leningradsky areas of Kaliningrad the gathering in of garbage is experimentally done according to European scheme with the usage of metal containers which capacity is 7 m³ and larger. This experiment on the agreement with city administration is being done by Joint Venture "Kamerau & K" and German company "Keske". Analogous experiment is purposed to be developed in summer 1995 in the city of

Chernyakhovsk and Svetlogorsk. Average cost to take out the garbage of the city is DM5 for one cubic meter of it.

The existing waste dump in Sovetsk city is situated within the city borders near the food factory and milk products factory.

7.1.4. Clean water and sewage water

Daily Kaliningrad consumes 185 thousand m^3 of clean water. Expected consumption of water in the city by 2005 will be 280 thousand m^3 per day. Even today the deficit of water in the city equals to 60 thousand. To several buildings water is given in limited quantities in daytime and is not given completely in night hours. Total regional demand of clean water is difficult to estimate, yet it is assumed that 359 different industrial and other establishments consume annually 230-240 billions cubic meters of the water.

Over 90% industrial waste flows in Kaliningrad region go directly to the rivers and bays avoiding any clearance. The main polluters - Pulp & Paper factories in Kaliningrad, Sovetsk, Neman do not have any clearance systems.

7.1.5. Organizations and authorities

All the questions connected with clean water distribution, sewerage and hard everyday waste in Kaliningrad oblast are settled by enterprises of different forms of property and state organizations. Necessary data are given below.

Name of object	Owner	Owner's address
Clean water	SE "Vodokanal"	236000, Kaliningrad, Komsomolskaya str., 12
Sewage	SE "Vodokanal"	236000, Kaliningrad, Komsomolskaya str., 12
Solid waste	SE "Chistota"	236016, Kaliningrad, Pionerskaya str., 59

7.1.6. Economic conditions

Companies in Kaliningrad which deal with clean water, sewage and solid waste now experience pretty big financial problems because of increased prices for electric energy and fuel. Constant shortage of means does not allow to carry on the work concentrated on maintaining pipelines, pump units, automobiles. Tariffs for these services are very low:

Name of component	\$ Price
Clean water for enterprises (for $1m^3$)	0,04
Clean water for population (from 1 person per month)	0,08-0,61
Sewage in enterprises (for $1m^3$)	0,02
Sewage in living buildings (from 1 person per month)	0,03-0,23
Gathering in of garbage in living buildings (from 1 person per month)	0,09

7.2. On-going improvement/development works

7.2.1. In present time on the territory of the East Waterpipe Station a new building, chlorinating station was built, made 36 artesian wells, some pump units installed. Further

development of the station is limited by financial shortage. About \$670 000 needed to complete.

7.2.2. Now stopped building of a new water reservoir 2 million cubic meters capacity near the South Waterpipe Station. Only 60% is completed: the pit 150 m wide and 8m deep was made. Shortage of finances was the cause to stop.

7.2.3 A new city 13 m underground collector for technical use is being built.

7.3. Projects under consideration.

7.3.1 Completion of construction of united clearance facilities in Kaliningrad. It is planned to assemble technological equipment, to liquidate gaps of main collector route, to assemble receiving chamber of main pump station. Danish consulting firm "Kruger Consult" is leading the Danish government project of help for Kaliningrad oblast. Now only feasibility study have been done by "Kruger Consult". Local enterprise "Stok" is going to realize the project. Needed investments to realize this project \$2 000 000.

7.3.2. Construction of unloading collectors for the purpose of connecting five areas of Kaliningrad with the main route of the collector of united clearance facilities. This project was initiated by municipal enterprise "Vodokanal".

7.3.3. Everywhere installation of water meters for decreasing of non-productable waste of clean water. Installation of water meters will decrease water consumption by 30%. The project was initiated by The cost of the project is \$0,5 mln.

7.3.4. Additional sewerage collectors laying, construction of regional pump sewerage station in Kaliningrad and of 6 pump stations in different districts. The project initiated by municipal enterprise "Vodokanal". The cost of the project is \$0,8 mln.

7.4. Deficiencies and bottlenecks

7.4.1 Kaliningrad region (together with Baltic states and Leningrad oblast of Russia) in 1996 will not be able to meet requirements of international convention on environment protection of the Baltic sea. It was planned that this year the quantity of pollution falling to the sea will be decreased on 50% and pulp and paper enterprises will stop throw uncleansed wastes. The reasons of the problem is that clearance facilities in Kaliningrad, Sovetsk, Neman are not ready.

