

Working Paper Series 1:  
National Policy, Planning and Funding  
Context of MUTPS since 1945

## **Working Paper 1.3**

# **Decision-Making for Mega- Urban Transport Infrastructure Projects: A German Case Study**

**DRAFT NOT FOR CITATION**

Deike Peters,  
Centre for Metropolitan Studies, Technical University,  
Berlin, Germany.

## Contents

1	Contextualizing Mega-Urban Transport Infrastructure Decision-Making.....	3
1.1	Post WWII to Re-Unification: A Tale of Two Systems.....	4
1.2	The Contemporary Political Context: Does Sustainability Matter?.....	7
2	The Spatial and Urban Planning Framework .....	9
2.1	Planning in Post-WWII Germany .....	9
2.2	Spatial and Urban Planning in a Complex Federal System .....	10
2.3	Mega-Urban Transport Projects as Special Planning Cases .....	13
3	National-Level Assessment and Prioritization of Mega-Urban Transport Projects.....	14
3.1	The 17 Pre-Approved Priority Projects "Germany Unity" .....	14
3.2	European Priorities: TEN-T Mega-Projects in Germany.....	15
3.3	The Federal Transport Infrastructure Plan.....	16
4	Financial Dimensions of Mega-Urban Transport Projects.....	23
4.1	The Federal Investment Framework Plan.....	23
4.2	The Revised Municipal Transport Finance Law .....	23
4.3	EU Funds .....	23
4.4	Private and Public-Private Financing for Transport Infrastructure.....	25
5	Summary Remarks .....	26

# 1 Contextualizing Mega-Urban Transport Infrastructure Decision-Making

The following research was produced in the context of the OMEGA research project "Mega-Urban Transport Projects - Lessons for Decision Makers". In the context of this research project, "mega-urban transport projects" were defined as those that are either in metropolitan regions or have a significant impact on metropolitan regions. The latter category includes inter-urban highways and inter-urban rail links. The main purpose of this paper is to present a historical and contemporary overview of the main policy, planning and funding frameworks that have driven and determined the planning and delivery of mega-urban transport infrastructure projects in Germany since the Second World War. In doing so, the paper will illustrate how despite the existence of rather sophisticated state of the art environmental and spatial assessment procedures designed to improve technocratic decision-making rationalities and to ensure due consideration of sustainability aspects in the approval processes, major infrastructure decision-making in this highly developed country still remains strongly influenced by political considerations which ultimately override sustainable urban and regional development goals at the expense of shorter-term economic and political interest negotiations. Struggles for economic growth and competitiveness as well as local and regional pork barrelling still tend to weigh more heavily than long-term public and/or environmental interests. The paper will mainly concentrate on developments in Germany since reunification in 1990, although some historical perspective will be provided as well.

By way of introduction, it should be stressed that the key premise for mega-urban transport infrastructure decision-making in Germany is no different than in any other advanced economy: Under present conditions of global economic restructuring, the appeal of high-profile, high-prestige, high-stakes mega-urban infrastructure projects is vast, and stakes are high for all stakeholders.<sup>1</sup> Advanced metropolitan regions across the world are under enormous pressure to re-cast and re-invent themselves as attractive locales for internationally connected businesses and individuals in the FIRE, media, entertainment and other "creative industry" sectors. Large, glossy new train stations, subways, and airport expansions are seen as crucial by politicians and public officials for the construction a befitting image of modern metropolitan life, and the construction of new high-speed and high-capacity inter-urban road and, above all, rail links is viewed as essential to maintaining Germany's and Europe's competitive edge against the Asian and American markets. As a result, in Germany, as elsewhere, the appeal of "white elephant" projects, defined here as projects whose up front capital expense and permanent upkeep and running costs do not, in and of themselves, economically justify their construction and operation, seems to be on the rise again. In Berlin, billions of euros were poured into a completely new main train station adjacent to the new government quarter; complemented by an expensive new "Chancellor Line" subway which is to run from the main station via the Brandenburg gate to Alexanderplatz. Stuttgart is now going ahead with its own "Stuttgart 21" main train station megaproject. Hamburg recently opted out of building a rather sensible, efficient, already fully planned and appraised light rail network which was to service the entirety of its new Harbor City redevelopment area in favor of a much more

---

<sup>1</sup> Note that this interpretation stands in some contrast to the claim made by Alan Altshuler and David Luberoff (2003) in their monograph "Mega-Projects: The Changing Politics of Urban Public Investment". Focusing on the case of the US, they postulate an ongoing era of "do no harm" since the mid-1970 in which public investment in mega-projects is more limited and more cautious than in preceding eras.

limited, two-stop subway extension. Moreover, airports and railway stations are often purposely designed by star architects: transport infrastructure then becomes prestigious "starchitecture" (an extreme example is Calatrava's new World Trade Center Transportation Hub in New York, some recent German examples are von Gerkan's Main Train Station in Berlin and Jahn's airport buildings in Munich and Cologne). Meanwhile, as the recent example of the Waldschlösschen-Bridge in Dresden demonstrates,<sup>2</sup> opponents' chances to delay large-scale infrastructure projects on historic preservation or environmental grounds have improved. But such opposition usually proves to be only temporarily successful yet ultimately futile in the case of very high profile political priority projects.

As will be explained in more detail below, intra-metropolitan and inter-state competition and bargaining also plays a major role in German mega-urban transport infrastructure decision-making. The complicated relationship between the national and state governments additionally detracts from the possibility of smooth, ideal-type multi-level decision making, hence processes are often more characterized by multi-level politicking rather than by multi-level governance. Due to a multi-tiered federal system which delegates much of the planning and decision-making power to the state level, funding mechanisms and planning frameworks are extremely complex and uneven across the country. For example, while the large and populous state of North-Rhine Westphalia has officially adopted an integrated modal planning mechanism for transportation, separate state planning mechanisms for road and rail still prevail in other powerful states such as Bavaria.

The remainder of the paper is organized as follows: First, a summary of key historical and political developments since WWII is presented, followed by an overview of Germany's spatial and urban planning framework. Subsequent sections describe, analyze and critique the most important political, legal and administrative approval and assessment mechanisms determining the fate of mega-urban transport projects in Germany. Particular emphasis is placed on explaining the complex procedure for placing mega-urban transport projects on the priority funding list of the Federal Transport Infrastructure Masterplan. The penultimate section details the financial aspects of mega-urban transport planning, pointing to Germany's limited experience with privately financed transport infrastructures, while the final section provides concluding remarks.

### **1.1 Post WWII to Re-Unification: A Tale of Two Systems**

Due to the extensive war damage, key infrastructures had to be rebuilt from the ground up in both West and East Germany. And, due to the different political and economic systems in the BRD and the GDR, significant differences in the transport systems emerged. Developments in West Germany followed the typical path of a Western industrialized country: there was a strong emphasis on mass motorization and on road construction, particularly freeways. By 1950, as 2,200 km of freeways had been restored, and by 1990, the freeway network in West Germany had grown to

---

<sup>2</sup> The Waldschlösschen-Bridge is a planned modern-design car bridge over the river Elbe. The bridge would cross the river at one of the widest sections of its floodplains in the middle of the Dresden Elbe Valley World Heritage Site. In an unprecedented and much debated move, the UNESCO threatened to revoke Dresden's World Heritage designation should the bridge be built, but key local politicians and a public referendum were still in favor of building the bridge. Meanwhile, environmentalists used their legal right to appeal the existing legal planning decision (*Planfeststellungsbeschluss*, see below) and in August 2007, an administrative judge issued a construction stoppage order, purportedly to protect a rare bat species, the Small Horseshoe Nose.

8,800km. From the 1940 to the 1960s, professional ideologies in urban and regional planning were still strongly dominated by visions of a car-oriented city with a clear separation of the four "functions" living, working, recreation and circulation, following the ideas first postulated in the CIAM Athens charter in 1933 by Le Corbusier and other leading modernist urban visionaries. Cities were rebuilt primarily with a view to accommodating as many individual motor vehicles as possible, adding many new major thoroughfares and traffic circles. There was very little regard for pedestrians and other non-motorized uses. Urban tram systems were initially reactivated in many major cities, only to be abandoned and dug up again in favor of road based transport in the 1960s and 1970s. Two key factors helped bring about a change in transport infrastructure ideology in the West from the late 1970s onwards: the first major oil crisis in 1973 and the cumulative negative experiences stemming from a car-oriented urban culture: neighborhoods severed by freeways and urban highways, unpleasant urban environment dominated by asphalted streetscapes and noisy traffic, etc. Slowly but steadily, pedestrian and bicycle traffic received more attention from the 1980s onwards. In many cities, planners began to work towards discouraging or even restricting car use in inner cities, favoring walkable residential and shopping environments.

In East Germany, motorization levels remained very low throughout the 1980s. In the socialist systems, transport was regarded the "fourth sphere of material production" (Marx) and was centrally planned and organized. Rather than try to satisfy the individual transport and mobility needs of individuals and firms, emphasis was put on the "overall social transport need". The rail sector was assigned a strong monopoly status, road, water and air transport were all of secondary importance in comparison. There was no competition of modes and no free mode choice. The rail administration was vast, further adding to the inefficiency of the sector. (Next to the the Postal Service, the Deutsche Reichsbahn was the largest employer in the former GDR.) Despite its political and strategic importance, however, upkeep and new investments in the transport sector were increasingly neglected as the communist economy faltered throughout the 1970s and 1980s. Like its Western neighbor, East Germany was also struggling with the aftermath of the war and the ensuing division of the country, necessitating a re-orientation of major transport flows from an East-West to a North-South direction. Urban transport systems were dominated by public transportation, especially trams. Ironically, trams were banned, however, from several key representative areas in Berlin, particularly around Alexanderplatz, where key tram connections were then only rebuilt after reunification.

