

(1) Titel

Ladies and gentlemen!

It is a great honour for me to present you “Germany’s experiences and lessons learnt in infrastructure construction during the reunification of Germany” Thank you very much for the invitation.

(2) Content

At the beginning of my presentation, I would like to give you an idea of what the initial situation was prior to the reunification of Germany.

Then I would like to show you how the transport infrastructure construction was carried out during the reunification of Germany.

After that, I would like to show you how transport infrastructure construction in Germany is currently organized using the instrument of the Federal Transport Infrastructure Plan.

Finally, from a German perspective, I would like to introduce to you success factors for construction co-operations.

(3) Strong disparities between East and West Germany

The starting situation was quite challenging. After the division of Germany, strong disparities arose between East and West Germany.

Since the 1970s, the German Democratic Republic had invested only occasionally on a larger scale in its transportation infrastructure. Many highways, roads and railroads were on the level of the 1940s and heavily neglected, with the consequence, that highways were in poor condition in 1990. It was no pleasure to drive on the partly paved roads, full of potholes.

The railway was the most important means of transportation, but speeds and the level of electrification were low due to decades of an economy of scarcity. Necessary investments in the replacement of sleepers, the repair of switches and drainage pipes, had been repeatedly postponed.

And even worse, over many years faulty concrete mixes had been installed and concrete cancer occurred.

A look at the waterways also shows that they were outdated.

(4) Strong disparities between East and West Germany

But how was the situation in West Germany? In West Germany (the federal government is responsible for the construction and maintenance of the federal transportation infrastructure. Since 1973, Federal Transport Infrastructure Plans form the basis for the development and upgrading of federal transport infrastructure. A Federal Transport Infrastructure Plan is prepared by the Federal Ministry of Transport and is adopted by the Federal Cabinet. It contains structural preservation requirements and all investment projects planned by the federal government for roads, railways and waterways. The Federal Transport Infrastructure Plan is a framework program and planning tool, which is renewed every 10 to 15 years.

(5) Challenges

Between the two parts of Germany, only ten roads and eight railroad crossings existed. With the fall of the Berlin Wall and the opening of European borders, a number of challenges occurred:

The main traffic flows in north-south direction were complemented by growing traffic flows on west-east routes. This resulted in high traffic demand on the poor eastern transport network and a high increase of traffic deaths on these routes.

A special investment program was needed to minimize the number of accidents, to expand existing routes, and to strengthen the network between the eastern and western States.

Due to bad road conditions and to upgrade standards, a new construction of the motorways in East Germany was necessary.

(6) German Unification Transport Projects (VDE-Projects)

After the fall of the Berlin Wall, the reunification process began. With the first meeting of the German-German Commission traffic routes, the new medium- and long-term transport infrastructure planning began with a focus on cross-border transport links.

In January 1991, the Ministry of Transport initiated an assessment of the traffic situation in the new federal states. This resulted in the German Unification Transport projects. On April 9th, 1991, the Federal Minister of Transport submitted to Cabinet the German Unification Transport projects, which are part of the Federal Transport Infrastructure Plan 1992. In December 1991, the Traffic Infrastructure Planning Acceleration Act came into effect to accelerate the planning of German Unification Transport projects. The Idea behind this act was to simplify the planning procedures of large transport infrastructure projects in the new federal states.

(7) German Unification Transport Projects (VDE-Projects)

On the left side you can see a map of Germany with the 17 identified German Unification Transport projects. The 17 German Unification Transport projects are numbered separately for each mode of transport from north to south in ascending order. The green lines show the rail projects numbered from one to nine. The seven road projects are marked with orange lines. Only one waterway project exists. It is labelled with the number 17 and consists of one blue line. The overall calculated budget in 1991 was 28.6 billion Euro for all projects.

In order to realize all 17 projects within a decade, two privately-owned project companies were founded outside of the existing authority structures. Responsible for road projects was the Deutsche Einheit Fernstraßenplanungs- und -bau GmbH (DEGES). The Idea behind this foundation was, that the planning and construction of the transport projects could be realized faster than it would have been possible with the road construction administrations of the new federal states, which were still being established.

The “Planungsgesellschaft Bahnbau Deutsche Einheit mbH” (PBDE) was a subsidiary of Deutsche Bahn for the rapid implementation of the German Unification Transport projects. The company was responsible for the planning and construction of the railway projects. With all these measures, the Ministry believed that all projects would be realized within 10 years.

(8) German Unification Transport Projects (VDE-Projects)

But not all projects were finished within a decade. The originally calculated costs of 28.6 billion Euro has gone up by 46.2%. From 1991 to 2018, nine railway projects with a total length of 1.932 km have been realized for a cost of 22.3 billion Euro. When all

road projects are finished, 2.017 km will be built for approximately 17.5 billion Euro. In 2019, the waterway project of 280 km for a cost of 2.0 billion Euro will be finished.

(9) Lessons learnt from the past

The Federal Transport Infrastructure Plan 2030 was adopted in 2016 and is currently valid and being implemented. When creating a new Federal Transport Infrastructure Plan, errors made in the past are eliminated as far as possible.

