STRATEGIC ASSESSMENT OF CORRIDOR DEVELOPMENTS, TEN IMPROVEMENTS AND EXTENSIONS TO THE CEEC/CIS: CODE TEN

Deliverable D(3)   Technical Annex B

CA S E S T U D Y R E P O R T
C O R R I D O R I I (BERLIN-WARSAW-MINSK-MOSCOW)

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Deliverable 3 (Technical Annex B)

CASE STUDY REPORT CORRIDOR II

CODE TEN

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1 Introduction and description of the CORRIDOR II

The case study on CORRIDOR II in the framework of the CODE-TEN project involves partners from Germany, Poland and Russia and is led by Germany (PLANCO). There is no specific partner in Belarus. The information on the Belorussian part of the corridor partly comes from the Russian partner and partly from existing studies available at PLANCO. This is not as detailed as it is for Germany and Poland and is focused on the infrastructure network. In particular general policy information concerning the Belorussian transport policy is not available. Within the objectives of the CODE-TEN project this is not a major problem because the interest is principally in the central European countries.

This report is divided into four national and one general chapter which combines the results of the national analysis. The national chapters have been prepared by the local partners (except for the Belorussian chapter). Each of these chapters contains a ranking of the planned infrastructure projects and gives information about the feasibility of these projects under a political, environmental and economic standpoint. The final/general chapter of the report provides an indication of the robustness of the corridor and draws the national chapters (rankings) together.

CORRIDOR II is one of the nine corridors defined at the second Pan-European Conference, held in Crete 1994. In common with the other Pan-European Transport Corridors (PETC), it is a multimodal transport link identified as being of European interest. The corridor traverses Germany, Poland, Belarus and Russia and has a total length of 1830 km. Its improvement aims at strengthening international links between Western and Eastern European countries.

In January, 1995 a Memorandum of Understanding on this corridor was signed, and a Steering Committee has since then monitored the work of several Working groups.

Concerning rail, a co-operation agreement was signed between the railways of Germany, Poland, Belarus and Russia in April 1995 covering modernisation, reconstruction and development. The railway companies are studying the feasibility of running TALGO-trains on the Corridor. Between Berlin and Moscow the so called „East Wind“, a container block train service, has been in operation since 1995.

As regards Belarus and Russia, the development of the corridor is part of the TACIS programme and received a budget of ECU 4 million in the 1996 Interstate Programme.

Due to the major problems at border crossing points a working group for the facilitation of customs procedures with the aim of speeding up transit times was established.

MAP 1: CORRIDOR II

2 The German section of CORRIDOR II

Germany is located in the middle of Europe and its situation has become even more central since the opening of Eastern Europe to the EU. The consequence is, from a transport viewpoint, that Germany is now a country with a high proportion of transit traffic. (Such transit traffic could be a problem when analysing the costs and benefits of a project as road users from other countries are not confronted with the real costs of the infrastructure and therefore their demand might upset the economic equilibrium; road pricing is a possible way to solve the problem).

Germany has links to three of the CODE-TEN Corridors:

- **CORRIDOR II: (the section from Berlin to the Polish border at Frankfurt/Oder)**
- Corridor IV: (the sections from Nürnberg and from Dresden to the Austrian border)
- Corridor VII: (the German part of the Danube, from Kelheim to the Austrian border)

2.1 Transport policy issues

The main overall objectives of transport policy in Germany are:

- to achieve a ‘sustainable’ mobility for the members of the community, industry and commerce. This takes into account the increasing importance of trans-national inter-linkages especially in West ↔ East directions,
- to minimise environmental impacts and
- to raise traffic safety.

The major tasks are:

- to provide a modern, co-ordinated infrastructure network to secure appropriate access to all regions taking European networks into account
- to promote and establish competition between all transport modes, both at the national and European level; e.g. to harmonise technical, economic and financial conditions for the transport industry particularly for medium-sized and small enterprises
- to strengthen the position of railway and inland waterway transport
- to attain closer co-operation between different transport modes through the application of new technologies
- to promote transport modes and new techniques in order to reduce environmental impacts and to increase safety.

Due to budget restrictions, all major infrastructure projects must be ranked.

The ranking of the projects takes into consideration the impacts on:

- national economy
- environment
- regional structures and landscape
- additional criteria

All factors are regarded as being of equal importance and the policy decision-makers must consider carefully each. The FTIP'92 evaluation guidelines provide an overview of structural and performance goals in the Federal Republic of Germany. Structural (economic) goals are derived from the target system of national co-ordinated traffic policy and are allocated to specific performance goals. Details are set out in Table 1 below.

Table 1: Structural goals and performance goals within the FTIP

Structural goals	Performance goals
Reduction of transportation costs	Reduction of vehicle standing and operating costs
Reduction of travel times	Reduction of travel times, shortening of routes
Improvement of safety	Reduction of causalities, injuries and material losses through accidents
Improvement of spatial structure	Improvement of accessibility; improvement of job supply in areas of high unemployment
Relief on Environment	Reduction of noise, air pollution and separation effects of traffic
Saving of nature and landscape	Less use of land which can be used for all purposes; avoidance of water pollution as well as dangers for flora and fauna
Use of other benefits outside the traffic system	e.g. improvement of the value of natural areas for recreation or the use of inland waterways for water supply

Source: Federal Minister of Transport (publisher), FTIP 1992, Bonn July 1992

From the economic point of view, the prioritisation of projects is based on cost-benefit-analyses.[1] This evaluation system is well developed and tested. Together with the other criteria mentioned above many projects have been evaluated and ranked as a basis for policy decisions. (It is a recommendation of the German government that this assessment methodology is also employed at the European level)

The intention of the EU to promote the development of a Trans-European transport network is generally welcome. It is anticipated that this network will not only be an agglomeration of

[1] Within the macro-economic evaluation the following criteria are considered: reduction of transportation costs, maintenance of traffic infrastructure, improvement of traffic safety, improvement of accessibility, spatial advantages, environmental benefits and benefits from other than traffic related effects. They are related to the investment costs.

national networks but will also develop as a harmonised international and intermodal system. The implementation of the network is the responsibility of the member states. While the guidelines should not determine obligations concerning planning, timing, financing etc. the following points should be noted:

- the unified objectives and assessable criteria must be prepared to determine projects of common interest
- the change from road to modes which are environmentally more efficient (e.g. railway, inland waterways and short sea shipping) should be given priority
- promotion and support of individual ports should be established in a way that competition is not disturbed
- road construction should be concentrated on the improvement of the existing network
- technical harmonisation of railways, and road transport should be promoted,
- European comparability and interoperability should be given priority via the introduction of a traffic management system.

National road, railway and inland waterway networks in the Federal Republic of Germany are provided by central government institutions. This includes the following:

⇒ planning,

⇒ financing,

⇒ implementation and

⇒ maintenance of individual links in the overall network.

The planning must be divided in the overall design of infrastructure networks according to actual or anticipated transport demand and the detailed implementation of individual links. Although the railway network is now owned by the privatised Deutsche Bahn AG, investments into the network remains the responsibility of the central government.

Table 2: Priority projects according to FTIP 92:

Major investments according to FTIP'92		
Transport mode	Investments within the FTIP'92 between 1991 - 2010	
	thousand million DM	%
railway network	194.9	39.5
major roads	191.4	38.8
inland waterways	28.0	5.7
subtotal	414.3	84.0
financial support for municipalities	76.1	15.4
other fields	2.6	0.6
total	493.0	100.0

Source: Federal Minister of Transport (publisher), FTIP 1992, Bonn July 1992

The following groups of infrastructure investments have been set as priorities at the national level:

- the replacement of existing and the construction of traffic infrastructure in the "new Bundesländer" and East-Berlin
- the development of a high-speed-railway network
- the elimination of railway-network bottlenecks
- road-construction investments in the "old Bundesländer";
- setting-up of efficient nodes and co-operation between different transport modes,
- increase of air-transport capacities;
- installation of modern traffic management and information systems.

The present FTIP (1992) assigns the highest priority to the railways network and a high-speed network is planned in the period up to 2012 with a length of 3,200 km.

Other priorities belong to German unification, the so called *„Verkehrsprojekte Deutsche Einheit“*. These cover 17 projects which take precedence over others. Planning processes have been accelerated to speed up their implementation without reducing public participation and environmental protection.

In the recent years the major factors inhibiting the implementation of infrastructure projects have been as follows:

- pressure from environmental interest groups
- Budgetary constrains

The economic situation in Germany, together with the unification, have led to increasing budget problems. Further, in order to achieve the agreed Maastricht criteria, state expenditure has been restricted. In addition, since the last election, the influence of environmental interest groups has grown. This may lead to a decrease of budgets for road investments. Investments in rail or inland waterway networks are also considered problematic by those groups e.g. necessary investments into the inland waterway networks are seen as interfering with the natural equilibrium and thus creating the distraction of natural areas. Environmental problems are similar for railway investments, though in this case budgetary problems are usually the major barrier.

2.2 Environmental issues

Environmental aspects have become more and more important in German policy, especially in the transport sector. This development has come about as a result of growing awareness of environmental problems in the population as a whole and the influence of politicians. Considering new infrastructure projects, especially road developments, environmental aspects constitute one of the greatest barriers to implementation.

Table 3 illustrates that in the period from 1990 to 1994, pollution reduced significantly. However, in order to attain the Kyoto agreement, e.g. to reduce CO_2 about 25 %, enormous efforts are still necessary. In 1994 the government spent 851 million DM on environmental protection. In addition to that, 400 million DM were invested in noise reduction measures and a further 449 million DM in the conservation of nature and maintenance of booties.

The Ministry of Transport is considering the idea of following an European initiative which aims to reduce the concentration of gases by the year 2000 by internalising external costs of transport in the form of taxes.(Road transport is the major producer of CO, Nox and VOC).