Today, reunified Germany has an impressive network of 231,000 kilometers of non-local roads. About 53,000 kilometres are classified as Federal Long Distance Roads (highways, "Bundesfernstraßen" in German), about 12,400 kilometers of which are classified as (federal) freeways ("Bundesautobahnen"), so only about 5% of the total network of non-local roads. Nevertheless, about one third of all total driving is done on the freeway network.<sup>3</sup> Needs assessments for additional highways and freeways are done at the federal level. Road transport mega-projects in Germany almost exclusively concern sections of the federal highway/freeway network, including necessary bridges and tunnels.

With over 40,000 km, the country also has one of the densest rail networks in the world. About half of the network is electrified. Germany is still in the midst of an

---

<sup>3</sup> All figures are from the Federal Transport Ministry (BMVBS) Website, at <http://www.bmvbs.de/txt/Verkehr/Strasse-1430.913084/Strasse.htm>, last accessed July 3, 2007.

ongoing reform of its national rail infrastructure. In 1993 the former West German (Bundesbahn) and East German (Reichsbahn) Rail Authorities were re-organized into the German Rail AG stockholder company (Deutsche Bahn AG, DB for short) organized under private law. DB was then further subdivided into individual companies in 1999.

Financial and institutional restructuring is also ongoing in the urban and regional rail sector. In most metropolitan regions, the rail systems are planned, implemented and managed by regional transportation authorities that operate across city borders. Some are subsidiaries of Deutsche Bahn. In the Berlin metropolitan area, for example, the regional rail network and the S-Bahn (surface) heavy rail network are operated by Deutsche Bahn, while the subways, trams and buses are run by the Berlin Transport Authority BVG (Berliner Verkehrsgesellschaft). In general, public transit systems are highly integrated in Germany, and almost all major metropolitan regions have so-called "Verkehrsverbände", literally: transport associations, i.e. regional umbrella organizations of all local transport authorities and companies integrating all available public transit networks and fare structures. Apart from the initial moves towards privatization, recent EU initiatives and directives for more competition in the rail sector have had an important impact on the German rail system, which has traditionally been dominated by monopoly providers. But many experts argue that current moves towards liberalizing metropolitan rail service provision in Germany do not go far enough, and that state-owned and/or long established providers still receive unfair privileges, resulting in a sub-optimal awarding of service contracts.<sup>4</sup>

Especially in medium-sized cities where subways systems are neither particularly necessary nor financially viable, trams have recently experienced a major renaissance. But, as the above examples from Berlin and Hamburg indicate, their full potential as a more cost-effective alternative to newly constructed subway lines, is rarely realized.

In the end, despite many positive trends at the level of mainstream planning philosophy, developments remain highly uneven and often very contradictory or ambiguous at best. The official rhetoric in a particular city might favor non-motorized and public transport at the same time that transit fares are being raised yet again and that secure cycling networks remain incomplete, at the same time that large sums of money are being spent on further easing road traffic. Meanwhile, integrated land use and transport planning has seen only limited success. Within major metropolitan regions, efforts have indeed been made to concentrate certain business and retail developments within close reach of major transit nodes. Berlin's 1999 Ring center concept is one prominent example of this, although in practice, due to the particular phenomenon of "catch-up suburbanization" this concept has been of limited relevance and effectiveness.<sup>5</sup> Especially in Eastern Germany, out-of town shopping centers, business parks and single-family housing developments quickly sprung up on car-dependent greenfield sites in the 1990s, and motorization rates skyrocketed like elsewhere in Central and Eastern Europe. Meanwhile, suburbanization and urban sprawl are by no means unresolved problems in the West, either.

---

<sup>4</sup> See, for example, various contributions of the German Green EU parliamentarian Michael Cramer, at <http://www.michael-cramer.eu/verkehr/schiene/index.html>

<sup>5</sup> See <http://www.stadtentwicklung.berlin.de/planen/stadtentwicklungsplanung/en/zentren/zentren1999.shtml> and the 2020 update under <http://www.stadtentwicklung.berlin.de/planen/stadtentwicklungsplanung/en/zentren/einfuehrung.shtml>, accessed August 25, 2007. The term "catch-up" suburbanization refers to the obvious fact that until 1990, suburbanization was artificially prevented in both parts of the city: in West Berlin due to the existence of the Berlin Wall, and in East Berlin due to the non-existence of a free real estate market.

## **1.2 The Contemporary Political Context: Does Sustainability Matter?**

Rhetorically, Germany is very much in sync with the prevailing sustainable transportation discourses documented at the EU level (see especially the EU White Paper on Transport Policy<sup>6</sup>) which has been shown to be dominated by a discursive framework of "ecological modernization" (Hajer 1996, Peters 2003, Peters 2006). Also very much in line with key policy documents on sustainable transport and mobility at international development organisations, more environmentally friendly modes such as rail, public transport, bicycling and pedestrian traffic are to be preferred over individual motorized transport and truck trafficking. Especially in built-up urban areas, transit-oriented, mixed-use land use development is to be encouraged, and urban sprawl and the ongoing suburbanization of both residential and commercial uses are recognized as unsustainable. Apart from a rather comprehensive outline for a large bundle of sustainable land use, transport and mobility measures, Germany's ambitious 2002 National Sustainability Strategy<sup>7</sup> introduced two sustainability indicators (out of a total of 21 which are to be closely monitored) which specifically relate to land use and transportation: Indicator 4 (land use and open space conservation) aims at a reduction in new land use to a maximum of 30 ha per day by 2020. Indicator 11 (mobility) aims at a reduction of the overall transport intensity used for passenger and freight transport. Specifically, the indicator aims at a reduction to 90% of the 1999 level by 2010 and to 80% of this level by 2020 in passenger transport, and a reduction to 98% of the 1999 level by 2010, and to 95% of this level by 2020 in freight transport. Moreover, the percentage of total transport output accounted for by rail is to be 25% by 2015 and 14% for inland shipping. The 2004 progress report<sup>8</sup> postulates positive trends in the area of land use, passenger transport and rail, stagnation in the case of freight and a negative trends in terms of the percentage of shipping (see pp. 37-38 of the report). Meanwhile, the actual numbers are much more sobering: from 2000 to 2002, new land use per day fell from 131 ha to 117 ha to 105 ha but this was mainly due to economic recession. Developments in the transport sector are equally far from attaining the final intended marks. Regardless of current and past outcomes, however, it is crucial to note that considerations related to sustainability, and increasingly, climate change definitely play an important role in all public debates and policy deliberations over mega-urban transport projects in Germany.

Within German public administration, "ecological modernization" and the concept of a "preventive" environmental policy are now firmly established as mainstream policy discourses, and Germany is even considered a pioneer country in this regard (Jänicke and Jacob 2006). So especially at higher levels of decision-making, public servants have a good knowledge of best practice in sustainable transportation and mobility. Larger cities are even beginning to compete with each other as far as urban sustainability and quality of life initiatives are concerned. Overall, "green" urban policies and politics were on the rise throughout in the eighties and nineties, with significant ramifications for local transport policy, as evidenced by the widespread introduction of traffic calming and parking policies, pedestrian and bicycle infrastructure improvements etc. The implications of this greening of local transport policy are much less clear in the case of mega-urban transport projects, however. That

---

<sup>6</sup> Available at [http://ec.europa.eu/transport/white\\_paper/index\\_en.htm](http://ec.europa.eu/transport/white_paper/index_en.htm), accessed August 15, 2007

<sup>7</sup> Website available in English, see <http://www.bundesregierung.de/Webs/Breg/EN/Issues/Sustainability/sustainability.html>, accessed August 15, 2007.

<sup>8</sup> Available in German at [http://www.bundesregierung.de/nsc\\_true/Content/DE/Anlagen/fortschrittsbericht-2004,templateId=raw,property=publicationFile.pdf/fortschrittsbericht-2004](http://www.bundesregierung.de/nsc_true/Content/DE/Anlagen/fortschrittsbericht-2004,templateId=raw,property=publicationFile.pdf/fortschrittsbericht-2004), accessed August 15, 2007.

is because the noticeable normative shift in favor of sustainable transport and mobility strategies does *not* necessarily help predict the likelihood of their approval or disapproval, because the interpretation of whether a particular mega-urban transport project is considered sustainable or unsustainable is always highly subjective, and no longer clearly predicated by political beliefs and normative backgrounds. For example, the mayor of a city, no matter whether she is a former conservative business CEO or a progressive labor community activist, can turn out to be an avid promoter of a new subway line on the basis of either *modernization/efficiency* ("expand transit system capacity") or *environmental sustainability* ("congestion relief, lower air pollution") arguments. But, depending on local contexts, either of the two opposite cases might also occur: the mayor might turn out to be an opponent of the line on the basis of either of these arguments (modernization/efficiency: "it's inefficient because too expensive", sustainability: "it's unsustainable because it cuts through ecologically sensitive terrain").