7.4.2 Along with starting of united clearance facilities there is necessary to construct a new special firing range for bumming of solid sediment: 100 tons daily. There are no means for this construction now.

7.4.3 Water supplied to the townships from artesian wells do not pass through the system chlorinating and cleansing. For that reason 41,7% of this water is bacteriological dangerous and not drinkable.

7.4.4. The clean water and sewerage water networks are not developed in many places e.g. the central eastern part of Kaliningrad city. This has the consequence that this part of the city cannot be developed as industrial area.

7.4.5. Lack of water supply and sewerage water collection is a difficulty for industrial development.

7.5 SWOT - analysis

STRENGTHES	WEAKNESSES
1. Plenty of raw water available	1. Clean water is in many areas of the region and Kaliningrad City of bad quality. Particulary the water taken from river Pregol varies in quality over the year, ocasionaly salt water intrusion
	2. The clean water supply in Kaliningrad City has certain problems due to: - occasional problems with raw water quality; - a permanent deficit in water supply; - water network is old and leaking - leading to that certain areas of the cities cannot be developed.
	3. System for measuring consumption and building consumers not developed, bad economic situation for water authority
	4. Waste water collection and treatment not adequate in the region generally and in cities such as Kaliningrad, Sovietsk, Neman in particular
CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. Completion planned and started waste water collection systems and treatment facilities in Kaliningrad City, Sovietsk, Neman, Mamonovo etc.	1. In certain areas uninterrupted water supply cannot be guaranteed (however there are possibilities to develop own wells)
2. Develop water/ waste water network to allow e.g. combined development of Kaliningrad City	2. Present bad situation may stop existing industrial activities and prevent industrial development

8. Telecommunications

8.1 Description of current situation

8.1.1 Introduction

In Kaliningrad region is spread analog system of telecommunications. In this system are used cables with copper vein in lead cover. In whole this system is outdated. From international point of view the quality of communication is on low level, first of all because of high-level parasitic noises.

Region is far behind other regions of Russia with its quantity of telephone lines per 100 people. The majority of telephone stations use outdated co-ordinator principle of connection. There is only one telephone station where electronics is used for processing incoming signals (station S-12 made in France). Without the help of operator in automatic regime are made only 41% of intercity telephone connections. Telephone installation cost is very high for the majority of the people and too high for people from country side. Besides in many cases there are no technical opportunities for connection of the new lines. Also there are some positive changes in this sphere for example increasing quantity of countries with which we have automatic telephone connection. Also the fact that on the regional market there is operator of international level made its positive influence.

Information source	Worsening of the situation	Improvement of the situation
I. Telephone	-Further ageing of analogy communication system -High telephone installation cost -Increasing of rates -Absence of new lines for connection	Putting into operation telephone communication lines, based on equipment, which is installed by JV "WestBalt Telecom". Growing number of installed telephones in different districts.
II. Telegraph	-Ageing of equipment produced in former USSR -Decrease of demand on telegraph communications, because of high rates	
III. Postal communications	-Decreasing quantity of mailings, letters, delivered home newspapers and magazines because of high rates. Remaining equipment..	

Equipment of telegraph (telex) communications is also worn out. Constantly decreases the quantity of processed telegraph communications. First of all it is connected with high tariffs and with falling solvency of demand. This could also depend on that telex is an outdated technology now being replaced by fax. For the same reason the quantity of mailed letters, postcards, mailings, delivered newspapers and magazines is decreasing.

The positive moment is: increasing number of telefaxes, updated telephone units of high international level and design, units of radio communication, paging.

8.1.2. Information network

Telecommunication signals and other information sources, mailed from region and coming to its territory are distributed to users by special information network. Below you can see description of this network.

8.1.2.1. Telephone

Nowadays telephone regional network is has 110 thousand users telephone numbers. For every 100 families of the city there are 28 telephones (in Russia usually 41,5), in the country side 14 (in Russia approximately 17).

The biggest telephone communication junction is Kaliningrad-city. Here are concentrated 8 automatic analog commutator stations, 2 stations of international telephone communication central station. Telephone city network permit to at the same time 0.6 have thousand internal talks and 5.3 thousand international talks. Today are used only 70-90 % depending on the type of the station.

In Kaliningrad there are 3 special points of international communication- on Leonova street, Leninsky prospect, U. Gromova street. They include 6 international telephone units.