Table 3: Pollution by producer

		1990	1991	1992	1993	1994
CO_2	**Mln t**	**1014.0**	**975.0**	**927.0**	**918.0**	**905.0**
Other transport	in %	2.2	2	1.9	2.3	2.3
Road transport	in %	14.7	15.7	17.2	18	17.6
NO_x	**in 1 000 t**	**2640.0**	**2509.0**	**2357.0**	**2274.0**	**2211.0**
Industrial production	in %	1.3	1.0	1.0	1.0	1.0
Other transport	in %	10.1	9.7	9.7	10.4	10.7
Road transport	in %	46.3	48.1	49.0	48.3	47.3
CO	**in 1 000 t**	**10743.0**	**9046.0**	**7926.0**	**7379.0**	**6738.0**
Other transport	in %	2.3	2.3	2.3	2.5	2.7
Road transport	in %	60.4	61.8	62.6	60.4	58.7
Dust	**in 1 000 t**	**2024.0**	**1157.0**	**820.0**	**786.0**	**754.0**
Other transport	in %	1.4	2.2	2.7	2.8	2.9
Road transport	in %	2.0	3.8	5.4	5.3	5.6
Vanishing organic compounds (VOC)	**in 1 000 t**	**3155.0**	**2748.0**	**2505.0**	**2289.0**	**2135.0**
Other transport	in %	2.5	2.4	2.4	2.8	3.0
Road transport	in %	44.5	40.1	38.0	34.7	31.7

2.3 Economic development

Economic development in Germany in recent years has been characterised by a relatively slow growth of GDP of around an average of two per cent in (The EU average for next year is about three per cent). The price index for private households, however, has remained stable.

A major problem is the growing unemployment rate, with an average number of jobless in 1997 and 1998 of more than four million. The high unemployment rate in its term gives rise to financial problems. More and more public money must be spent to solve unemployment problems, resulting in less funds being available for infrastructure investments. Table 4 shows an overview of the economic development in the last four years.

Table 4: Selected parameters of economic development in Germany 1994-1997

	1994	1995	1996	1997	Change in %		
					1995 to 1994	1996 to 1995	1997-1996
Unemployment in 1000		3612.0	3965.0	4384.0		9.77	10.57
Unemployment rate		10.4	11.5	12.7			
Price index (1990=100)	111.0	112.9	114.4		1.71	1.33	
GDP growth rate in prices of 1991					2.00	1.50	2.20

Source: Statistisches Bundesamt, Germany.

It should also be noted that growth rates in the new Bundesländer are well below those for the western part of Germany.

2.4 Passenger and freight traffic

Located in the centre of Europe, Germany has the highest transit traffic volumes in Europe amounting at present to around 30 % of the total. This traffic is increasing as a result of developments in Eastern Europe and will grow further as their economic performance improves.

2.4.1 Freight traffic

The FTIP forecast for estimates an increase of freight flows from the UK, France, Benelux on route to the CEEC states from 4.2 million tons in 1993 to 8.9 million tons in 2010. The government is attempting to introduce policies to prevent an increase of transit traffic. The planned measures are described in the "Freight traffic through Germany plan".

Although the declared aim of the government is to shift traffic from road to other transport modes, road traffic is still the major part of total freight movement. In 1994 the volume of road freight traffic was 200 billion ton-km, rail about 70 billion ton-km and inland waterway around 60 billion ton km.

Rail traffic comprises almost 100 % of fully loaded trains operating between one origin and one destination carrying one commodity. (In terms of tons or ton-kms the share of rail transport in single wagons is very low).

43% of all cargo transported on inland waterways is carried by German ships, and 57% is by foreign registered vessels. Forecasts predict that inland waterway traffic will increase by 84 % in 2010.

2.4.2 Passenger traffic

Since 1991 passenger traffic in terms of passenger-km has remained more or less constant. Of the total of around 900 billion passenger-km in 1994, 80 % were attributable to individual road vehicles and only 20 % to public transport. The FTIP estimates a growth of total passenger traffic of around 32% in the period 1988-2010. Assuming that a rail oriented policy is to be established, a growth rate of 40 % for rail passenger traffic during the same period is anticipated

Table 5: Trends in rail transport in million passengers

	1990	1992	1994
Local rail services	1058	1421	1457
Long distance rail services	114	130	126
Total	1172	1551	1582

Source: ECMT, Transport Infrastructure in ECMT countries 1998

Table 5 shows that the major share of rail traffic is accounted for by local services which are to a large extent travel between home and work or home and training/education locations. Rail traffic increases between 1990 and 1992 at a high growth rate, but remained more or less constant between 1992 and 1994. The substantial size after 1990 is a consequence of the unification which opened Western Germany not only for the Eastern part of the country, but also for areas of Eastern Europe (Poland and Russia, as well as the Czech and Slovak Republics.

2.5 Corridor network

The German part of CORRIDOR II with a total length of around 100 km comprises mainly a railway line and a highway. The corridor starts in Berlin and leads to the Polish border at the Swiecko crossing station at Frankfurt/Oder.

The road link, the highway A 2, is a highway with two lanes in each direction separated by a green stripe and applies to the requirements of a TEN standard highway. The current FTIP does not foresee any investment to construct a new or to improve the existing highway. The only exception is the A 10, the ring road of Berlin. This highway links up with the A 2 directed to the West and the A 9 directed to the south.

However, the node of Berlin is not part of the Corridor, therefore the investments are not part of this case study.

Map 2 shows the German road and rail network in CORRIDOR II. The whole network information is also included in the Transport Information System (TIS), that PLANCO developed for the evaluation procedures in CODE-TEN.

The rail link to the Polish boarder is already up to TEN standards and permits transport speeds of up to 160 km/h. In 1996, DM 7 million had been invested into the upgrading of this rail link. In the period 1998 to 2002, a further 75 million DM, and after 2002, 536 million DM are planned to be spent on further improvements and upgradings. The total investment is expected to reach 618 million DM.

In addition to these projects, another DM 10,294 million are planned to be invested to improve the situation inside Berlin.

Map 2: German road and rail network in CORRIDOR II

Conclusion:
The German part of the corridor already provides TEN standard highway and railway links. The main project for the railways system is the expansion of the existing link rather than the construction of new ones. The main bottleneck on this part of the corridor is not the link itself, but the boarder crossing facilities. The only project that is planned for the German part of the corridor is a boarder crossing rail project. This project, a high speed railway line between Berlin and Warsaw, is still in the planning phase.

The German section of CORRIDOR II is just of peripheral interest in the CODE-TEN project. The main interest is in Poland through which the largest section of the corridor passes and which also has links with other corridors.

2.6 Project evaluation

2.6.1 Evaluation approach for Germany in the framework of CODE-TEN

Evaluation within the framework of CODE-TEN for Germany is based mainly on Transport Policy Scenario B (TPS B), the "social-democratic model“ but also considers the so-called ”conservative model“ under TPS A. TPS B appears ‘messy’ at first sight as it considers too many of the policy goals as important. This is however in line with the guiding ideology of a model which seeks to achieve an efficient and integrated transport system. The strategic tool for this is the management of supply and demand.

Therefore emphasis is allocated more to regulation or management than to deregulation. This approach distinguishes this scenario from the ”conservative model“, which is characterised by an emphasis on liberalisation and deregulation and on increasing cross-border or international traffic. Further strategic goals to be considered in both scenarios are the promotion of intermodality and interoperability and the structural goals of increasing accessibility and the promotion of regional development. Infrastructure improvement and expansion is considered as an adequate instrument to achieve these goals.

The four policy scenarios described in the ”handbook“ are used to describe national transport policies across the EU and beyond. However, there is scarcely one country which fits exactly into these “ideal” scenarios. To assign Germany to one of them is difficult. German transport policy at present could be allocated between scenario A and scenario B. Taking this assumption into account, Table 6 shows the so called “PAM-L” values for Germany which have been developed based on the scenarios with some country specific and future orientated variations.

Table 6: Weights per goal (PAM-L values) for Germany

Specific Policy Goals	Scenario A	Scenario B	Weights for Germany
1. Applying environmental legislation	1	1	2
2. Pricing schemes for internal costs	3	2	2
3. Pricing schemes for external costs	0	2	1
4. Promoting intermodality	1	3	3
5. Promoting interoperability	1	3	2
6. Accessibility	1	3	3
7. Regional Development	1	3	3
8. Increase cross-border traffic	3	1	3
9. Restrict local road traffic	0	1	0
10. Reduce accidents	2	2	2
11. Liberalisation	3	1	1
12. Deregulation	2	0	1
13. Infrastructure investment	Yes	Yes	Yes

Source: Decode Handbook

2.6.2 CODE-TEN suitability test for German projects in CORRIDOR II

The suitability test to be considered as an CODE-TEN internal instrument aims at the analysis of perceptions. It is not intended to correct national priorities and cannot be considered as an instrument to change national programmes such as the FTIP. As already mentioned, there is only one project to be considered in the German section of this corridor.

The high speed railway line foreseen in the German FTIP is intended to improve the appeal of railway as compared to road transport. Travel times are shorter and thus the acceptance of this mode of transport will increase. In addition the expected traffic growth (see traffic forecast on this report) should be handled more easily with a fast railway line. The expected increase in road traffic will lead to heavy congestion problems and thus this project would improve accessibility to the corridor regions.

Table 7: Project database (German section of CORRIDOR II)

Project identification	Project	Present Phase	Expected year of completion
II GER RR 1	Highspeed railway line Berlin - Frankfurt/Oder	Planning	unknown

Map 3 shows the German infrastructure projects in CORRIDOR II. The information is also from the TIS, that includes beside the information of the existing network also the information about planned infrastructure projects.

MAP 3: German rail projects in CORRIDOR II

Table 8: Weights, goal achievement scores and policy scores for the CODE-TEN suitability test

Specific Policy Goals	weights	achievement scores	weighted policy scores for Germany
1. Applying environmental legislation	2	5	10
2. Pricing schemes for internal costs	2	0	0
3. Pricing schemes for external costs	1	0	0
4. Promoting intermodality	3	5	15
5. Promoting interoperability	2	0	0
6. Accessibility	3	5	15
7. Regional Development	3	5	15
8. Increase cross-border traffic	3	5	15
9. Restrict local road traffic	0	0	0
10. Reduce accidents	2	0	0
11. Liberalisation	1	0	0
12. Deregulation	1	0	0
13. Infrastructure investment	Yes	Yes	Yes

The total weighted policy score can be calculated by dividing the cumulated weighted policy score by the sum of the weights (23). Using the CODE-TEN approach the railway line achieves a total weighted policy score of 3.04 and can be considered as being in line with the German CODE-TEN objectives of national transport policy.

2.6.3 CODE-TEN adaptability test for German projects in CORRIDOR II

The adaptability test used in the CODE-TEN approach analyses projects against possible conflicts or barriers during their implementation. The test attempts to incorporate the probability of conflicts and barriers into the assessment procedure. In this context financial, technical, socio-economic, environmental, organisational and competency restrictions have been taken into account as these aspects represent conflicts which finally might create a barrier. These barriers will delay the development or the realisation process of infrastructure projects or policy initiatives.[1]

Considering the railway line, a technical conflict arises as a result of the different gauges of the German, Polish and the Russian system. However, every cross boarder project requires detailed planning and co-operation to avoid problems due to technical differences. Financial issues will also most probably create a barrier concerning implementation.