This general dilemma of diverging interpretations of the sustainability of mega-urban transport projects is particularly delicate in the case of Germany's high-speed rail system. On a macro level, the billions of dollars that the country has poured into developing this system might be interpreted as a commitment towards supporting a more environmentally friendly mode, namely rail, at the expense of road based transport. And to some extent, that is true. However, since the large financial commitment in favor of this limited high-speed network has also come at the expense of neglecting and in many instances even abandoning secondary and tertiary regional rail lines while at the same time potentially encouraging new longer-distance travel trips, the overall sustainability impact of this political decision is much less clear, and needs to be seen in a more critical light - especially since this re-orientation is happening at the same time that a very problematic plan for the full privatization (i.e. transformation into a stock-exchange listed public shareholding company) of the still state-owned Deutsche Bahn rail company is fueling intense political debates.

Waterways are also an important arena of sustainable transport policy-making in Germany. About 240 million tons of bulk goods are transported via inland waterways per year. Three fourth of the total of 7,300 km of inland waterways are rivers, one fourth canals. With regard to the upgrading and new construction of waterways, the extensive damages (somewhere in the neighborhood of 11 billion Euros) incurred along the Elbe and Oder rivers during the "hundred year flood" in 2002 spurred a large public debate about the unsustainability of many riverbed straightenings and widenings. Five years after this national disaster, major environmental organizations still criticize the national and states governments for not having learned from this experience: economic factors still seem to dominate decisions to deepen or otherway alter shipping routes and to reduce natural floodplains.

Meanwhile, Germany's two largest seaports in Hamburg and Bremerhaven, along with Rotterdam and Antwerp in the Netherlands, are engaged in a fierce rivalry for the top position in the North Range. Moreover, a decision was made in 2001 to create yet another large deep seaport at the Jade-Weser estuary by Wilhelmshafen. In the face of a global logistics and trade revolution which requires seaports to handle ever greater volumes, larger ships and altogether more complex capacities of container handling, a competitive economic environment has emerged which makes the environmentally and socially sustainable operation of Germany's deep seaports an increasingly difficult, if crucial matter of transport and mobility governance. In 2006, the German ports handled about 300 million tons of cargo, one third of which was in containers. The various plans for deepening and widening the three ports will cost up



to 2 billion Euros. In order to critically assess these competing mega-projects, the German environment ministry commissioned an expert study on the sustainability aspects for a national seaport concept, published in mid-2006 (Prognos and ProTrans 2006). The actual study contains several quite critical conclusions, particularly regarding the non-transparent manner in which subsidies have been awarded to the ports, urgently calling for increased institutional cooperation. Nevertheless, the official press spin was that "a further strengthening of the German seaports was possible".<sup>9</sup> As in the rail sector, EU-wide directives and policy incentives related to market liberalization and rules of competition obviously play an important role in the shipping sector.

Last but not least, environmental sustainability is of course also a highly contentious issue in aviation. In 2000, the Federal government published its Federal Airport Concept (BMVBW 2000) which aimed at reducing aviation-related impacts on people and the environment to a bearable minimum. The concept did not set any clear targets in the area of climate change or noise reduction, however, and environmental organizations criticize that the positive economic and employment effects of airport expansions are regularly over-estimated.<sup>10</sup> Administratively, although the German Transport Ministry oversees a Federal Aviation Office, key arenas of air transport decision-making, such as the approval of airfields, the licensing of most pilots and airlines as well as the execution of air safety measures, have been delegated to the States.<sup>11</sup> Germany's major international hubs in Frankfurt, Dusseldorf, and Munich have all continuously expanded their operations over the last decades, often against fierce resistance from neighboring residents. Currently, the most contentious aviation-related mega-project is the construction of the new Berlin-Brandenburg International (BBI) Airport in Berlin-Schönefeld. The entire planning process has been highly politicized and subsequently characterized by fierce legal battles (for a detailed case study of the BBI mega-project planning process, see Halpern 2006).

## 2 The Spatial and Urban Planning Framework

### 2.1 Planning in Post-WWII Germany

In the post-WWII Federal Republic of Germany,<sup>12</sup> federal planning systems were re-activated in four key areas: spatial planning, transport planning, agriculture and sports; moreover annual budgets were also prepared at the federal level (Fürst and Scholles 2001:13-14). But by the 1950s West Germany was dominated by the ordoliberal approach (the "Ordo-Liberalismus" associated with van Eucken's Freiburg school) which aimed to minimize state interventions into market processes. Given the legacy of National-Socialism and the tense Cold War setting characterized by a fierce competition of political and economic systems (i.e. representative democracy and a market-oriented capitalism in the West versus real existing socialism and a centrally-planned economy in the East), decision-makers, politicians and the general

---

<sup>9</sup> See [http://www.bmu.de/pressemitteilungen/aktuelle\\_pressemitteilungen/pm/37420.php](http://www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/37420.php) (in German only), last accessed August 20, 2007

<sup>10</sup> See, for example, the comprehensive statement released by BUND (Friends of the Earth Germany), in response to the release of the Federal Airport Strategy, available at: [http://www.bund.net/verkehr/themen/themen\\_34/files/1267\\_stellungnahme\\_fhk1.pdf](http://www.bund.net/verkehr/themen/themen_34/files/1267_stellungnahme_fhk1.pdf), accessed August 16, 2007.

<sup>11</sup> For the legal basis of this arrangement, see <http://www.bmvbs.de/-,1897.964582/Organisation-of-air-transport-.htm>, accessed August 21, 2007.

<sup>12</sup> Given that the historical set up and functioning of the planning system of the German Democratic Republic is of negligible or relevance for mega-urban transport infrastructure decision-making in today's Germany, it will not be covered in detail in this Working Paper.

public in post WWII Germany were initially very wary about any market regulatory mechanisms.

This drastically changed in the late 1960s, however, when Germany faced its first serious economic crisis after the war. This had been partially brought on by inefficient, deficit spending at the state level, which in turn had brought about a sharp rise in interest rates. So between 1968 and 1974, Germany embarked upon an ambitious public debate about (Keynesian-style) modernization and democratization, and decision-makers became convinced that more planning and a reformed state apparatus would bring the country back on a path of ongoing economic prosperity. At the time, the concept of "integrated development planning" (Integrierte Entwicklungsplanung) was hailed as a panacea for reform. This "planning euphoria" only lasted a short while, however, until about 1974 when the oil crisis hit. After that, the pendulum swung back towards more incrementalist planning approaches, with public private partnerships becoming increasingly important in urban redevelopment from the 1980s onwards, albeit not necessarily in transport infrastructure finance (yet). Currently, strategic planning approaches are on the rise again, and the conventional wisdom in German planning theory and practice is that more communicative, collaborative approaches to solving planning problems are both preferable and unavoidable given the changed institutional context of a cooperative state and a new model of urban and regional governance (Altrock et al. 2004, Peters 2004, Selle 2006, Hamedinger et al 2008).

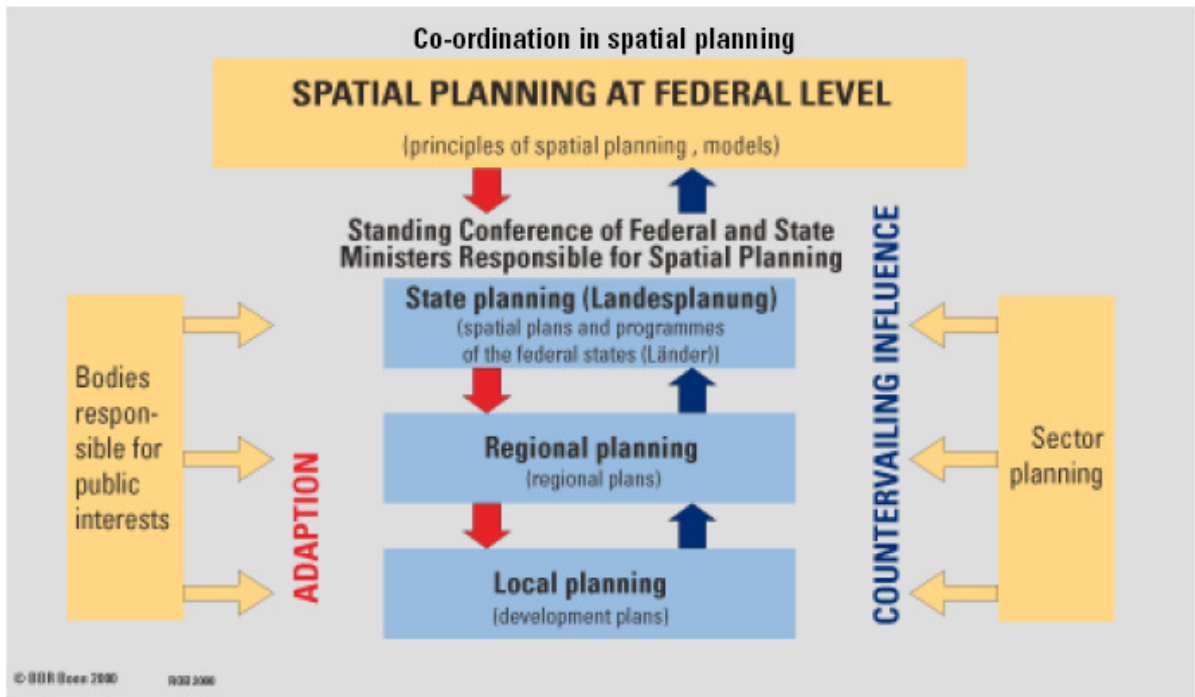
## **2.2 Spatial and Urban Planning in a Complex Federal System**

Germany is a federal republic. According to the constitution (basic law), the federal government only sets the guidelines for spatial planning, while the sixteen federal states (*Länder*) have the responsibility to set the actual legislative framework.<sup>13</sup> Regional entities and municipalities are then responsible for implementing the plans and policies. Below tables provide an overview of Germany's spatial planning system.