In order to avoid inefficiencies and wrong decisions, a process with eight steps must be carried out when creating a new plan.

1. First, you need a good forecast of traffic development
2. Secondly, a modernisation of the assessment methodology should take place. Starting research projects for the further development of the evaluation methodology can help to avoid mistakes.
3. Thirdly, the transport network needs to be analyzed and projects generated.
4. Fourth, the proposed projects must be evaluated.
5. Fifthly, Prioritisation of advantageous Projects must take place
6. Sixthly, The federal states must be involved in the planning.
7. Seventhly Cabinet must approve the plan
8. Eighthly Laws must be passed

Due to the lessons learnt from the past, the Federal Transport Infrastructure Plan 2030 follows a prioritization strategy with three aspects:

1. Importance of maintenance will increase more and more. Plenty of important bridges are in a bad condition. It makes no sense to build new roads, when the old infrastructure is not working anymore.
2. Upgrading of congested links (debottlenecking) will also be a part of prioritization because some regions in Germany have severe problems due to rapid increase in traffic. There are some infrastructure components that are not able to cope with the increase of traffic in vehicles or trains and are therefore reducing the strength of the network.
3. Importance of new construction will decrease, because the network is already pretty good and there is not much money left for new projects.

The Federal Transport Infrastructure Plan 2030 provides almost 270 billion Euros over 10 years for investment in modernization of federal transportation infrastructure, interconnection of infrastructure and removal of infrastructure bottlenecks.

(10) Lessons learnt from the past

The Evaluation Procedure is exemplified at the following chart. For the base year you need data on the existing transport demand and for the prognosis year, you need data on the forecast transport demand. You need information about the current network and the future network. You can then simulate the traffic burden without and with the new project. As a result you get the traffic shift and impact new projects may have, which you can evaluate.

The evaluation of projects consists of four major evaluation parts: Environmental assessment, cost-benefit analysis, spatial planning, and urban assessment. The preparation of the Federal Transport Infrastructure Plan is controlled continuously by an external specialist called the coordinator. He is responsible for the quality assurance. Furthermore a concept for the public participation is in place. The last aspect is very important, because a lack of transparency leads to conflicts.

(11) Project evaluation

In order to prioritize the projects, comparison of the world with and without the project in the forecast year 2030 has to be done very carefully. All project impacts must be assessed. Positive and negative impacts can occur. The most important part of the evaluation is the cost-benefit-analysis. The cost-benefit analysis puts the investment costs in relation to the benefit components such as traffic safety, journey time benefits, environmental effects and operating costs.

(12) Project evaluation

The Evaluation Procedure is exemplified at the following chart. You need data about transport demand for the base year and the year of the prognosis. You need information about the current network and the future network. You can then simulate the traffic burden without and with the new project. As a result you get the traffic shift, which you can evaluate.

(13) Project evaluation – Quality of connection (road)

The map shown here illustrates the quality of road connections between regional metropolis on six different levels. The green lines stand for a very good connection. Most of the large scale road connections between regional metropolises are in a good condition. In Germany we try to monitor the quality of the intercity connections with a special method for all kind of transport modes. Here you can see the quality of the road system. We do this kind of analysis also for the rail network. Continuous monitoring of our connections helps us to identify the need for action.

(14) Project evaluation – Accessibility of Federal motorways

The accessibility of the core infrastructure is also a mean to see whether there are problems. You can analyse the accessibility to the next highway access or regional metropolis or international airport or intercity train station. On a regional level you can analyse the accessibility to the next kindergarten, hospital, supermarket and so on in order to find some deficits. The map on the slide illustrates the travel time to the next junction in minutes. Areas with travel times of more than 30 minutes are coloured in red.

(15) Success factors for construction co-operations

Let me now outline success factors for construction co-operations. A detailed transport infrastructure plan is the key for successful construction co-operations. Five aspects should be taken into consideration while creating the plan: obtaining consent, transparency, ensuring high quality through professional staff and using internal and external experts, and using as much and precise data as possible. Finally, the local/regional knowledge about positive and negative impacts should be integrated into the plan as well. Based on past experiences, the plan should consider five elements:

1. Definite prospects of funding: The plan aims to draw up a realistic and fundable overall approach for the infrastructure of the future. Therefore, the available overall investment volume must be harmonized with high priority projects, so that they can be delivered on time.
2. Structural preservation to take precedence over construction and up-grading: Structural preservation of the existing infrastructure should be the first priority of the plan.

3. Strengthening the major axes: By strengthening the major axes and junctions, the entire transport system will be improved and its performance will be enhanced.
4. Removal of infrastructure bottlenecks: The removal of infrastructure bottlenecks will optimize the flow of traffic in the entire transport system.
5. Broad public participation: The public should have the opportunity to take part in the whole development process of the plan.

Overall our experience is that Infrastructure and mobility are the foundation of growth, prosperity and jobs. There can be no prosperity without mobility, and regional effects have to be considered carefully.