[1] concerning the definition of barriers see: "Policy Assessment of Transeuropean Networks and Common Transport Policies:TENASSESS, Deliverable D(6a), The Barrier Model, PLANCO Consulting GmbH, Essen, 1998.

Table 9: CODE-TEN adaptability test for German projects in CORRIDOR II

Project	II GER RR 1							
Fields	*conflict*	*barrier*	*conflict*	*barrier*	*conflict*	*barrier*	*conflict*	*barrier*
• socio economic assessment								
• environmental assessment								
• regional responsibilities or competency								
• technical standards or organisation	1							
• financing		2						
Project overall scores	1	2						

2.7 Conclusion

As the project is in harmony with the political goals of the German government, it may be ranked as suitable as part of an international programme. Due to increasing budgetary problems a financial barrier can be anticipated. The evaluation of the project at such an early planning phase is extremely difficult and cannot be compared with evaluations based for example on a finalised cost benefit analysis. So far neither a CBA nor environmental tests have been carried out in the framework of the FTIP 92. Therefore, the financial viability of this project must be checked. It can also be ranked according to the CODE-TEN evaluation approach as suitable in terms of the achievement of political goals but financial barriers may hamper or postpone implementation.

3 The Polish part of CORRIDOR II

3.1 Transport policy issues

The major objective of Polish transport policy is to rebuild the structure and mechanism of the transportation system so that it will be able to:

- increase its capacity
- provide high quality services,
- maximise its benefits for all members of the society,
- improve its financial situation,
- renew its material assets, and
- create better chances for those who are willing to act more dynamically.

According to a Transport Policy document dated 1995, the state is responsible for the realisation of the four following strategic goals:

- **acceleration of privatisation** - restructuring of large transport undertakings and abolition of monopolies
- **adjustment of Polish transport to the European Union** – creating conditions for entry into the European Union to focus the pre-entry strategy on the removal of all existing legal and technological barriers,
- **technological and organisational changes to transport operations** – to move towards improving the infrastructure,
- **pro-ecological development of transport sector** – minimising ecological impacts of transport activities, to support public passenger transport as a permanent alternative to individual transport and to develop a more environmentally friendly transport system.

Less significant investments are carried out according to transport enterprises programmes and to the infrastructure management institutions. PKP (Polish State Railways) and the General Directorate of Public Roads prepare long term and annual and longer term investment programmes for railway and road networks.

The process of implementation of a project can take several and can be initiated only by a given central institution or by *voivodship* or *gmina* local authorities. After submission of a proposal, the Parliament has to check the available budget resources and the resulting financing possibilities. The Budget Act passed every year by the Parliament includes a list of central investments based on the proposals. In 1996, there were 161 central investment projects estimated at 5.8 billion ECU (21 billion PLN) in the Budget Act. From central investments carried out at the initiative of the Ministry of Transport, the following were the main projects:

- modernisation of seaports and terminals,
- bridge construction,
- by-passes,
- modernisation of rail stations and
- rail lines E-20, E-59 and E-65.

3.2 Environmental issues

The Polish Ministry of Environmental Protection and Natural Resources published the document "Polish Environmental Policy" in July, 1991. This document, approved by parliament in 1991, recognised that Poland is a major contributor of CO_2, NO_x and SO_2. It pre-sents both the principles of ecological policy and the priorities of environmental protection in Poland. Ecological policy recommendations aim at reducing the burden which transport and industry put on the environment. In general, environmental policy is aimed at the concept of sustainable development, with great emphasis placed on market reform, the “polluter pays” principle and control of emissions at their source to achieve this goal.

The government has committed itself to reduce nitrogen oxides by 10% of the 1990 levels, and dust by 50% by 2000 and to reduce CO_2 and other greenhouse gas, VOCs and hydrocarbon emissions. As far as transport is concerned, the environmental goals are to be achieved primarily through improvement of the public transport systems and the promotion of a "clean transport" system.

The following items connected with transport activities are regarded as essential:

- the necessity of studying the results of detailed ecological analyses in the country's transport policy to determine an appropriate distribution of projects for road, rail, sea and air transport, for both public and private passenger transportation;
- the implementation of transport systems that will cause the least possible detriment to the natural environment;
- the implementation of a system of incentives for ecologically sound initiatives in transport;
- the introduction of environmentally-friendly fuels to the market:
- the introduction of regulatory laws concerning environmentally hazardous emissions and noise of combustion engines in compliance with the regulations of the European Economic Committee and the regulations of the Committee on environmental protection which have been ratified by Poland;

- monitoring of inspection of the technical parameters demanded to fulfil the set of ecological standards;
- the organisation and implementation of road inspection in order to guarantee that automobiles comply with the environmental protection requirements.

The Environmental policy also states that:

- private automobiles should be restricted in city centres;
- the participation of rail based public transport modes should be increased, especially where isolated rail lines exist;
- a network of traffic-free streets and suburban roads for bicycles and wheelchairs should be introduced;
- the development of motor transport is dependent on the possibilities of improving the environmental performance of vehicles considering production of these and the reduction of emissions by using unleaded petrol;
- Short–term (3 – 4 years) priorities in environmental protection including a programme of restrictions on load capacity per vehicle and the introduction of universal vibration and acoustical certification for transportation equipment and also for exhaust systems.

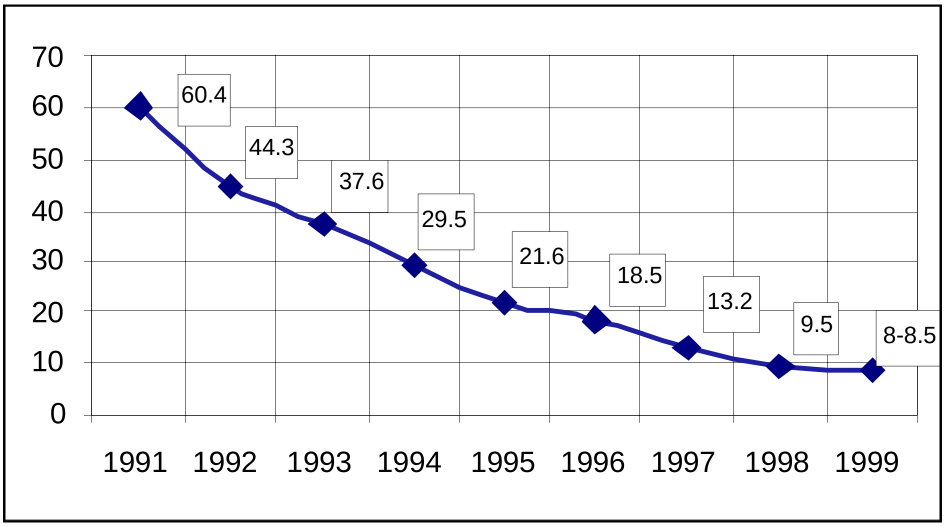
In January 1995, the Parliament of Poland voted for the "Resolution on the Harmonisation of State Transportation and Environmental Policy" which confirmed the political willingness to solve the environmental aspects of transportation in Poland. In the resolution, the need was stressed for immediate action by the Government, targeted at preparing a comprehensive programme for the development of transportation.

3.3 Economic development

Before 1989 the Polish economy was suffering seriously from stagnation, inflation and its foreign dept burden. The recovery plan initiated in January 1990 was drastic, but provoked only a limited drop in output. By 1992 positive growth had started, and has continued since (6.0% in 1996, 6.9% in 1997 and 6.5% is anticipated for 1998). The budget deficit has been reduced to below 3% of GDP and the dept-servicing burden, after rescheduling was agreed in 1991, is being steadily reduced. Inflation rates have declined over recent years, but still will amount to about 9.5% in 1998 (in 1996 – 18.5%, in 1997 – 13.2%).

The unemployment rate has been 13.4% in 1996 and declined to 10.5% in 1997. In 1998 the rate of unemployment is predicted to drop to 9.8%.

Figure 1: Inflation rates from 1991 to 1999



Source: Central Bank and Official Statistical Office Poland

3.4 Passenger and freight traffic

3.4.1 Passenger traffic

It is estimated that total traffic volume will double between 1990 and 2010. Within the total the share of road traffic since 1993 will increase from 63% to 70 %. The highest relative growth can be found in the air transport. Passenger levels in the year 2010 indicate that investments in transport infrastructure will be necessary to meet increasing traffic demand.

The environmentally friendly modes have gained a greater share in traffic. However, because of increasing environmental problems further efforts have to be made to switch more traffic from road to other modes.

Table 10 shows the modal split from 1990 to 2005 and Table 11 the passenger traffic trends from 1990 to 2010:

Table 10: Modal split in Poland from 1990 to 2005

	1990	1995	2000	2005
Car	39 %	66 %	70 %	73 %
Rail	31 %	14 %	12 %	10 %
Bus	28 %	18 %	15 %	13 %
Air	2 %	2 %	3 %	4 %

Table 11: Polish passenger traffic from 1990 to 2010

	1990	1993	1995	2005	2010
Rail	790.00	540.00	465.00	750.00	888.00
in %	16.00	10.00	9.00	9.50	10.00
Bus	2085.00	1380.00	1423.00	1800.00	1850.00
in %	42.00	26.00	26.00	23.00	20.00
Air	1.70	1.40	1.80	5.90	9.20
in %	0.02	0.03	0.03	0.06	0.10
Waterway	3.80	0.60	0.60	0.70	0.80
in %	0.07	0.01	0.01	0.01	0.01
Sea	0.60	0.70	0.70	1.20	1.90
in %	0.01	0.01	0.01	0.02	0.02
Car	2100.00	3310.00	3500.00	5350.00	6350.00
in %	42.00	63.00	65.00	67.00	70.00
TOTAL	**4980.00**	**5235.00**	**5400.00**	**7900.00**	**9100.00**

3.4.2 Freight traffic

Tables 12 and 13 below show that the share of road transport in freight traffic is estimated to grow from 30% in 1990 to 50 % in 2005. The share of railway transport on the other hand goes down from 60 % to 45 %. This may lead to increasing environmental problems and shows the necessity of strengthening the support of environmentally friendly transport modes. Table 13 shows that total freight traffic volumes will increase with a high growth rate. The modal split in volume terms will remain more or less unchanged until 2010.