Joint Russian-French venture "WestBaltTelecom" has active policy of breaking into the telephone market of the city. Today they have put into action 2.4 thousand obonnents in Kaliningrad.

Total whole telephone regional network includes 53 automatic telephone stations (ATS) 44 of them are analog. Absolute majority of the cities in the region are equipped with telephone stations with capacity from 0.5 to 3.5. thousand numbers. The biggest quantity of numbers has station in Baltyisk (3.5 thousand).

Same companies have telephone units of "Iskra" system (total number of them is 66), which connects 50 thousand users in 425 cities of CIS states. The units have better quality of communication than using co-ordinator system. Today you can call to 186 cities of Russia and SIC countries and also to 154 world countries using automatic telephone network

8.1.2.2 Telegraph

Telegraph communication of the region with other countries and regions is carried out by 920 telegraph channels, including 92 main lines. There are 244 installed telegraph networks. 56 of them are mainlines. In different companies in the region there are 488 teletypes and 19 telexes (nine of them are integrated into international network of user's service).

8.1.2.3. Radio

Radio network of Kaliningrad region includes units with big, middle and probative radiocommunications. First ones are transmitters of transmission centres. Kaliningrad radiotransmission centre is situated within the borders of the city, near suburb Lermontovskiy. The equipment of the centre includes antenna field and transmitter with small capacity, transmitting programmes within band of middle waves.

Radiotransmission centre a 5 is situated on the boarder of Slavskiy & Nemanskiy district near town Desantnoye. Equipment of the centre includes antenna field & two transmitters with big capacity which work within band of middle waves. These transmitters have the biggest capacity on the territory of Baltic states.

Following systems of radiocommunications with small capacities are used today in Kaliningrad & Kaliningrad region:

- system "Alta." Average range of broadcasting is 30-40 km with FM transmitter capacity from 10 to 15 Wt. In fact it is a radio-telephone which can be installed in an automobile. It is connected with the city telephone network (work frequency - 300 MHz).

- paging or radio units (portable compact units) of quick search which signal to user about call: by sound signal, digital message on the screen. Also "Multitone" (England) systems of personal radiocall are used;

- personal stationary, portable or automobile radiostations MW CB on frequency 27 MHz produced by MegaJet, President, Alon, Midland, Maxon. Work range of radiostations is till 25 km with fixed capacity of 4 Wt transmitter. They work in regimes of signal modulation (amplitude modulation, frequency modulation). They include 40 independent channels;

- mobil radiostations which work in the frequency band 36-48, 136-174 MHz. Work range 10-30 km with capacity of transmitter 5-15 Wt. They include 40-80 programmed channels and additionally are equipped with blocks of DTMF, scan mechanisms by list of channels, programmed by user. They meet hard requirements of military standarts MIL-STD 810 C;

- systems work of which is based on using honeycomb communication (use of few retransmitters - "honeycombs") within the city. Radiotelephones with limited radius of action, primarily import production are used. Through them user can contact city, intercity and international telephone network.

KOPRTC (Kaliningrad regional mobile radiotelephone connection) realises operational communications, based on the system "Altai" in Kaliningrad. Today KOPRTC rents 300 telephone numbers from State Telephone Communications. Using pack down equipment it was possible to place 480 radiotelephones. The main clients are big commercial banks. Few dozens are used by City Emergency departments.

Administrational Territorial centre of intercity communications and TV # 22 carries out the implementation of the honeycomb radiotelephone system. This centre received license and right for such work in RF Ministry of Communication. Project is being carried out based on JV, created with Finish company Finland Telecom, which provided needed equipment.

According to the contract 5 years all the profits of the JV will be given for the development of city telephone network. Maximum quantity of users is limited by the rules of license and equals to 5 thousand. Project is being done according to the international standart NMT - 450, which allows to contact international telephone line at any time. Today the first stage of the is finished: in Kaliningrad is built basic station. Now the work is being done on building other stations in Pyatidorozhnoe and in Pionersk, Kuibyshevskoe (Gvardeiskiy rayon), Veselovka (Chernyahovskiy rayon) and in Sovietsk. It is supposed to cover whole Kaliningrad region by honeycomb communication.

Russian - american JV "Kaliningrad communication centre Ltd", founded with the partnership of American firm "ICI", implements in Kaliningrd paging system (third city in

Russia after Moscow and StPetersburg). Control centre is situated on the third floor of the building on Leninskyi prospect, 13-a and it works 24 hours a day. User can connect controller from any telephone apparatus. Operation range of the system - 30 km. Joint venture is doing a work on maintaining 6 retranslation antennae on the territory of the region, what allows to use paging system on the whole territory of the region.