### **Table 2.1: Overview of Germany's General Planning Context**

---

<sup>13</sup> Art. 70 Sect.1 No.4 and Art. 75 Sect.1 of the German Constitution/Basic Law (*Grundgesetz*)



Source: Spatial Development Report 2005 (Raumordnungsbericht 2005), Federal Agency for Building and Regional Planning (Bundesamt für Bauwesen und Raumordnung), Berlin, p. 219

**Table 2.2: Overview of Germany's Spatial Planning System**

Level	Decision making
Bund (Federation)	<ul style="list-style-type: none"> <li>• Legislation for federal spatial planning (<i>Raumordnung</i>), including material principles</li> <li>• Legislation for local planning</li> </ul>
Bundesland (Federal State)	<ul style="list-style-type: none"> <li>• Legislation for state spatial planning (<i>Landesplanung</i>), including sub-regional planning (<i>Regionalplanung</i>)</li> <li>• Establishment of State Development Programme (<i>Landesentwicklungsprogramm</i>)</li> <li>• Legislation on State Building Code (<i>Landesbauordnung</i>)</li> </ul>
Region (Sub-Region)	<ul style="list-style-type: none"> <li>• Establishment of sub-regional plan State Development Programme (<i>Regionalplan</i>), coordinating state and local development goals</li> </ul>
Municipal council	<ul style="list-style-type: none"> <li>• Establishment of land use plan (<i>Flächennutzungsplan</i>) indicating the intended spatial development for the community</li> <li>• Fixes in statute (<i>Satzung</i>) as legally binding local plans (<i>Bebauungspläne</i>) for limited areas to be evolved from land-use plan</li> </ul>

Source: ISoCaRP, cited in: Interreg IIIB programme NOFDP, <http://nofdp.bafg.de/servlet/is/13220/>, last accessed 18 June 2007.

The guiding principle of German planning is the promotion of an economically, environmentally and socially sustainable distribution of functions within the Germany territory. The overarching goal of creating "equal" living conditions in all parts of the territory mentioned both in Germany's constitution (Basic Law) and the Federal Spatial Development Plan (*Raumordnungsplan*) has been the subject of much debate and controversial interpretation, since this is obviously a much more wide-ranging goal than the cohesion-related EU-level goal of reducing disparities between more advanced and more backward regions.

At the state level, spatial development aims are formulated in legally binding state development programs. States also have the prerogative to approve or reject the land use plans drawn up by local authorities. Nevertheless, the core planning competency lies with the over 16,000 municipalities. Apart from various non-binding strategic and or regional development plan issues at the discretion of the local authorities, every municipality has to develop two types of land use plans. The preparatory land use plan (*Flächennutzungsplan*, FNP or F-Plan for short) is developed at a scale from 1:5000 to 1:25000 depending on the size of the locality in question. From this framework plan, which is regularly updated but generally has a time horizon of fifteen years, the more detailed local land use plan (*Bebauungsplan*, or B-Plan for short) is developed at a scale of 1:500 to 1:2500, defining the allowed uses, functions and intensity of use for particular parcels of land, as well as the allocation of public infrastructure.<sup>14</sup> Additionally, preparatory and binding land use plans are complemented by a variety of additional planning instruments, such as landscape and nature preservation plans and programs or special zoning for urban renewal and urban redevelopment areas. A frequently used, non-binding strategic instrument aiming at a comprehensive planning and visioning for urban areas as a whole is the so-called

<sup>14</sup> For a short, yet slightly more extensive English language overview, see <http://www.isw.de/pdf/ISW-Spatial-Planning-Germany.pdf>, accessed August 29, 2007.

urban development plan (Stadtentwicklungsplan) which provides detailed individual assessments, objectives and goals for all the key arenas of decision-making (transport, housing, commercial, retail and industrial development, urban redevelopment etc.)

### **2.3 Mega-Urban Transport Projects as Special Planning Cases**

But how exactly is a federally or locally favored mega-urban transport project brought into reality? Much like mines, waste disposal sites or power stations freeways, new inter-urban or intra-urban rail lines (including trams lines), or airport and harbor extensions are all very large scale interventions which require the cooperation of and approval from multiple public bodies. Due to their size, complexity, and large prospective spatial impacts, such mega-project interventions constitute an exception to normal procedures of land use planning, and their planning is characterized by a two step special planning procedure.

First, all transport mega-projects have to be checked for their consistency with the larger aims and principles of spatial and regional planning. This is done by a so-called regional planning procedure (*Raumordnungsverfahren* or ROV). This is essentially an internal governmental harmonization process which also involves additional stakeholders. A key element of the regional planning procedure is an environmental review. The procedure can either be initiated by an administration or by a project promoter (e.g. a transit authority or railway company). In subsequent steps, the responsible administration collects the necessary information and plan materials, involves other concerned parties and checks the project's compatibility with regional planning and environmental protection goals and mandates. The ultimate output is an evaluation report offering one of three possible conclusions: (1) The project complies with the mandates of spatial and regional planning and there are no expected problems with its implementation (this is rarely the case), (2) The project does not comply with the mandates of spatial and regional planning. At the initiative of the state government, the responsible administration can then still start an additional special administrative procedure to determine whether this non-compliant land use might be allowed anyway as an exception. (This is very rarely the case.). (3) The project complies under the condition that certain mitigating (environmental, noise protection, or other) measures are instituted (this is most often the case). The evaluation report is not legally binding and thus cannot be fought in administrative court.

Subsequently, a so-called "plan determination procedure" (*Planfeststellungsverfahren* or PFV) will be initiated. This procedure then replaces, or rather: bundles all other normally required steps in the planning process, including the detailed determination of compliance with pre-existing local plans and programs, the issuance of zoning approval and building permits as well as more detailed environmental and public reviews. The first step is the public hearing. The planning application materials are publicly displayed for one month in the affected municipalities, and all public stakeholders (authorities, public and private bodies, non-governmental and civic organizations) are invited to comment. If plans are revised in response to various stakeholders' concerns and/or the results of the environmental review, additional public review periods are required for the newly revised plans. In a second step, the responsible authority then decides about the legality of the submitted plan application materials and all raised concerns. The issued decision can be very complex, and due to the possibility of repeated plan revisions, the overall duration of this process often exceeds the indented time frame. As a third and last step, stakeholders can then appeal the final plan approval decision (*Planfeststellungsbeschluss*) in the administrative court within one month of its issuance. This is typically a key moment where civil society organizations seek to legally intervene against politically favored

yet environmentally and/or socially sensitive mega-projects. Given that both Germany and the EU have wide-ranging and complex environmental and social protection laws, such legal battles often drag on for a long time, delaying projects by many years. They rarely ever manage to kill a project altogether, however.

### **3 National-Level Assessment and Prioritization of Mega-Urban Transport Projects**

The following sections will describe the political and legal decision-making mechanisms for prioritizing mega-urban transport projects at the national level, highlighting Germany's complex system of multi-level politicking and decision-making. Emphasis will be on developments in post-1989 re-unified Germany.

#### ***3.1 The 17 Pre-Approved Priority Projects "Germany Unity"***

At the time of reunification in 1990, East Germany had dramatic infrastructure deficits and backlogs compared to West Germany. So a clear political decision was made to concentrate federal funds for new transport infrastructure funding in the new Länder. Just one year after the reunification of Germany, in 1991, the German Federal government approved a special transport infrastructure investment program which was comprised of 17 road, rail and water projects which were to receive priority funding due to their eminent importance in re-connecting East and West Germany as well as to close key infrastructure gaps in the East. The projects were also believed to bring about major impulses for regional economic development in the new Länder, thus contributing to the "Aufbau Ost" (the [economic] rebuilding of the East). In total, this program envisioned funding in the amount of almost 36 billion Euros. By the end of 2004 as much as 65 percent of that amount, or almost 25 billion Euros, had been spent, of which 11.9 billion Euros, so roughly half, was invested in rail projects. From 2005 to 2008, the Federal Government allocated a total of 2 billion for transport infrastructure projects, of which one fourth, or 500 million, will be allocated to various VDE projects.

Regardless of their real cost-benefits and impact results, all 17 VDE projects were considered priority projects for the 1992 federal transport infrastructure master plan (FTIP, see below) - similar to seeded players who do not have to play in the qualifying rounds of a tennis tournament, with added caveat that they also could not be kicked out of the game by other, potentially more deserving projects later on in the game.