Table 12: Freight transport modal split (Percentage of t-km)

	1990	1995	2000	2005
Road	29.1	38.1	45.2	49.5
Railway	60.1	51.3	46.8	44.1
Waterway	0.7	0.6	0.5	0.4
Pipeline	10.1	10.0	7.5	6.0

Table 13: Freight volumes on the domestic Polish market, 1990-2010 (million tonnes transported and percentage of total domestic freight)

	1990	1993	1995	2000	2005	2010
Rail	281.7	214.2	225.3	289.7	336.3	367.9
%	17.1	15.9	16.3	15.8	15.2	15.2
Road	1 292.3	1 071.2	1086.7	1 459.8	1 769.8	1 935.9
%	78.6	79.4	78.8	79.6	80.2	80.2
Pipeline	33.0	31.2	33.3	44.3	53.3	57.8
%	2.0	2.3	2.4	2.4	2.4	2.4
Waterway %	9.8	8.7	9.3	11.1	12.4	14.1
	0.6	0.7	0.7	0.6	0.6	0.6
Sea	28.0	23.9	24.9	29	35.4	38.4
%	1.7	1.8	1.8	1.6	1.6	1.6
Total	**1 644.8**	**1 349.2**	**1 379.5**	**1 833.9**	**2 207.2**	**2 414.1**

Source: ECMT

3.5 Corridor network

Railways

The Polish Programme of Infrastructure Modernisation for 1998 – 2015 is based on the arrangements of the Crete Conference in 1994 and obligations of AGC/AGTC agreements. The forecasts for passenger and freight traffic take into consideration that, according to AGC and AGTC agreements, it is necessary to ensure for passenger traffic a train speed of 160 km /h and for freight traffic 120 km/h.

Considering rail network technical improvement, firstly the modernisation of the Polish stretch of the Berlin - Moscow line as the main route for East - West traffic is being realised. It is being carried out in two stages:

- *stage one* - covers the stretch from Kunowice via Poznan to Warsaw (479 km). The costs are calculated at 487 million ECU, of which 200 million ECU are loans from EIB and 50 million ECU are loans from EBRD, 207 million ECU are outlays from the state treasury and Polish State Railways company and 30 million ECU are a PHARE grant. As a result of the modernisation the effective time of the Warsaw - Berlin railway trip will be cut from 6 hours 18 minutes to 4 hours 45 minutes. In 1997 the modernisation of the Poznan-Kunowice stretch has continued. It is predicted that in 2000 it will be finished on the Western part of E-20 (Kunowice - Warsaw).

- *stage two* - covers the stretch from Warsaw to Terespol (211km), which will be up-graded to 160 km/h by the year 2000. An agreement on co-operation in the field of modernisation, reconstruction and development was signed by the railways of Germany, Poland, Belarus and Russia in April 1995. The railway companies are planning the joint running of TALGO passenger trains on the corridor. A comparative study of different systems for change of wheel gauge for freight trains on east-west traffic was commissioned in 1996. A study of the establishment of cargo shuttle train services on the corridor was carried in 1996 and the Rail Working Group decided to draft a strategy for the development, operation and commercialisation of the cargo shuttle.

The E-20 rail route is being upgraded to increase train speed to 160 km/h for passenger trains and to 120 km/h for cargo trains. The signalling system and telecommunications will be modernised. The table below presents the minimum variant of the E-20 modernisation.

		length in km	Vmax Pass/Goods km/h	Estimated cost in MECU
1.	Programme of upgrading E-20 line Kunowice - Terespol CORRIDOR II (Berlin – Poznan -Warsaw – Moscow)	685	160/120	1,328
1.1.	E 20 Warsaw - Kunowice I stage	473	160/120	487
1.2.	E 20 Warsaw –Minsk Maz II stage	37	160/120	80
1.3	E 20 Minsk – Terespol II stage	174	160/120	400
1.4	C-E 20 Lowicz-Skierniewice-Lukow (bypass of Warsaw for transit cargo flow)	182	160/120	361

<u>Roads</u>

Up to now the Polish Ministry of Transport has granted three concessions for highway construction and operation. One of the concessions is the A-2 highway, i.e. Swiecko-Strychow (Swiecko-Poznan-Konin-Lodz-Strychow) stretch (364 km length). The concession was obtained by the Autostrada Wielkopolska s.a. consortium, which was established in order to realise the construction of the western part of the A-2 Highway. The joint-stock company consists of several important Polish firms, banks etc.

The A-2 Highway Swiecko (border with Germany) – Terespol (border with Belarus) comprises the following components:

1. Swiecko – Rzepin - total length 17 km (western part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 68.83 MECU.
2. Rzepin – Tarnowo Podgorne- total length 146 km (western and central part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 591.17 MECU;
3. Tarnowo Podgorne – Wrzesnia - total length 67 km (central part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 247.61 MECU;
4. Wrzesnia – Modla - total length 48 km (central part of Poland). Modification of the existing road to standards of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 177.39 MECU;
5. Modla – Konin - total length 7 km (central part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h,

estimated cost 17.55 MECU;

6. Konin – Lowicz - total length 125 km (central part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 313.45 MECU;
7. Lowicz – Warsaw I (Oltarzew) - total length 68 km (central part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 292 MECU;
8. Warsaw I (Oltarzew) – Warsaw II (Milosna) - total length 32 km (central part of Poland). Construction of a toll highway: three lanes in each direction, load capacity 115 kN, planned traffic speed 100 km/h, estimated cost 510 MECU;
9. Warsaw II (Milosna) – Siedlce - total length 79 km (central and east part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 193 MECU;
10. Siedlce – Terespol - total length 98 km (east part of Poland). Construction of a toll highway: two lanes in each direction, load capacity 115 kN, planned traffic speed 120 km/h, estimated cost 306 MECU.

Financing of infrastructure investments

The Polish policy for financing of highway projects is based on the BOT method. It is evident that the national budget cannot provide enormous financial resources for transport infrastructure investments. However, initial experience in financing highway and railway lines indicate insufficient private sector participation for the following reasons:

- problems in obtaining loans from domestic and international banks,
- limitations of lending operations of the EBRD and EIB (loans only to 50% of project costs),
- fears of budget securing loans for private institutions (from the State Treasury point of view).

Moreover the delay in realisation of the transport infrastructure network, highways in particular, is due to the following reasons:

- insufficiency of financing sources for investment,
- fears and hostility of inhabitants living near planned highways,
- resistance of both ecological and semi-ecological groups concerning any programme to construct highways in Poland.

The slowness of the realisation of the highway construction programme is regarded as one of weak points of transport policy in the years 1995-1997. Legal normalisation, especially ecological and localisation, turned out to be too complex, and the number of applicants for licences to construct stretches of toll highways was very low.

Map 4 shows the Polish road and railway network in CORRIDOR II. Map 5 shows the rail projects and map 6 the road projects. As for Germany, the information is part of the TIS.

3.6 Project evaluation

The first step in phase II of the case studies is to identify correctly all major projects in Poland along the corridor. The following projects were identified as relevant for CORRIDOR II:

Table 14: Project database (Polish section of CORRIDOR II):

Project ID	Project	Year	Status
IIRR01	Kunowice-Warsaw E-20	2000	Implementation
IIRR02	Warsaw-Minsk Mazowiecki E-20	1999	Implementation
IIRR03	Minsk Mazowiecki-Terespol E-20	2000-2005	Decision/Planning
IIRR04A	Lowicz-Skierniewice-Lukow C-E-20	2005-2008	Decision/Planning
IIRD01	Swiecko-Strykow	2005	Implementation
IIRD02	Strykow-Warsaw	2010	Decision/Planning
IIRD03	Warsaw I (Konotopa)-Warsaw II (Konik)	2015	Decision/Planning
IIRD04	Warsaw-Terespol	2015	Decision/Planning

Map 4: Polish road and rail network in CORRIDOR II

Map 5: Polish rail projects in CORRIDOR II

Map 6: Polish road projects in CORRIDOR II

3.6.1 CODE-TEN suitability test for Polish projects in CORRIDOR II

The table below shows the specific policy goals of Poland under the evaluation framework of the PAM-L model assuming that scenario A can be considered as relevant.

Table 15: Weights per goal (PAM-L values) for Poland

Specific Policy Goals	Scenario A	Polish Section
1. Applying environmental legislation	1	1
2. Pricing schemes for internal costs	3	1
3. Pricing schemes for external costs	0	0
4. Promoting intermodality	1	1
5. Promoting interoperability	1	1
6. Accessibility	1	1
7. Regional Development	1	1
8. Increase cross-border traffic	3	3
9. Restrict local road traffic	0	1
10. Reduce accidents	2	3
11. Liberalisation	3	3
12. Deregulation	2	1
13. Infrastructure investment	Yes	Yes

Table 16: Goal achievement scores of Polish projects in CORRIDOR II for policy areas

Specific Policy Goals	achievement scores by measure							
Measures	IIRR01	IIRR02	IIRR03	IIRR04A	IIRD01	IIRD02	IIRD03	IIRD04
1. Applying environmental legislation	5	5	5	5	0	0	5	0
2. Pricing schemes for internal costs	0	0	0	0	5	5	5	5
3. Pricing schemes for external costs	0	0	0	0	0	0	0	0
4. Promoting intermodality	5	5	5	5	0	0	0	0
5. Promoting interoperability	0	0	0	0	0	0	0	0
6. Accessibility	0	0	0	0	0	0	0	0
7. Regional Development	0	0	0	0	5	5	0	0
8. Increase cross-border traffic	5	5	5	5	5	5	5	5
9. Restrict local road traffic	0	0	0	0	5	5	5	5
10. Reduce accidents	0	0	0	0	5	5	5	5
11. Liberalisation	0	0	0	0	5	5	5	5
12. Deregulation	0	0	0	0	0	0	0	0
13. Infrastructure investment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This leads to Table 17, where the policy areas scores are weighted by the TPS scoring for CORRIDOR II Polish section.