Commercial firms sell to the population compacts of portable 40 - channelled radiostations CB with working frequency 27 MHz, operation range 25 - 30 km. There are two versions: office and automobile. Work operation range of the stations can be additionally expanded till 30 - 40 km by installation of amplifier and special antenna.

Company "Erlang" (JS "Aviacenter") sells complexes of FM communication "Rosa", "Kremnica", "Viola", YAESU (Japan). Top management of the company says that the most perspective in stock is FM radiostations 5950 "Scorpion" produced by E.F. Johnson. They are equipped with synthesator and microprocessor, they have from 16 to 64 programmed channels and liquid crystal display, with help of which you can make digital selective call of user and scanning by the list of channels.

Fire, medical, police and other city departments use for communication special mobile radiostations of SW range.

8.1.2.4 TV network

All the questions about translation of TV-signal on the territory of the Russia are decided by Regional TVRadio Transmitting Centre.

The owners of TV-sets in Kaliningrad receive video-signal which is generated by transmitter on Sovietsky prospect. Also there is situated TV-tower. Till 2002 it will almost fully use its operational resource. There are plans on building new TV-tower in Gurievsk area. On the territory of the region TV video-signal is spread with the help of special retransmitters. Two of them are situated in the centre of Sovetsk and they transmit central programmes of "Ostankino", transmission of regional TV and programmes of independent teleradiocompanies.

8.1.2.5 Satellite TV communicational network

Today a testing of first in Kaliningrad station of space communication is being done. It is situated in Nivenske, Bagrationovsk area. Station is being constructed by JSC "Ramsat". The communication will be carried out with the help of Russian satellite "Horizont". Project capacity of this station is 1200 communication channels.

8.1.3. Information flows

Outgoing and incoming flows of information on the territory of Kaliningrad region by letters, postcards, newspapers and magazines, mails, telegrams, telephone communications, faxes and also video and radio signals. Letters, postcards and mails are delivered to Kaliningrad region by railway and air transport. Part of the newspapers are printed in Kaliningrad from matrix, copies of which are passed from other cities of Russia (mainly from Moscow) by photo telegraph.

Other part is delivered to the region by different types of transport. Telegraph and telephone calls, faxes are transmitted through cable network which goes through the territory

of Lithuania and Belorussia Videosygnal is translated from the territory of Russia through the territory of Lithuania and Belorussia by special retranslators

Below you can see types of main carriers which pass through the borders of Kaliningrad region which is typical Also you can see quantity data for few years

Carriers of information, mln	1990	1992
Letters	31,12	20,32
Newspapers and magazines	174,82	83,36
Mails	1,17	0,33
Telegrams	1,44	1,67
Intercity telephone talks	19,61	21,92

Analysing the data shown in the table we can make following conclusion: because the quantity of information carriers is constantly decreasing we should expect their soon stabilisation on the level which will reflect real market situation. So the quantity of this carriers depends a lot on success of economical policy lead by the government. If there is favourable economical situation in whole country the quantity of information carriers on the territory of Kaliningrad region will be increasing.

8.1.4. Organisations and authorities

All the questions connected with support of communication between cities of Kaliningrad region and other regions are decided by companies of different organisational forms and state organisations. Lower you can see needed data.

Means of communication	Owner	Address of the owner
Telephone	JSC "Electrosvyaz"	236040 Kaliningrad Bolnichnaya street, 24
Telephone	JV "WestBaltTelecom"	236000 Kaliningrad Leninsky prospect, 132
Honeycomb radionetwork	JSC "RostTelecom"	236000 Kaliningrad Bazhenova, 21
Video sygnal	Regional TVRadio transmitting Centre	236000 Kaliningrad, Sovietskiy pr., 184
Postal communications	Directorate of federal postal service	236040 Kaliningrad Bolnichnaya str., 24

Number of additional problems can be solved by private companies. Below you can see their addresses and types of their services:

The name of the company	Address	Service
Enterprise "BBV"	238340 Svetly Telmana 1/116	communication service
Velbis	238300 Bolshoe Isakovo (Gyrievsk area)	Laying of telephone networks