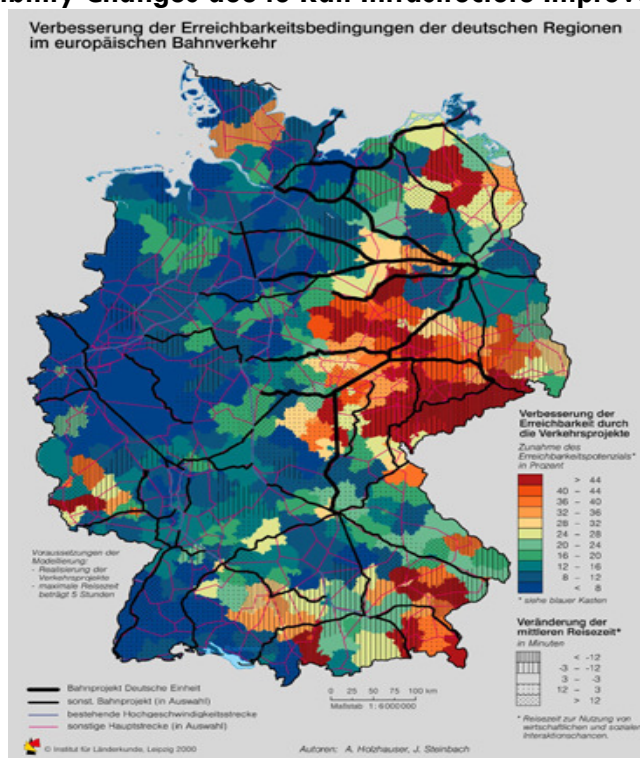
Given that there were no high-speed rail lines in East Germany prior to reunification, the accessibility improvements for the overall networks are very high for some connections, as indicated in table 2.2.

**Table 2.1 Transport Projects German Unity**

<u>Project 1:</u>	Rail - Upgrading Lübeck/Hagenow Land - Rostock - Stralsand (242 km)
<u>Project 2:</u>	Rail - Upgrading Hamburg - Büchen - Berlin (270 km)
<u>Project 3:</u>	Rail - Upgrading Uelzen – Salzwedel - Stendal (113 km)
<u>Project 4:</u>	Rail – Upgrading and new construction Hannover - Stendal - Berlin (264 km)
<u>Project 5:</u>	Rail - Upgrading Helmstedt - Magdeburg - Berlin (163 km)
<u>Project 6:</u>	Rail - Upgrading Eichenberg - Halle (170 km)
<u>Project 7:</u>	Rail - Upgrading Bebra - Erfurt (104 km)
<u>Project 8:</u>	Rail - Upgrading/new construction Nürnberg - Erfurt - Halle/Leipzig - Berlin (514 km)
	8.1 New construction Nürnberg – Erfurt (completion until 2016/17)
	8.2 New construction Erfurt – Leipzig/Halle (Grobers – Erfurt complete, rest 2015)
	8.3 Upgrading Berlin – Leipzig/Halle, including the Berlin Main Station hub (complete)
<u>Project 9:</u>	Rail - Upgrading Leipzig - Dresden (117 km)
<u>Project 10:</u>	Road - New construction Freeway A 20, Lübeck - Stettin (323 km)
<u>Project 11:</u>	Road - Widening A 2, Hannover - Berlin (209 km) and A 10 Berliner Süd and Ost
<u>Project 12:</u>	Road - Widening A 9, Berlin - Nürnberg (371 km)
<u>Project 13:</u>	Road - New constr. A 38, Göttingen - Halle A 9 (186 km) and A 143 Westumf. Halle
<u>Project 14:</u>	Road - New construction A 14, Magdeburg - Halle (102 km)
<u>Project 15:</u>	Road - Freeways A 44, Kassel - Eisenach (64 km), Eisenach - Görlitz (386 km)
<u>Project 16:</u>	Road - New constr. A 71, Erfurt-Schweinfurt (152 km), A 73 Suhl-Lichtenfels (70 km)
<u>Project 17:</u>	Water - Upgrading Waterway Hannover - Berlin (ca. 280 km)

Source: BMVBS (German Transport and Urban Development Ministry) website ([www.bmvbs.de](http://www.bmvbs.de))

**Table 2.2 Accessibility Changes due to Rail Infrastructure Improvements**



Source: <http://www.duitslandweb.nl/binaries/Naslagwerkinfrastructuur/bahnverkehr370x.jpg>, last accessed 4 July 2007

### 3.2 European Priorities: TEN-T Mega-Projects in Germany

Another master plan relevant for large-scale transport infrastructure planning in Germany is the list of Trans-European Transport Network priority projects, which was most recently updated in 2004 and which now comprises a list of 30 projects, many of

which are at least partially located in Germany. Also note that a specially set up TEN Transport Executive Agency is currently being set up in order to manage the EU funds available for the promotion of these EU-level priority infrastructures.

One key TEN mega-project which just received an official go-ahead is the much debated Fehmarn Belt from German across the Nordic sea to Denmark. The bridge is expected to cost at least 5.6 billion Euros, of which Germany would be expected to cover a mere 800 million. Germany was always skeptical as to the ultimate economic merits as well as the ecological risks involved. The agreement between Denmark and Germany specifies that Denmark will be responsible for planning and constructing all sections of the bridge off the German shore. Denmark will also assume the economic risk involved. The somewhat unexpected agreement in the last week of June 2007 had much to do with the fact that the deadline for application for matching EU TEN funds was July 20, 2007.<sup>15</sup>

### **3.3 The Federal Transport Infrastructure Plan**

The Federal Transport Infrastructure Plan (FTIP for short, *Bundesverkehrswegeplan* or BVWP in German) is Germany's key master plan for transport infrastructure investments. The plan provides an overall, integrated framework for the investment in federal roads, i.e. freeways (*Bundesautobahnen*) and highways (*Bundesfernstrassen*), federal railways (i.e. the network of the Deutsche Bahn AG) and inland waterways, and it to be regarded as the key planning document at the federal level. (Since planning for airports and ports does not lie in the responsibility of the Federal government, these are not included in this Federal-level master plan.) The two main empirical inputs for the overall coordination of federal road, rail and waterway investments are the integrated forecast of traffic volumes and the macroeconomic project analyses. The FTIP does not yet, however, contain a specific budget plan for the new construction of particular infrastructures, which is provided in the Federal Investment Framework Plan (IRP, see below). Historically, the cumulative investment volume from all listed projects in the plan typically vastly exceeded actually available funds. The first (West German) FTIP was issued in 1973, a first update followed in 1980. This FTIP 1980 was significant more focused on reducing overall costs while delivering quality rather than quantity. As many as 7,000 kilometers of new freeway construction were taken out of the plan.<sup>16</sup> Further updates of the plan followed in 1985, 1992 and 2003. The 1985 plan was rendered useless by German unification in 1990. The 1992 plan included vast amounts of new infrastructure for a reunified country. Due to strong criticism of the assessment procedure, very significant improvements were made to the assessment methodology in 2003. Key criticisms regarding the still de facto political nature of the overall decision-making process remain, however.

Via a benefit-cost analysis, the FTIP provides a scientific assessment of transport needs at the federal level. But the final project list of priority projects to be funded in the respective planning and implementation period is shaped by a variety of additional, non-economical factors and the overall plan in fact represents a heterogeneous mix of social, technical and economic rationalities. As shown in table 3.1, the FTIP consists of a

---

<sup>15</sup> Also see the extensive information as well as several related downloadable studies on the project on the English pages of German Transport Ministry's website at <http://www.bmvbs.de/en/Transport/European-transport-policy-,2068/Fehmarn-Belt.htm>, last accessed August 20, 2007.

<sup>16</sup> See [http://de.wikipedia.org/wiki/Bundesverkehrswegeplan\\_1980](http://de.wikipedia.org/wiki/Bundesverkehrswegeplan_1980), last accessed July 5, 2007.