Table 17: CODE-TEN suitability test for measures in the Polish sector of CORRIDOR II

Specific Policy Goals	Corr	weighted goal achievement scores by measure							
Measures		IIRR01	IIRR02	IIRR03	IIRR04A	IIRD01	IIRD02	IIRD03	IIRD04
1. Applying environmental legislation	+0.6	5	5	5	5	0	0	5	0
2. Pricing schemes for internal costs	+0.5	0	0	0	0	5	5	5	5
3. Pricing schemes for external costs	0.0	0	0	0	0	0	0	0	0
4. Promoting intermodality	+0.5	5	5	5	5	0	0	0	0
5. Promoting interoperability	0.0	0	0	0	0	0	0	0	0
6. Accessibility	0.0	0	0	0	0	0	0	0	0
7. Regional Development	+0.3	0	0	0	0	5	5	0	0
8. Increase cross-border traffic	+1.0	15	15	15	15	15	15	15	15
9. Restrict local road traffic	-1.0	0	0	0	0	-5	-5	-5	-5
10. Reduce accidents	+0.5	0	0	0	0	15	15	15	15
11. Liberalisation	+0.5	0	0	0	0	15	15	15	15
12. Deregulation	0.0	0	0	0	0	0	0	0	0
average score		1.47	1.47	1.47	1.47	2.94	2.94	2.94	2.65

Note: Total project score is calculated by adding the individual weighted scores and dividing by the sum of the weights. Maximum + 5. Total corridor scores (COR) are calculated by dividing the sum of the weighted scores against possible maximum weighted score on that policy goal. Maximum 1.

3.6.2 CODE-TEN adaptability test for Polish projects in CORRIDOR II

Table 18: CODE-TEN adaptability scores for Polish projects in CORRIDOR II

Project	IIRR01	IIRR02	IIRR03	IIRR04A	IIRD01	IIRD02	IIRD03	IIRD04
Fields	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*
• socio economic assessment	0	0	0	0	0	0	1	0
• environmental assessment	0	0	0	0	1	1	2	1
• regional responsibilities or competency	0	0	0	0	0	0	0	0
• technical standards or organisation	0	0	0	0	0	0	0	0
• financing	0	0	1	2	0	1	1	1
overall project scores	0	0	1	2	1	2	4	2

note: conflict is scored 1 and barriers are scored 2

3.6.3 Combined evaluation at national level

Table 19: Combined evaluation concerning Polish infrastructure projects in CORRIDOR II

Project	evaluation
IIRR01	less suitable, neither conflicts nor barriers anticipated
IIRR02	less suitable, neither conflicts nor barriers anticipated
IIRR03	less suitable, financial conflicts but no barriers anticipated
IIRR04A	less suitable, but financial barriers anticipated
IIRD01	suitable but environmental conflicts, no barriers anticipated
IIRD02	suitable but environmental and financial conflicts, no barriers anticipated
IIRD03	suitable but socio economic, environmental and financial conflicts as well as environmental barrier anticipated
IIRD04	suitable but environmental and financial conflicts, no barriers anticipated

3.7 Conclusion

According to the results of the CODE-TEN adaptability and suitability tests, it should be noticed that most of the projects are both suitable and feasible (conflicts to be solved and no barriers). The project connected with the section of the A2 highway (Warsaw bypass) is particularly suitable, but a range of conflicts are to be resolved and environmental barriers might stop the project. This assessment results from the difficulties of determination and localisation of the part of the highway creating social resistance by the citizens of Warsaw and the surrounding area as well as from ecological threats. The existing alignment of this highway crosses or passes in the vicinity of estate districts and the inhabitants are afraid of deterioration of the condition of the environment connecting with predicted traffic growth. Other projects are in a high or low status suitable but road developments suffer from financial conflicts and one in particular from an anticipated financial barrier.

Generally, rail projects are less suitable because of the present situation of Polish infrastructure. Because of the presently bad condition of road network, the proposed projects aim to improve standards while at the same time minimizing ecological impacts. On the other hand, the modernisation of the E-20 railway line, especially the Kunowice-Warsaw section, is nearly finished, so the technical parameters of railway lines in this corridor are almost adjusted to EU standards. Thus the authorities are currently assigning a high priority to the improvement of the road network.

It should be mentioned that all projects are in line with national transport policy goals and the CORRIDOR II has the highest priority.

4 The Belorussian part of CORRIDOR II

The Belorussian section of CORRIDOR II goes from the Belorussian-Polish border to the Belorussian-Russian border, from Brest via Minsk to Orsha.

4.1 Transport policy issues

Very little information is available concerning current transport policy in Belarus. However, considering recent developments it can be assumed that thinking steers more or less in the direction which is best described Transport Policy Scenario A (TPS A.) This Scenario emphasises infrastructure development and supports increases of cross-border and international traffic. Environmental regulation, intermodality, interoperability, accessibility and regional development are considered mainly as results of, or supporting activities to, this policy. The significance of liberalisation and deregulation within the policy remains unclear.

4.2 Environmental issues[1]

Two main ecological problems may be defined which are related to the current operation of the transport corridor.

<u>Dissection of large natural reserves</u>
The first is the adverse effect of engineering and transport developments and moving vehicles on the natural environment of the region. Specifically, such adverse effects mean the disintegration of existing specially reserved territories into isolated segments, causing disruption to existing animal migration patterns.

The damaging effects on natural landscapes will be significantly aggravated by the development of roads and railways, including the construction of a new high-speed line.

<u>Environmental quality of cities</u>
The second problem relates to the quality of the environment in the cities located within the transport corridor zone, which are potential centres for investments aimed at the development and strengthening of trade and economic links. One feature pertaining to this problem is the excessive air pollution in urban locations, caused mainly by transport vehicles. This has now become the norm in Belarus. The projected growth of traffic along the corridor will result in further increases of traffic inside the cities with corresponding ecological consequences.

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1 See PLANCO Consulting GmbH, Regional develpoment strategy to make optimal use of the Transeuropean Corridor Berlin-Warsaw-Minsk-Moscow at the section Brest-Orsha, Essen 1996.

Other problems

Other factors, which affect significantly the quality of the environment in the cities located within the zone of the transport corridor include the absence in many of them of reliable treatment systems for purification of household water and industrial sewage, and in all the cities - without exception - the absence of purification systems for surface (rainfall and snow) run-offs and technically sound dumping grounds for the disposal of solid household waste and industrial effluent. The difficulties in supplying the majority of the cities with high-quality drinking water are aggravated by the lack of funds for the construction of appropriate treatment and purification plants.

In the future, as traffic increases, it is anticipated that one further ecological problem will emerge, that of the pollution of agricultural soils by hazardous emissions from transport. As a result, agricultural production on an area of a few thousand hectares will be threatened. Ecological problems may also emerge in connection with the mass introduction of road service facilities, especially on rivers and reservoirs, in the form of their additional pollution by oil products (surface run-off from parking lots) and by run-offs from cafes, hotels and other service points.

4.3 Economic development[1]

During the last few years, with the transition of the republic to a market economy, considerable changes have taken place in Belarus. As a result of the deep recession which has enveloped all the republics of the former USSR and the disruption of traditional links within their boundaries, many industrial enterprises have tried to switch over to new forms of co-operation with foreign companies by establishing joint ventures. This allows them to develop the manufacture of quality goods which are in demand, although with lower production volumes.

Such forms of co-operation have mostly taken place in garment and knitted goods manufacture; the pharmaceutical industry, wood processing and in enterprises for machine-building and metal processing. In Minsk for example over one thousand joint ventures (JV) and over 500 foreign enterprises are currently operating. One of the largest Belorussian-German JV's is “Free Bor”, manufacturing “artificial kidney” preparations. A JV in Orshanski district is active in the field of wood processing. JVs in Kobrin, Baranovichi, Nesvizh, Zhodino, Krupki produce furniture. Paints are produced by the Belorussian-German JV “Colour”; a Belorussian-German factory in Kobrin manufactures carriages for disabled people and orthopaedic footwear. The Baranovichi machine-tool building plant co-operates with Sanyo, and the automatic process plant section works with a German company. There are also Belorussian-German JV's for meat processing and brick manufacture.

[1] See PLANCO Consulting GmbH, Regional develpoment strategy to make optimal use of the Transeuropean Corridor Berlin-Warsaw-Minsk-Moscow at the section Brest-Orsha, Essen 1996.

Besides joint ventures with foreign companies, other forms of entrepreneurship are gaining momentum via the formation of small enterprises, limited liability companies, industrial and trade firms, etc. Such activity in the area of manufacturing is however as yet weakly developed, the emphasis of business being is in trade and procurement services.

Table 20: Number of enterprises by region and sector in Belarus: 1995

Districts	Industry and civil engineering	Share of civil engineering	Agriculture	Other industries
Brestski	18	5	3	22
Zhabinkovski	7	2	15	17
Kobrinski	13	3	13	14
Berezovski	14	5	10	13
Ivatsevichski	14	3	14	14
Baranovichski	21	3	6	18
Nesvizhski	7	2	17	16
Stolbtsovski	8	3	16	16
Dzerzhinski	12	3	12	14
Minski	21	5	1	27
Smolevichski	20	3	8	13
Borisovski	22	2	5	13
Krupski	5	2	18	15
Tolochinski	9	3	17	14
Orshanski	17	1	6	16
Dubrovenski	5	2	16	17
Total in the region	**19**	**4**	**4**	**22**

4.4 Passenger and freight traffic

4.4.1 Passenger traffic

The E 20 railway handles more than half of all national passenger traffic and the passenger turnover at the main Minsk railway junction is over 40% of all passenger turnover on the line.

Commuter services constitute the majority of passenger traffic, accounting for 86% of the total. The busiest routes are in the areas adjacent to Minsk, on the Minsk-Smolevichi-Borisov and Minsk-Stolbtsy-Baranovichi lines. However, the demand for urban commuter facilities is not fully satisfied, and has recently increased as a result of the mass construction of housing, summer houses and the formation of gardeners' societies. Load factors in the summer time at peak hours exceed permissible norms and are aggravated by a lack of the rolling stock is; and insufficient service frequencies.

As far as long-distance traffic is concerned, about 8% of all passengers travel by the E20 railway. Recently there have been some significant changes in the destination structure of long-distance communication: links with countries of West and Central Europe have grown considerably while at the same time connections to the Baltic states and Ukraine have decreased.

At the “Terespol-Brest” (Poland-Belarus) border the following data on passenger transit traffic were registered (million passengers per year in both directions):

Table 21: Border crossing passenger traffic in million passengers p.a. at Terespol-Brest

1981	1985	1990	1991	1994
0.246	0.819	1.78	2.45	2.99

Passenger train traffic along the E20 railway within the country varies significantly by section of the line and by season of the year. In summer time additional services are operated and the total number of trains increases by a factor of between 1.5 and 2.

Passenger train traffic at the Minsk-Brest section reaches 22 pairs of trains; per hour while at the Minsk-Orsha section it is 30 pairs. Commuter passenger traffic differs depending on the days of the week and is heaviest at the sections adjacent to Minsk.