West	236039 Kaliningrad Portovaya st., 41	Selling of communication units
Viola	236004 Kaliningrad Chernigovskaya, 60/6	Selling of communication units
Engineering technical company	238120 Ozersk Moscovskaya str., 11-a	Selling of communication units
Industry assembling office "SvyasStroi"	236015 Kaliningrad Zheleznodorozhnaya, 41	Construction of communication objects

8.1.5. Economical conditions

Today in the region there are following prices for communication services:

Name of information carrier	Pricing in \$
Letters	0,13
Newspapers and magazines	0,03-2,72
Telephone (price of installing)	200-250
Telephone (rent price of line for month)	0,7-1,2
Telephone (one minute of intercity talks)	0,06-3,4
Telegramm (for one word)	0,36

8.2. Works on improvement

8.2.1 In 1995 it is planned to spend \$ 0,6 mln. for building new ATS in Kaliningrad with the capacity 10 thousand numbers. During the year it is planned to launch in the city 100 new lines. Work is being done by JSC "Electrosvyaz".

8.2.2. In October 1994 JV "WestBaltTelecom" launched in Kaliningrad digital telephone station S-12, which gave opportunity to launch 6 thousand new lines. They plan till the end of 1997 to launch 40 thousand new lines based on this station.

8.2.3. In 1994 was started automatic telephone station (ATS) in Gysev for 2 thousand numbers, in Gvardeisk started to work first and second line of telephone station for 3,5 thousand users. In Mamonovo is being built ATS for 100 numbers. All this work is being done by JSC "Electrosvyaz".

8.2.4. It is planned to finish construction of station in Gvardeisk till the end of 1995 for 596 users and use about \$ 160 thousand for constructing ATS for 1000 users in Pravdinsk. The work is being done by JSC "Electrosvyaz".

8.3. Known projects

8.3.1. Purchase of telephone stations produced in Sweden MD 110/20. Project belongs to JSC "Electrosvyaz". Every station serves to 40 users and allows to connect whole intercity network. The price of one station is \$ 0,28 mln.

8.3.2. Renting communication channels on satellites produced in Russia and America. Project belongs to JSC "Electrosvyaz". It is planned to rent daily 150 channels for two hours. Satellite allows to connect united international network. The cost of equipment for connection with satellite communication channels equals to \$7mln..

8.3.3. Full saturation of the region with telephone communication. Project belongs to JSC "Electrosvyaz". It is planned to place 336 thousand new lines. The cost of the project is \$ 24 mln.

8.3.4. Creation of honeycomb communication centre on the territory of the region . Project belongs to territorial centre of coordinating intercity communications and TV a22. The cost of the project is \$ 2 mln.

8.3.5. Creation of own telephone communication system in Kaliningrad. Project belongs to JV "WestBaltTelecom". The cost of the project is \$ 5 mln.

8.3.6. Construction of new TV tower in Gynievsk area. Project belongs to Regional TVRadio transmitting Centre. The cost of the project is \$ 1,6 mln.

8.3.7. Telephonisation of Kaliningrad region. Project belongs to JV "WestBaltTelecom". They plan to place on the territory of the region 129 thousand of new telephone lines. The cost of the project is \$ 40 mln..

8.4. Bottlenecks and disadvantages:

8.4.1. Everuwhere spread analogical system of communication provides a bad quality of communication.

8.4.2. Limited number of countries which can be conected automatically by code number.

8.4.3. Absence of fiber-optical communication lines.

8.4.4. Outdated equipment produced in former Soviet Union.

8.5

SWOT - analysis

STRENGTHES	WEAKNESSES
1. Fast development of mobile telephone communication	1. Low number of telephones in the region and existing network does not allow expansion; low quality in communication
2. Reliable modern telecommunication available	2. Mobile telephone network not well developed
3. Telecommunication improving by introduction of new technology and competition	3. Limitations in international automatic telecommunication
	4. Inefficient mail service, e.g. one week to/from Moscow and two to four weeks to/from abroad (however international express mail companies have representation in Kaliningrad)
	5. Difficult to connect modern telecommunication equipment to the old network, e.g. faxes
	6. All communication cables pass throught other countries; TV - transmitters also located on foreign territory
CRITICAL AREA FOR DEVELOPMENT	BOTTLE - NECKS / DEFICIENCIES
1. Combined development of the telephone network in the region, in particular connection to border crossings, airport and port	1. Telecommunications in the old network
2. Improved mail service	2. Decreasing number of local newspapers; late deliveries of newspapers from e.g. Moscow and foreign newspapers
3.	3.