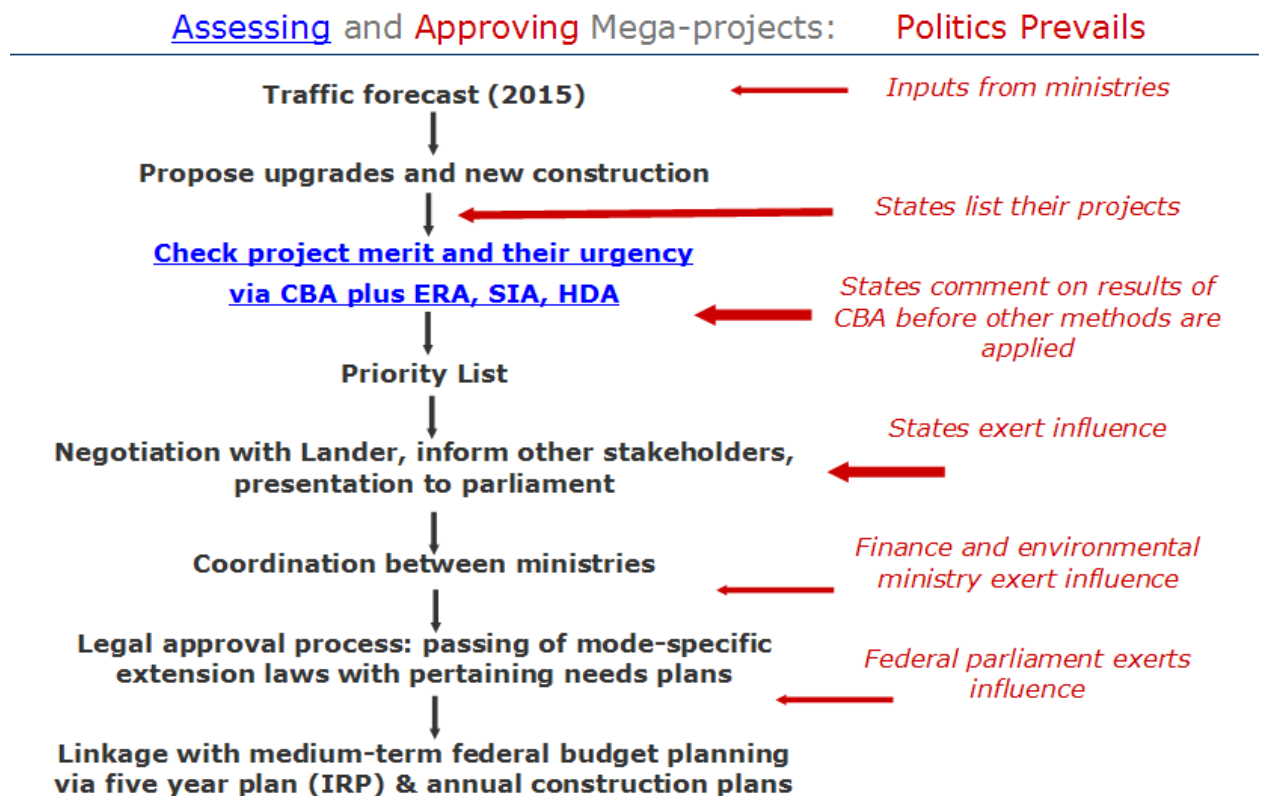
state-of-the-art scientific evaluation process involving a standardized benefit-cost analyses (CBA) complemented by additional assessments evaluating environmental risk, spatial and habitat impacts which is surrounded by a complex political and institutional decision-making process. Different government ministries, state governments, the national parliament and other stakeholders all exert their influence on the final plan. While the federal government drafts the plan, which ultimately needs to be approved by the federal parliament, the states and local communities play a key role in the overall process since they develop the state-level priority lists and also provide much of the data for their evaluation. Additionally, states have to confirm the individual project's compatibility with state-level spatial planning documents and objectives (also see Rothengatter 2000:17). The core technocratic/methodological elements of the selection process are marked in blue/underlined while the "political" moments are marked in red/italic on the right hand side of the table. The entire process will be illustrated taking the example of the most recent 2003 FTIP.

The core objectives of the 2003 FTIP were the following (see FMTBH/BMVBS 2005:22):

- to ensure long-term environmentally-friendly mobility,
- to enhance German competitiveness in the global economy in order to create new jobs and secure existing jobs,
- to promote sustainable patterns of land- and housing development,
- to create faire and comparable conditions of competition for all modes of transport,
- to improve traffic safety for transport users and the general public,
- to reduce the exploitation of nature, the landscape and non-renewable resources,
- to reduce emissions of noise, pollutants and climate change gases (particularly CO<sub>2</sub>),
- to promote European integration.

The 2003 FTIP process started with a national level traffic forecast. This should not be mistaken as a purely scientific, objective matter. Forecasts are always based on certain base assumptions. The 2015 traffic forecast prepared by PLANCO et al. in 2001 for the German Transport Ministry contained several scenarios, all of which were run with the same set of key demographic and economic assumptions: driving population was expected to grow by 6%, GDP by 46%. While the user costs for individual car traffic were assumed to rise by 15% by 2015, rail user costs were expected to drop 30%, similar assumptions were made for the freight sector (trucking: +4% and rail freight - 21%). This resulted in a predicted rise of motorized transport by 19.8%, compared to 32.5% in the rail sector. Freight transport was predicted to rise by 63.9%, with trucking remaining the most important mode in this sector (all figures in Puls 2003:13). Different base assumptions regarding price developments in the road and rail sectors would have obviously resulted in rather different forecasts.

**Table 3.1 Assessing and Approving Transport Mega-Projects for the FTIP**



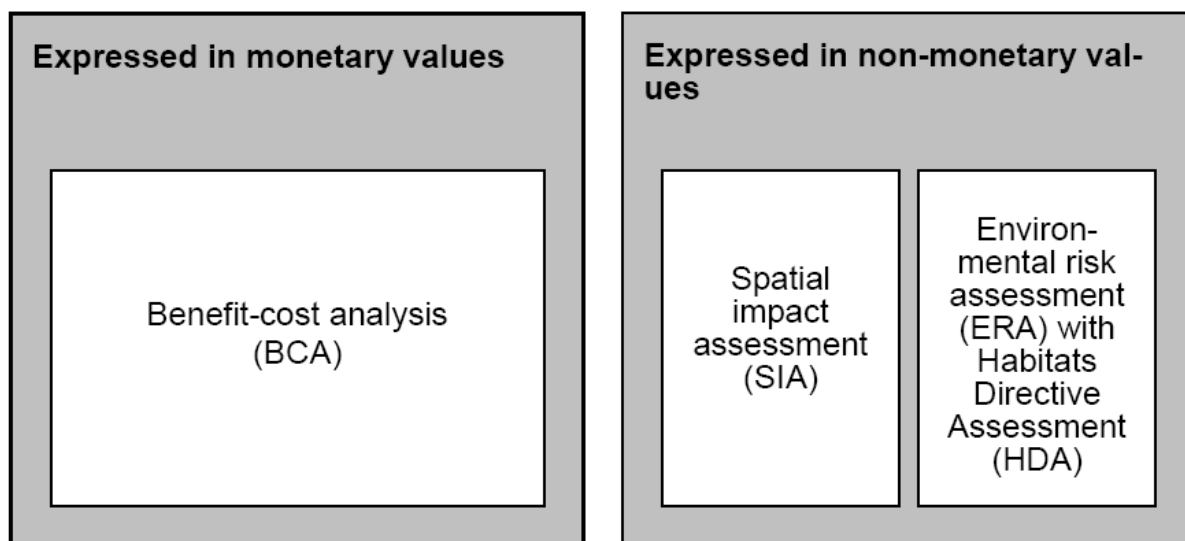
Source: After Puls (2003:19)

The individual states were then asked to provide project lists they considered most worthy to receive federal funding. The privatized but still state-owned German railway company Deutsche Bahn (DB) was also involved from the early stages of the process. Given that the federal government pays for all approved FTIP projects while states are the primary beneficiaries of these improved infrastructures, states (and Deutsche Bahn) have an obvious interest to present long project lists which typically contain overly optimistic cost estimates - a classical free-riding incentive. The key mechanism for pairing these exaggerated lists down to something more realistic and manageable is the aforementioned benefit cost analysis. Theoretically and economically speaking, every project with a benefit-cost value greater than 1 should be considered worthy of funding. However, given the overall context of scarce financial resources, the threshold for transport infrastructure projects to be considered for priority funding in the 2003 FTIP was a ratio of about 5.2, lowering the overall investment cost estimate from 212 billion to about 150 billion Euros (Puls 2003:18). Moreover, the 2002 federal government coalition agreement between the Social Democrats (SPD) and the Greens (Bündnis 90/Die Grünen) had specified that road and rail should receive equal amounts of (federal) funds, effectively skewing the project list in favor of rail.

The 2003 FTIP also contained several crucial methodological innovations designed to safeguard against unsustainable projects. For the first time, the benefit-cost analysis, which was expressed in monetary values, was complemented several additional assessment mechanisms which were expressed in non-monetary values, namely a spatial impacts assessment and an environmental risk analysis coupled with a habitats directive assessment (also see table 3.2). This new structure reflects a somewhat awkward compromise aiming to resolve the different views of the federal transport ministry and the German environmental agency UBA in the run-up to the 2003 FTIP.

Aiming for a major innovative overhaul of the entire FTIP procedure, the UBA had commissioned a series of scientific studies suggesting wide-ranging and detailed methodological improvements to the selection procedure, ultimately aiming for a fully integrated, system based approach of evaluation. In particular, the UBA and other stakeholders argued that a true transport systems analysis and integrated prioritization of projects remains impossible as long as all assessments continue to be carried out on a project-by-project basis only. Project-level analysis is unable to consider corridor and network-related changes of the gravity pattern (Rothengatter 2000: 23). To date, this remains an unresolved issue.

**Table 3.2 The Two-Part Project Evaluation in the 2003 FTIP**



Source: Federal Ministry for Transport, Building and Housing, FTIP 2003, p.12

The 2003 FTIP benefit-cost analysis covered standard components such as haulage/transport costs, expenditures required for infrastructure maintenance, safety, accessibility, (monetizable) spatial impacts, induced traffic, inter- and intra-modal dependencies and other factors (see table 3.3 below for the detailed evaluation components). The entire process is documented in a highly transparent manner; the detailed evaluation methodology is publicly available for download on the ministry's website in both English and German.<sup>17</sup>

The new two part evaluation ensures that key impacts related to ecological risks and regional planning and urban development objectives, which cannot be monetarized within the macroeconomic efficiency framework of a benefit-cost analysis, nevertheless receive due consideration. Meanwhile, major components of environmental aspects such as emissions, noise, severance effects) remain in the monetary evaluation systems (also see BMVBW 2003:23), although operating and time cost savings account for the bulk of the calculated benefits (Rothengatter 2000:23). Careful consideration was given to the problem of a possible double count of some effects, and the different components do indeed measure different effects. Take the case of "accessibility" for example, which in the benefit-cost analysis can be related to journey time reductions, which in turn may reduce structural unemployment. In the spatial impact analysis, however, accessibility improvements are considered in relation to the general accessibility

<sup>17</sup> See <http://www.bmvbs.de/en/Service/Publications-,1932.13237/Federal-Transport-Infrastructu.htm>, accessed August 20, 2007.

deficiency and structural backwardness of a particular region, independently of the concrete potential time-saving benefits of the resident population.