Table 22: Commuter train traffic of E20 in Belarus

Sections	Working days	Days off
Minsk-Smolevichi	20	36
Smolevichi-Borisov	7	15
Minsk-Negoreloe	23	39
Negoreloe-Stolbtsy	17	31
Stolbtsy-Baranovichi	14	18

4.4.2 Freight traffic

Given that 0.5 million tons of freight traffic are imports and 1.7 million tons are exports, the largest volume of cargo handling operations is performed at Brest railway junction. Freight operations related to domestic economic activity is mainly carried out at Minsk and Baranovichi stations, the Orsha railway junctions, and the station at Borisov.

In the period between 1991 and 1994 there was a 45-50% reduction in freight traffic volumes which can be explained by the decrease in industrial and agricultural activity and by changes in the structure of economic links. As a result, handling equipment at railway stations is currently under-utilised and there is sufficient capacity to cope with future growth.

Table 23: Railway transport - freight traffic in 1000 t in Belarus 1994

RAILWAY JUNCTION	FREIGHT ARRIVAL	FREIGHT DEPARTURE
Brest	2696	1524
Zabinka	675	230
Ivacevici	403	130
Baranovic	1135	406
Stolbcy	247	83
Dzerzinsk	142	23
Minsk	1759	507
Zhodino	225	31
Borisov	677	236
Orsha	607	208
Talecio	284	70

Source: PLANCO

4.5 Corridor network

4.5.1 Road

The main road from the Polish border at Brest to Minsk and on to the Russian border at Smolensk, the M1/E30, largely meets European standards for A1 class roads. The minimum radius is 1,000 m (except in some stretches where it is 500 m), with the longitudinal gradient being less than one in 40, and largely less than one in 30.

This road, including by-passes, was built in 1936. In the 604 km-long Belorussian portion, which incorporates 158 bridges, there are mainly four traffic lanes, with only 44 km having two lanes (from the 560th till the 604th kilometre). The surface is asphalt concrete and cement concrete. The maximum axle load is 10 tons and the volume of traffic is currently between 5 and 8.5 thousand vehicles per 24 hours.

Problems and possible conflicts which could affect new road developments include the following:

- Absence of parallel duplicating roads
- Intersections with existing settlements
- Intersections with internal roads
- Prospective territorial development of some cities is in contradiction to the planned development of the M1/E30 road

The following table presents all relevant road infrastructure projects in Belarus.

Table 24: Road transport infrastructure development projects in Belarus

Project title	Location	Type of operations	Cost	Duration	Progress made
Koziovichi crossing point	The existing Koziovichi crossing point on the Polish border	Reconstruction	US$ 7.0 million	1998-2000	Work is under way. On 1 June 1998, 20 per cent of capital investment had been used
"Koziovichi2" border terminal with improved service infrastructure	4 km from the Koziovichi crossing point (towards Brest)	New construction	Approximately US$ 40 million	2000-2003	On *6* January 1998 the decision to build the Koziovichi 2 customs terminal was taken by the Belarus Government
Varshavsky Most crossing point	The existing Varshavsky Most crossing point on the Polish border	Reconstruction	US$ 1.73 million	1997-1999	Work is under way. On 1 June 1998, 15 per cent of capital investment had been used
Doroachevo crossing point	The existing crossing point on the Polish side. Domachevo-Slowatycze (Poland) pedestrian border crossing point	New construction	US$ 6.0 million	2000-2005	A feasibility study has been prepared
Berestovitsa crossing point	The existing Berestovitsa crossing point on the Polish border	Reconstruction	US$ 4.87 million	1997-1999	Work is under way. On 1 June 1998, 15 per cent of capital investment had been used
Upgrading of the M-30 highway (Brest-Minsk-Russian border)	Km 13.6 - km 141 Km 375 - km 605	Repair of road surface and structures. Emplacement of road safety installations	84 million ECU's	Completion in 2005	

4.5.2 Rail

The railway network is divided into general purpose and departmental railways (i.e. access railways to industrial enterprises, economic entities and organisations). Depending on the importance within the total network, types and volumes of cargo and in accordance with the construction norms and rules, railways are divided into five technical categories defining their design and construction specifications as well as train speeds. General purpose railways are assigned technical categories I-III, while categories IV and V cover departmental railways.

The total length of general purpose railways as at 1995 was 5.6 thousand km, while departmental railways totalling 3.8 thousand km.

The Berlin-Warsaw-Minsk-Moscow (E20) line within national boundaries is classified as a trunk general purpose railway of the technical category I. The Belorussian section is an integral part of the European railway network. It is double track along its total length with

1520 mm gauge. The Brest-Zhabinka section has an additional main track with 1435 mm European gauge. The different gauges makes it necessary to perform transhipment of freight and transposition operations for passenger rolling stock. These are carried out at Brest railway junction. The E20 line is electrified along its whole length from Brest to Moscow and is equipped with automatic blocking systems for switches and colour light signalling. The condition of the railway bed, engineering structures and permanent way is good. Type P65 rails are employed on the trunk lines using concrete sleepers laid on a crushed rock base. Vertical alignment of the line is smooth and the gradient not over 9%.

The design and construction of the railway were carried out between 1869 and 1871 and subsequent rehabilitation activities have been aimed mainly at technical restructuring. In essence, the line contour plan has not been changed. Where the line crosses developed areas of cities and surrounding suburbs, there are speed restrictions at some sections due to small radius curves (400-600 m.)

Traffic along the line includes freight and the following categories of passenger services:

- local passenger services (circulating within the boundaries of the republic)
- passenger commuter
- tourist trains
- international long-distance passenger trains

Table 25: Maximum speeds (km/h) of trains along E20, in Belarus

Section description	From	To
Border with Russia (503 km) - Orsha (538 km)	140	140
Orsha (538 km) - Borisov (670 km)	120	140
Borisov (670 km) - Zhodino (689 km)	120	120
Zhodino (689 km) - Kolodischi (733 km)	100	110
Kolodischi (733 km) - Ozerische (737 km)	120	120
Ozerische (737 km) - Stepjanka (741 km)	100	100
Stepjanka (741 km) - Minsk (750 km)	120	120
Pomyslische (760 km) - Negoreloye (799 km)	100	100
Negoreloye (799 km) - Gorodeya (849 km)	140	140
Gorodeya (849 km) - Pogoreltsy (870 km)	120	120
Pogoreltsy (870 km) - Baranovichi (893 km)	140	140
Baranovichi (893 km) - Brest (1094 km)	140	140

In some short sections the speed is limited to 80 km/h. The average speed of freight trains (including stops) along the whole line is 50-60 km/h. while commuter services average 45-50 km/h. The average speed of fast long-distance passenger trains on the Orsha-Minsk-Brest section is 80-85 km/h.

Map 7 shows the rail and road network in Belarus, that belongs to CORRIDOR II. Map 8 shows the relevant rail projects and Map 9 the road projects. As for the other countries, the necessary information is from the TIS.

Map 7

Map 8

Map 9

4.5.3 Existing handling structures

The necessity to tranship freight traffic is caused by the historic difference in gauges: in Western Europe the gauge is 1435 mm, whereas in the Republic of Belarus and CIS countries it is 1520 mm.

Cargo reloading in the West-East direction is carried out by Belorussian railways and is performed at the Brest-Severnyi and Brest-Centralni stations of the Brest railway junction. Transhipment in the East-West direction is handled by Polish railways at Malasheviche railway station.

The Brest-Severnyi station is the main reloading terminal and has the following facilities:

- necessary line developments consisting of six stops: Severnyi, Inzhenernyi, Zarechitsa, Obmennyi, Perevalochnyi and Vystavochnyi;
- semi-mechanical gravity humps for marshalling and grouping wagons
- warehouses and related areas for different types of reloaded cargo (heavy and universal containers, heavy cargo, unitized goods, etc.);
- hoisting-and-conveying plant and equipment (cranes, fork lift trucks, small-scale handling equipment)
- a maintenance centre for 1520 mm gauge wagons where stock is cleaned, washed and repaired
- a wheel change facility for the wagons with cargo is not subject to reloading (i.e. hazardous and special-purpose cargo)

Further facilities are located at Brest-Tsentralnyi railway station and comprise the following:

- machinery for reloading from open and closed wagons
- car dampers for reloading coal (up to 1990 exports of coal from Poland amounted to 1.7-2.0 million tons per annum)
- 1435 mm gauge line to the river port, where up until 1990 iron from Ukraine to East Germany was loaded
- a 25 km long 1435 mm gauge line to Zhabinka station, where there are facilities for loading oil tank wagons

The total capacity of the reloading facilities available at Brest permits the processing of up to 800-900 wagons per day (300 closed, 400 open and 200 open wagons with coal). At present, total freight traffic is running at about a quarter of the 1989-1990 level, and is around 100-150 wagons per day.

4.6 Project evaluation

4.6.1 CODE-TEN suitability test

According to the CODE-TEN approach proposed in the handbook, a suitability test should be carried out in the form of a goal achievement analysis based on goals (policy areas), weights assumed for each goal and scores describing the goal achievement. The weights assumed to be applicable for Belorussia are presented in the following table.

Table 26: Weights per goal (PAM-L values) for Belarus*

Specific Policy Goals	Scenario A	Beylorussian Section
1. Applying environmental legislation	1	1
2. Pricing schemes for internal costs	3	0
3. Pricing schemes for external costs	0	0
4. Promoting intermodality	1	1
5. Promoting interoperability	1	1
6. Accessibility	1	1
7. Regional Development	1	1
8. Increase cross-border traffic	3	3
9. Restrict local road traffic	0	1
10. Reduce accidents	2	3
11. Liberalisation	3	1
12. Deregulation	2	1
13. Infrastructure investment	Yes	Yes

source: Assumptions based on experiences gained by Planco Consulting GmbH performing projects in Belarus and CODE-TEN handbook

Scores concerning goal achievement are estimated for the proposed projects as presented in Table 27 below:

Table 27: Goal achievement scores of Belorussian projects in CORRIDOR II for policy areas

Specific Policy Goals	achievement scores by measure						
Measures	IKBR	IKCP	IKCT	IVCP	IOCP	IBCP	IHBR
1. Applying environmental legislation	5	0	0	0	0	0	0
2. Pricing schemes for internal costs	0	0	0	0	0	0	0
3. Pricing schemes for external costs	0	0	0	0	0	0	0
4. Promoting intermodality	0	5	5	0	5	5	5
5. Promoting interoperability	0	0	0	0	0	0	0
6. Accessibility	5	5	5	5	5	5	5
7. Regional Development	5	0	5	0	5	5	5
8. Increase cross-border traffic	5	5	5	5	5	5	5
9. Restrict local road traffic	0	0	0	0	0	0	0
10. Reduce accidents	0	0	0	0	0	0	5
11. Liberalisation	0	5	5	0	5	5	0
12. Deregulation	5	0	0	0	0	0	0
13. Infrastructure investment	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This leads to Table 28 below where the scores for the policy areas are multiplied by the TPS weights for the Belorussian section of CORRIDOR II.

Table 28: CODE-TEN suitability test for measures in the Belorussian sector of CORRIDOR II

Specific Policy Goals	Corr	weighted goal achievement scores by measure						
Measures		IKBR	IKCP	IKCT	IVCP	IOCP	IBCP	IHBR
1. Applying environmental legislation	+0.1	5	0	0	0	0	0	0
2. Pricing schemes for internal costs	0.0	0	0	0	0	0	0	0
3. Pricing schemes for external costs	0.0	0	0	0	0	0	0	0
4. Promoting intermodality	+0.7	0	5	5	0	5	5	5
5. Promoting interoperability	0.0	0	0	0	0	0	0	0
6. Accessibility	+1.0	5	5	5	5	5	5	5
7. Regional Development	+0.7	5	0	5	0	5	5	5
8. Increase cross-border traffic	+1.0	15	15	15	15	15	15	15
9. Restrict local road traffic	0.0	0	0	0	0	0	0	0
10. Reduce accidents	0.0	0	0	0	0	0	0	15
11. Liberalisation	+0.6	0	5	5	0	5	5	0
12. Deregulation	0.1	5	0	0	0	0	0	0
average score		2.50	2.14	2.14	1.43	2.50	2.50	3.21

Note: Total project score is calculated by adding the individual weighted scores and dividing by the sum of the weights. Maximum + 5. Total corridor scores (COR) are calculated by dividing the sum of the weighted scores against possible maximum weighted score on that policy goal. Maximum 1.

4.6.2 CODE-TEN adaptability test for Belorussian projects in CORRIDOR II

Table 29: CODE-TEN adaptability scores for Belorussian projects in CORRIDOR II

Project	IKBR	IKCP	IKCT	IVCP	IOCP	IBCP	IHBR
Fields	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*
• socio economic assessment							
• environmental assessment			1		1		
• regional responsibilities or competency							
• technical standards or organisation			1		1		1
• financing	1	1	1	1	1	1	1
Project overall scores	1	1	3	1	3	1	2

note: conflict is scored 1 and barriers are scored 2

4.6.3 Combined evaluation at the national level

Table 30: Combined evaluation concerning Polish infrastructure projects in CORRIDOR II

Project	evaluation
IKBR	suitable, financial conflicts but no barriers anticipated
IKCP	less suitable, financial conflicts but no barriers anticipated
IKCT	less suitable, financial, technical and environmental conflicts but no barriers anticipated
IVCP	low suitability, financial conflict but no barriers anticipated
IOCP	suitable, financial, technical and environmental conflicts but no barriers anticipated
IBCP	suitable financial conflicts but no barriers anticipated
IHBR	very suitable, technical and financial conflicts but no barrier anticipated

Source: Suitability test, adaptability test and the combined analysis at national level have been prepared by SCCTP:

4.7 Conclusions

In summary all projects appear suitable according to the CODE-TEN approach. However, they all suffer from financial conflicts. In several instances there are also likely to be technical and environmental conflicts, though the extent to which these will create barriers cannot at present be assessed. (Further comments are included with the Russian conclusions below.)

5 The Russian part of CORRIDOR II

5.1 Transport policy issues

The radical changes in economic conditions and the geopolitical stance of Russia have called for development of a considered public transport policy with due consideration of transport specific features and the role it plays in economic and social processes. Because of the sluggishness within the transport system caused by its high capital intensity, long lead times and construction and reconstruction periods for transport facilities and the development of new types of equipment, the problems to be solved should be contemplated not only for the immediate future, but also in a long term context.

The concept of transport in Russia is understood as a basis for:

- the formation of public policy in the transport sector
- the development and realisation of federal and regional programmes in the transport, transport equipment and transport construction industries
- the solution of other fundamental transport-related problems of development of both individual aspects and the national economic complex as a whole.

It is based on:

- provisions of the Russian Federation Constitution
- forecasts of the economic situation and social and economic development of the nation and its regions for medium-term and longer-term prospects
- estimates of the shifts in locating of production units and migration processes
- the results of research in reforming the transport sector, and
- prospects of scientific and technological innovation in transport.

It has the following objectives:

- formation of a system that will satisfy the demands of passenger and freight transportation in a secure and efficient manner
- the fulfilment of social, environmental and other special objectives
- restructuring of the industry aimed at increased state control over the natural monopolies, lowered transport overheads within production costs, determination of economically based tariffs and increased competition between transport enterprises.

The main focus of Russian transport policy is on the restructuring of planned economy structures to market economy conditions. This involves the privatisation of institutions and capacity building based on transport demand and not only according to government plans.

To achieve higher growth rates in the economy, an increase of market orientated trade will be promoted. This will require an appropriate infrastructure network to be in place, which is in line with less restrictive tariff policies.

Short-term tasks in the transport industry are connected to the need to overcome unfavourable trends in its development and are linked with the objectives determined by the expected trends in the future growth of the country.

These tasks include the following:

- stabilisation of the work of all modes of transportation and stable operation of the transport system
- satisfaction of the demand for transport services
- improvement of the security and quality of transportation
- formation of conditions to finance improvement of transport enterprises and for their rehabilitation
- improvement of the competitiveness of Russian transport operators in both the domestic and foreign markets

5.2 Corridor network

5.2.1 Road

Inside the Russian Federation, from the Belorussian border to the Moscow Ring, the main highway is the M1/E30 with a length of 448 km. As is the case throughout the country the road was constructed with a concrete cover. However, in different sections various problems concerning the quality of the cover have to be taken into account.

Table 31: The state of the covering of Russian roads

Problems of the covering	Length of the problematic section in km	problematic section in % of the total length of the Road
Insufficient evenness	147.7	32.91
Insufficient roughness of the road surface	164.7	36.70
Insufficient strength	195.6	43.59

The highway includes 57 bridges, six rail and one road viaduct. The number of traffic lanes varies from two to six through 310 km out of the total is four lanes. The maximum and minimum number of lanes are in 61 km and 48 km long sections respectively.
Most of the ancillary equipment is insufficient, including traffic safety measures, fences, signs and markings. In the initial section single-level crossings and junctions are controlled

with traffic lights. The automatic traffic control system ("Reverse") that guides vehicles along separate lanes in peak hours is not yet completed. Boundary fences, sign posts and protective metal fences are less than 0.6 m-high and it is necessary to increase their number and to repair them, (especially the protective fences.) The road is not equipped with median strips marked with white lines and with fences dividing opposing traffic, or with anti-dazzling screens. The road signs have been in use for a long time and many of them are in need of replacement. Illumination is installed along those sections running through densely populated areas, at crossings and junctions and at some bridges and overpasses. Along the portion from the 21st km to the 448th km there are emergency call communication columns, but they are operative only along the initial 54 kms.

5.2.2 Rail

The railway from the Polish border (Brest – Minsk – Orsha – Krasnoye – Smolensk - Moscow) with a length of 1,100 km, serves to provide transport and economic links from Russia and Belarus to the European and Baltic states and the Kaliningrad Oblast, to carry international transit cargo in the direction Europe - Asia, and to meet the needs of industrial and agricultural regions in the zone of economic development.

The line is electrified high-capacity double-track the whole way from Brest to Moscow and is equipped with an automatic block system and switch interlocking. In the Russian section eight -axle locomotives are operated, hauling trains of up to 4,500 metric tons at speeds of up to an average between stops of 60 to 65 km/h.

The East Wind Train project operates trains along the Berlin - Moscow - Berlin route. The project involves the Transfracht, Transrail, Intercontainer-Interfrigo companies and the railways of Germany, Poland, Belarus and Russia. Each train carries from 50 to 60 twenty- and forty-foot containers and annual volumes are now exceeding 6,000 units. Trains run according to a strict schedule and start from Hamburg and the Lerter terminal in Berlin, where high-capacity containers are shipped from many European states. At present boxes bound for Moscow may be handled at the Moscow, Tovarnaya, Rizhskaya, Moscow-Paveletskaya-Tovarnaya, Moscow-Tovarnaya-Oktyabrskaya, Yuzhny Port, Kuntsevo-2 stations. From Moscow some containers are shipped on to the CIS and Asian countries.

The introduction of these container trains has resulted in the reduction of the transit time by a factor of three, to five to six days, compared with transportation of separate containers by conventional trains. An analysis shows that the use of the specialized train results in:

- Increased regularity and security of transportation
- Improved safety of transport facilities and cargo
- Accelerated transit times at border crossings and junctions
- Unified documentation

Furthermore a draft concept for high-speed passenger services in the Russian and Belorussian portions of CORRIDOR II from Moscow to Brest is under consideration.

The anticipated development of the rail/road infrastructure in the Russian section of CORRIDOR II will provide for the following:

- A maximum speed of 160 km/h
- A scheduled speed of 109 km/h.
- Improvement and expansion of the capacity of the rail infrastructure permitting 11 high-speed trains per hour along the Moscow - Minsk section

The estimated capital investment requirements for the rehabilitation and upgrading of the Moscow - Krasnoye route amount to $ 1,100/m and for the Krasnoye - Minsk - Brest section $ 1,300/m.

As a result, according to estimates of the Ministry of Railroads, the journey time for the high-speed train along the Moscow - Brest route will decrease by 8 h 36 min.

At present, the Ministry is considering the possibility of the production by Russian companies of wagons with flexible wheelsets for passenger and cargo rolling stock. Their use will permit a decrease in the transit time of high-speed trains by 2.5 to 3.0 hours due to the removal of the need for re-installation at border crossings.

Map 10 shows the Russian road and rail network.

Map 10

5.3 Passenger and freight traffic

Traffic flows for the M1/E30 road from the Polish border from Brest to Minsk and on to the Russian border are presented in the following table. For all types of vehicles, traffic is forecasted to increase significantly until 2015. The projected number of cars per day in 2015 is four times as high as in 1995.

Table 32: Selected traffic flow information about the Russian section of M1/E30

	1995	2005	2015
Number car/day	2331	6459	8655
Number bus/day	102	315	422
Number of passengers/day	13404	26000	34800
Number lorry/day	1796	2973	3984
Tons/day	17900	29700	40000

Table 33 below shows national freight traffic in tons, differentiated by mode.