**Table 3.3 Evaluation Components of the FTIP 2003 Benefit-Cost Analysis**

◆	Reduction of transportation costs (NB)
	NB1      Decreased vehicle standby costs
	NB2      Decreased vehicle operation costs
	NB3      Changes in transport costs due to modal shifts
◆	Transport infrastructure preservation (NW)
	NW1      Transport infrastructure renewal
	NW2      Transport infrastructure maintenance
◆	Increased traffic safety (NS)
◆	Improved accessibility of destinations (NE)
◆	Spatial advantages (NR)
	NR1      Employment impacts from building transport infrastructure
	NR2      Employment impacts from operating transport infrastructure
	NR3      Contributions to promoting international relationships
◆	Environmental relief (NU)
	NU1      Reduction in noise exposure
	NU2      Reduction in exhaust emissions
	NU3      Reduction of community severance
◆	Impacts from induced traffic (NI)
◆	Improved links to and from seaports and airports (NH)
◆	Fulfilment of non-transport functions (NF)
◆	Investment costs (K)

Source: Federal Ministry for Transport, Building and Housing, *Macroeconomic Evaluation Methodology of the FTIP 2003*, p.33

The urgency of the environmental appraisals to be carried out for projects in the FTIP were weighed via a basic matrix defining five priority levels ranging from very high to low depending on whether the project was new construction or an upgrade, whether it severed a nature protection site or merely skirted it, and whether the related site was a category 1 (e.g. a Natura 2000) or category 2 (e.g. landscape reserve) nature protection site. The initial ERAs carried out for the FTIP obviously did not reach the same level of detail which would later on be required for a full-fledged project level environmental impacts assessment to be carried out in later stages of the process. The final classification of the environmental risk, categorized on a scale from 1 (very low)

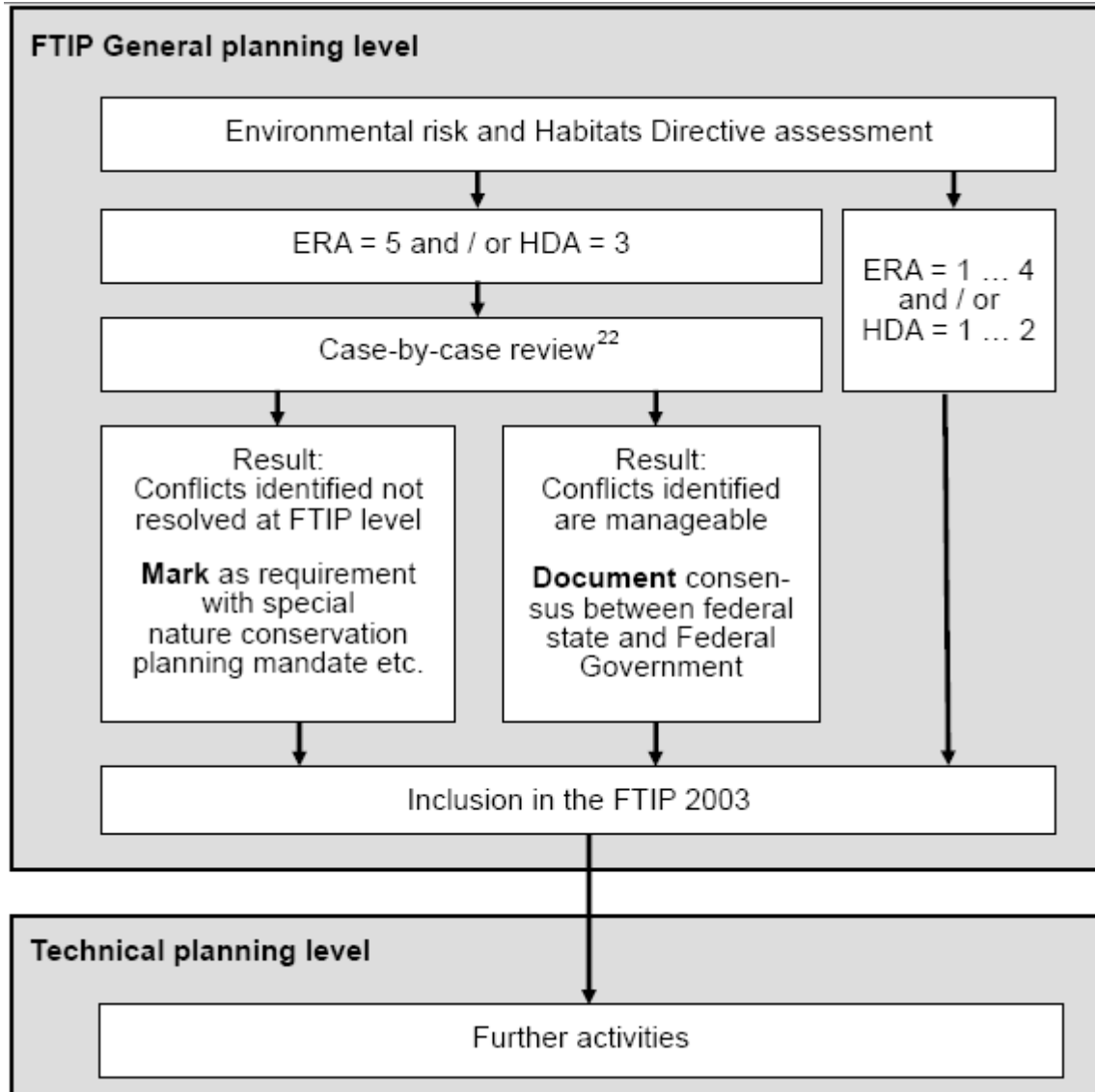
to 5 (very high) is an interpretive value assigned by experts which include considerations of secondary and cumulative effects and possible additional locational conflicts. The complementary Habitats Directive Assessment is carried out as a verbal argumentation resulting in a classification of the respective project into three classifications where "adverse impacts on the conservation objectives or the reason for the protection are probable/cannot be ruled out/can be ruled out".

Even a very high environmental risk or habitats impact does not preclude a project's inclusion in the FTIP, however. Even projects with either a category 5 environmental risk or a category 3 habitats directive impact assessment will still re-appear in the FTIP priority list, especially when the resulting conflicts are deemed manageable. Otherwise they can still enter the FTIP as projects marked with a special nature conservation/planning mandate (also see table 3.4). This secondary status of the non-monetary assessments is further highlighted by the fact that the individual states are already invited to comment on the results of the benefit-cost analysis before the other methods are applied. Selected projects are assigned into two separate priority categories. While different ongoing, definitely planned, and new projects with a special nature conservation mandate can still be assigned to the first priority category, new projects where a high ecological risk has been identified will definitely be assigned as second priority projects.

In the end, the new, improved two-part assessment procedure still contains a crucial methodological flaw in that any additional costs that will have to be incurred because a project has high demonstratively negative environmental or spatial impacts and therefore will need to be substantially re-designed or retrofitted (e.g. sound walls, re-routing around protected habitats etc.) are (often purposely) not considered in the original benefit-cost ratio calculation which made the project acceptable for possible funding in the first place. This represents a crucial methodological loophole (also see Flyvbjerg, Bruzelius and Rothengatter 2003:54). It also explains both why hugely problematic projects such as the A20 freeway along the Baltic coast or the Cologne-Frankfurt high-speed rail link could manage to produce an acceptable cost-benefit ratio at the time of assessment only to incur massive cost overruns later on. One solution would be to include all foreseeable additional project costs owing to a project's particular environmental, social or spatial sensitivity in the original assessment. This contradicts the current interpretation that environmental risks are not monetarizable (at the macro level), however. Also, given that this would deprive states of much of their political wiggle room in terms of still getting costly and environmentally sensitive projects approved, states are not likely to push the federal government into further improving the methodology in this regard. This is also true for the second solution, which would be to exclude projects with a very high environmental risk and/or habitats impact from the FTIP priority list.

It is therefore quite apparent that even Germany's apparently very sophisticated federal infrastructure assessment methodology leaves ample room for political maneuvering (see table 3.1 again). At the end of the day, the first and most crucial instance of political negotiation is the consultation between the Federal government and the states (Länder), where many economically and environmentally undeserving projects can be re-instated and reappear on the list, if only local pressure to include it is strong enough. Once such a project has made it onto the top of the list, it can be very difficult, if not impossible to remove it from the list later on.

**Table 3.4 Overview of the FTIP Environmental Risks Assessment Procedure**



Source: BMVBW (Federal Ministry for Transport, Building and Housing), FTIP 2003, p.20

## **4 Financial Dimensions of Mega-Urban Transport Projects**

### **4.1 The Federal Investment Framework Plan**

The current Federal Investment Framework Plan (BMVBS 2007) was approved in April 2007. It is a detailed five year framework plan containing detailed financial information for each transport project which has been approved under the FTIP, listing how much money has been spent until 2005 and how much more is allocated for the funding period until 2010. The attachments provide separate lists for rail and road projects, organized by state.<sup>18</sup> The plan is a valuable integrated investment plan which clearly prioritizes funds for federally funded mega-urban transport projects for which construction can begin. For the period from 2006 to 2010, The plan includes priority measures in the amount of 25 billion Euro for upkeep and maintenance and another 57 billion Euros for expansion and new construction projects. The latter sum also includes projects which are merely to be continued or begun during this period. The subsequent detailed listings of rail and road project include a great variety of ongoing projects which are either in the planning, approval, or construction stage.