Table 33: Freight traffic volumes by modes at national level in mln tons/ton-km

Mode	Volume in mln tons
Total	2850.8
Rail transport	911.0
Road transport	1002.0
Pipelines	783.0
Marine transport	54.0
Inland waterways transport	100.0
Air transport	0.8
Freight traffic by mode	**Volume in billion ton-km**
Total	3370.1
Rail transport	1131.0
Road transport	26.0
Pipelines	1913.0
Marine transport	227.0
Inland waterways transport	71.0
Air transport	2.1

Source: SCCTP (all tables for Russia)

5.4 Project evaluation

Table 34 below gives an overview of the relevant projects in the Russian section of CORRIDOR II, the selection being based on national judgement:

Table 34: Project database (Russian section of CORRIDOR II)

project	description
IMKR	Project of high – velocity traffic of passenger trains from Moscow to Krasnoye
IRMW	Reconstruction of highway
IRBO	Reconstruction of bridges and overpasses
INCR	Construction new section of highway
IRSF	Supplying of the road with service facilities

Map 11 shows the relevant Russian road and map 12 the rail projects in CORRIDOR II.

map 11

Map 12

5.4.1 CODE-TEN suitability test for Russian projects in CORRIDOR II

According to the CODE-TEN approach proposed in the handbook a suitability test has to be carried out in the form of a goal achievement analysis based on goals (policy area), weights assumed for each goal and scores describing the goal achievement.

Transport policy in Russia broadly follows the assumptions of scenario TPS A. This is characterised by an emphasis on liberalisation and deregulation and on the increase of cross-border and international traffic. It also emphasizes infrastructure development. Road pricing for covering external costs and restricting road traffic are not considered. The application of environmental regulation, intermodality, interoperability, accessibility and regional development are considered mainly as derivatives of those policy goals considered of strategic importance, either individually or in conjunction or as extraneous to transport policy.[1]

The weights assumed to be applicable for Russia are presented in the following table.

Table 35: Weights per goal (PAM-L values) for Russia*

Specific Policy Goals	Scenario A	Russian Section
1. Applying environmental legislation	1	1
2. Pricing schemes for internal costs	3	0
3. Pricing schemes for external costs	0	0
4. Promoting intermodality	1	1
5. Promoting interoperability	1	1
6. Accessibility	1	1
7. Regional Development	1	1
8. Increase cross-border traffic	3	3
9. Restrict local road traffic	0	1
10. Reduce accidents	2	3
11. Liberalisation	3	3
12. Deregulation	2	1
13. Infrastructure investment	Yes	Yes

source: SCCTP and CODE-TEN handbook

Scores concerning goal achievement are estimated for the proposed projects as presented in Table 36.

[1] See DECODE Handbook.

Table 36: Goal achievement scores of Russian projects in CORRIDOR II for policy areas

Specific Policy Goals	achievement scores by measure				
Measures	IMKR	IRMW	IRBO	INCR	IRSF
1. Applying environmental legislation	5	5	0	0	0
2. Pricing schemes for internal costs	0	0	0	0	0
3. Pricing schemes for external costs	0	0	0	0	0
4. Promoting intermodality	5	0	5	5	5
5. Promoting interoperability	0	0	0	0	0
6. Accessibility	5	5	5	5	5
7. Regional Development	5	5	5	5	5
8. Increase cross-border traffic	5	5	5	5	5
9. Restrict local road traffic	0	0	0	0	0
10. Reduce accidents	0	5	5	5	0
11. Liberalisation	0	0	0	0	0
12. Deregulation	5	5	5	5	5
13. Infrastructure investment	Yes	Yes	Yes	Yes	Yes

The above leads to Table 37 below where the scores on the policy areas are weighted by the TPS scoring for CORRIDOR II in the Belorussian section.

Table 37: CODE-TEN suitability test for measures in the Russian sector of CORRIDOR II

Specific Policy Goals	Corr	weighted goal achievement scores by measure				
Measures		IMKR	IRMW	IRBO	INCR	IRSF
1. Applying environmental legislation	+0.4	5	5	0	0	0
2. Pricing schemes for internal costs	0.0	0	0	0	0	0
3. Pricing schemes for external costs	0.0	0	0	0	0	0
4. Promoting intermodality	+0.6	5	0	5	5	0
5. Promoting interoperability	0.0	0	0	0	0	0
6. Accessibility	+1.0	5	5	5	5	5
7. Regional Development	+1.0	5	5	5	5	5
8. Increase cross-border traffic	+1.0	15	15	15	15	15
9. Restrict local road traffic	0.0	0	0	0	0	0
10. Reduce accidents	+0.6	0	15	15	15	0
11. Liberalisation	0.0	0	0	0	0	0
12. Deregulation	1.0	5	5	5	5	5
average score		2.50	3.125	3.125	3.125	1.875

Note: Total project score is calculated by adding the individual weighted scores and dividing by the sum of the weights. Maximum + 5. Total corridor scores (COR) are calculated by dividing the sum of the weighted scores against possible maximum weighted score on that policy goal. Maximum 1.

5.4.2 CODE-TEN adaptability test for Russian projects in CORRIDOR II

Table 38: CODE-TEN adaptability scores for Russian projects in CORRIDOR II

Project	IMKR	IRMW	IRBO	INCR	IRSF
Fields	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*	*conflict(1) barrier (2)*
• socio economic assessment				1	
• environmental assessment					1
• regional responsibilities or competency					
• technical standards or organisation				1	
• financing	1	1	1	1	1
Project overall scores	1	1	1	3	2

note: conflict is scored 1 and barriers are scored 2

5.4.3 Combined Evaluation at National Level

Table 39: Combined evaluation concerning Russian infrastructure projects in CORRIDOR II

Project	evaluation
IMKR	suitable, financial conflicts but no barriers anticipated
IRMW	more suitable, financial conflicts but no barriers anticipated
IRBO	more suitable, financial conflicts but no barriers anticipated
INCR	more suitable, financial, socio economic and technical conflicts but no barriers anticipated
IRSF	suitable, financial and environmental conflicts but no barriers anticipated

The majority of the projects provide for improvement of transport and communications which are included in Corridors II and IX. They do not raise serious objections. The civil-engineering design of a high-speed railway link between Moscow and St.-Petersburg is an exception however and an explanation of this project is provided by material presented to the 9th Corridor working group.

6 Cross-national assessment transport policy in CORRIDOR II

In each national section of the corridor projects have been assessed by the national partner or experts using the CODE-TEN suitability and adaptability approach. The project assessments therefore have to be considered as in line with opinions of national governments or institutions.

The assessments based on the CODE-TEN approach cannot and are not intended to be understood as the results of a fully-fledched and comprehensive project evaluation (e.g. such as an evaluation based on a technical and economical feasibility study) or as an “official” ranking of future corridor investments. To achieve evaluation results on which technical and financial decisions can be based, a total evaluation procedure is required, e.g. in form of a cost benefit analysis and environmental impact assessment.

Projects with positive rankings concerning CODE-TEN suitability do not possess any particular claim to implementation. However, these projects can be considered as being in line with the policy objectives of the respective country. Furthermore each project has been assessed as a single project disregarding technical and organisational interdependencies. The total financial context with its financial and budget restrictions have not been taken into consideration. Especially in Eastern European countries many projects will not be implemented due to budget restrictions, although individual projects may have a positive ranking.

However, the CODE-TEN adaptability test tries to incorporate the probability of conflicts and barriers into the assessment procedure. In this context financial, technical, socio-economical, environmental, organisational and competency restrictions have been taken into account as these aspects represent conflicts which finally might create a barrier. These barriers will delay the development or the realisation process of these infrastructure projects or policy initiatives.[1]

The CODE-TEN evaluations in this phase of the work are intended to provide a preliminary impression of the national priorities in infrastructure investments and the priorities within a specific corridor. According to the CODE-TEN suitability test all 21 mentioned projects are in line with national policy objectives. However, only two projects are considered as completely unproblematic, with no anticipated conflicts or barriers. Financial conflicts are assumed for 15 projects (71%) and other conflicts are anticipated for eight projects (38%). Only three projects appear to be confronted with barriers. Assuming that conflicts, particularly financial, can be resolved in the long run, the corridor can be considered as robust according to the

[1] concerning the definition of barriers see: „Policy Assessment of Transeuropean Networks and Common Transport Policies:TENASSESS, Deliverable D(6a), the barrier model, planco Consulting GmbH, Es sen, 1998.

CODE-TEN assessment. Table 40 shows an analysis of the CORRIDOR II assessment by individual projects.

Table 40: Corridor assessment by individual projects

	suitable according to CODE-TEN approach without conflicts	suitable according to CODE-TEN approach but with financial conflicts	suitable but with several conflicts in the fields technique, organisation, regional responsibility, competency, environment, socio-economy	suitable but a barrier is already active or is anticipated to occur
projects concerning improvement and /or expansion of railways in CORRIDOR II				
Germany				1. Highspeed railway from Berlin to Frankfurt/Oder
Poland	1. Railway Kunowice - Warsaw (E 20); 2. Railway Warsaw - Minsk Mazowiecki (E 20)	1. Railway Minsk Mmazowiecki - Terespol (E20)		1. Railway Lowicz - Skierniewice - Lukow
Belorussia		2. Highspeed line Krasnoye - Brest		
Russia		1. Highspeed railway line Moscow - Krasnoye		
project concerning improvement and extension of the road network in CORRIDOR II				
Germany				
Poland		1. Highway Strykow - Warsaw 2. Highway Warsaw I(Konotopa) - Warsaw II (Konik) 3. Highway Warsaw Terespol	1. Highway Swieckow - Strykow 2. Highway Strykow - Warsaw 3. Highway Warsaw I(Konotopa) - Warsaw II (Konik) 4. Highway Warsaw Terespol	1. Highway Warsaw I(Konotopa) - Warsaw II (Konik)
Belorussia		1. Upgrading of highway M30 Brest - Minsk - Russian border; 2. Kozlovichi - crossing point; 3. Kozlovichi 2 - border terminal, 4. Varshavsky Most - crossing point 5. Domachevo - crossing point 6. Berestovitsa - crossing point	1. Upgrading of highway M30 Brest - Minsk - Russian border; 2. Kozlovichi 2 - border terminal, 3. Domachevo - crossing point	
Russia		1. Reconstruction of the highway; 2. Reconstruction of bridges and overpasses; 3. Construction of a new section of the highway; 4. Supplying of road service facilities	1. Construction of a new section of the highway;	

7 Literature

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