### **4.2 The Revised Municipal Transport Finance Law**

Germany's complex federal structure of governance traditionally also included very intricate mixed federal and state-level financing arrangements for municipal level transport infrastructures. But the comprehensive federalism reform passed in 2006 by the German parliament resulted in a revision of the municipal transport finance mechanism laid out in the respective law with a view to disentangling federal and state-level funds. Somewhat awkwardly but correctly translated by the Transport Ministry itself as the "Act on Federal Government Aid to Improve Transport at the Local Authority Level" the *Gemeindeverkehrsfinanzierungsgesetz* (literally: Municipal Transport Finance Law, or GFVG for short) specifies the conditions and extent of federal funding for local transport projects. Historically, this federal funding was first initiated in 1966 when the surplus revenue generated from a 1.5 cent per liter gas tax was earmarked for local transport infrastructure projects. The subsidy was continued even after the 1970 financial reform on the basis of the 1971 Local Government Finance Reform Act. Specifically, the funding areas include the construction and expansion of important local and feeder roads, bus lanes, traffic guidance systems, railway and waterway crossings and well as local public transport, including the construction and expansion of tramways, elevated and underground rail systems, central bus stations and operational control systems. In its revised 2006 version, the GVFG allocates a set amount of 1,667 million Euros to all Länder, of which 75.8 % are to be spent in the old Länder and 24.2% are to be spent in the new Länder in the East (including Berlin). The Länder are expected to co-finance between 10 to 30% of the total project cost, depending on the type of project.

### **4.3 EU Funds**

EU funding can be an important source of financing for mega-urban transport projects in Germany. The money can come from one of three possible sources, namely in the form of (1) repayable loans from the European Investment Bank (EIB), (2) EU Regional Development grants, or (3) co-financing contributions for select Trans-European Transport Network priority projects.

---

<sup>18</sup> See [http://www.bmvbs.de/Anlage/original\\_1003308/Investitionsrahmen-plan-bis-2010-fuer-die-Verkehrsinfrastruktur-des-Bundes-IRP.pdf](http://www.bmvbs.de/Anlage/original_1003308/Investitionsrahmen-plan-bis-2010-fuer-die-Verkehrsinfrastruktur-des-Bundes-IRP.pdf) (in German), accessed August 10, 2007.

Financing from the European Investment Bank for urban transport projects in Germany is lower than in other leading European countries such as Italy, France or the UK. Of the 10.7 billion EUR which the EIB loaned for urban transport between 2000 and 2004 (of which 92% were for public transportation) only 1% went to Germany, compared to, for example, 25% to Spain, 14 % to France or 13% to the UK.<sup>19</sup> Nevertheless, most high profile transport projects in Germany over the past years, notably various airport expansions, container terminals, and even the ICE connection Cologne Bonn and the privately co-financed Warnow tunnel all received million Euro loans in the double or even triple digits.<sup>20</sup>

However, much more attractive than the repayable EIB loans, are the grant funds received as part of the European Regional Development Fund. Under the 2000 to 2006 German National ERDF program, resources from the Objective 1 Operational Program are, for the first time, being used to improve federal transport infrastructure. For that time period, as much as 1.661 billion euros is available from the ERDF for transport infrastructure. The EU Commission approved the program on 16 March 2001. So far, eleven mega-urban projects have been approved for EFRE co-financing:

1. Improvement of the railway line Berlin-Frankfurt/Oder at the border between Germany/Poland in project phases 2 and 3:  
167 million euros, of which ERDF 103 million euros
2. New construction and improvement of the A 113, B 96 and B 96a:  
154 million euros, of which ERDF 89 million euros
3. New construction of federal motorway A 17 from Dresden (B 173) to the federal border between Germany/Czech Republic:  
511 million euros, of which ERDF 277 million euros
4. New construction of federal highway B 6n in the Wernigerode-Blankenburg and Quedlinburg-Bernburg sections:  
256 million euros, of which ERDF 146 million euros
5. New construction of federal motorway A 71 from AD Oberröblingen (A 38) to Erfurt-Bindersleben (in project phases 2 and 4 to 6):  
254 million euros, of which ERDF 168 million euros
6. New construction of federal highway B 96n from the Stralsund junction to federal motorway A 20 to Altefähr on the island of Rügen (Rügen feeder road, without 2nd Strelasund crossing):  
165 million euros, of which ERDF 108 million euros
7. New construction of the Leipzig city tunnel:  
382 million euros, of which ERDF 128 million euros
8. Improvement of the Halle-Weißenfels railway line in the area of the Halle south link:  
92 million euros, of which ERDF 64 million euros
9. Paderborn - Chemnitz (mid-Germany link) line upgrade: Section Erfurt (a) - Glauchau-Schönbörnchen (a), 2nd implementation stage, improvement of the Gera intersection and sections with punctiform measures:  
103 million euros, of which ERDF 62 million euros
10. New construction of federal motorway A 20 from the Grimmen/Ost junction to the Strasburg junction: 411 million euros, of which ERDF 28 million euros
11. Improvement of the railway line Vienenburg-Halberstadt:  
98 million euros, of which ERDF 57 million euros

Source: BMVBS Website at <http://www.bmvbs.de/en/Transport/Programmes-2572/ERDF.htm>

<sup>19</sup> EIB Information leaflet 9/2005, page 1

<sup>20</sup> For a detailed listing of all EIB loans, go to <http://www.eib.org/projects/loans/regions/european-union/DE.htm> and set the desired parameters. Last accessed August 28, 2007



Last but not least, Germany is also hoping for EU co-financing for several mega-projects which are part of the Trans-European Transport Network Priority List. In particular, this includes the Fehmarn belt bridge between Hamburg and Copenhagen already mentioned above and well as some sections of the TEN high speed rail connections crossing German territory. Theoretically, the EU's new TEN executive agency could provide up to a third of the funds necessary for the construction of the Fehmarn link, although this is unlikely. An application for TEN funding for the Munich Airport Transrapid (Maglev) train was (rightfully) rejected by the EU.

#### **4.4 Private and Public-Private Financing for Transport Infrastructure**

Up until now, post-WWII Germany has only relatively limited experience with private infrastructure financing, and even with public-private partnerships. This is true for all sectors, not just transportation. Toll franchises for bridges, tunnels and passes after the so-called F-scheme were made possible by the Private Financing of Highway Construction Act (*Fernstrassenprivatfinanzierungsgesetz*, or FStrPrivFinG) passed by the German parliament in 1994 (amended in 2002 and 2005). The F-scheme is a basic 30 year BOT (build-operate-transfer) structure where the concessionaire levies a toll from all users of the section. The level of the toll requires approval by the state government. But reunified Germany's first for profit toll project in modern day, the Warnow tunnel, a tunnel under the Warnow river by the Baltic sea coast city of Rostock which opened in 2003, turned out to be a financial fiasco (in the range of double digit million euros) for the responsible investor Macquaire. When it opened in late 2003, traffic was 60% below forecasted volumes.<sup>21</sup> A second, yet only partially privately financed tunnel, the Herrentunnel in nearby Lubeck, opened in August 2005 with somewhat better success.<sup>22</sup>

Ever since re-unification, there have been intense political debates about the ongoing crisis of large-scale transport infrastructure financing in Germany. Given the vast needs for new federally-funded road and rail infrastructure in the new Eastern Länder, vast budget shortfalls became readily apparent by the late 1990s. In 1999 an independent expert commission, the so-called Pällmann Commission, was asked to present recommendations for reforming transport infrastructure finance in Germany. The results of the Commission report, presented in September 2000, clearly re-stated the core problem, namely that it would be impossible to finance all of the projects listed in the 1992 FTIP which foresaw investments in the range of 245 billion Euros for the period from 1991 to 2012. The commission estimated that there would be a shortfall of at least 60 billion Euros. At the same time, German law still interprets the value added tax on fuel as a general income tax which can not be appropriated for specific purposes. Besides an additional possible mobilization of private sector capital, the commission therefore strongly supported already well-advanced initiatives for the introduction of user charges on federal infrastructures and made several specific recommendations.<sup>23</sup> One outcome of the pursuant debates is the founding of a transport infrastructure financing association (*Verkehrsinfrastrukturfinanzierungsgesellschaft* or VIFG) which is still government-owned but organized according to private law and standards. According to respective law, the VIFG is to readminister the fund collected via the newly introduced distance-based

<sup>21</sup> See <http://www.tollroadsnews.com/node/370>, accessed August 20, 2007.

<sup>22</sup> See <http://www.herrentunnel.de>, accessed August 20, 2007

<sup>23</sup> An English language summary of the Pällmann Commission's recommendations are available at [http://www.bmvbs.de/Anlage/original\\_5994/Theses-and-Recommendations-of-the-Government-Commission-on-Transport-Infrastructure-Funding.pdf](http://www.bmvbs.de/Anlage/original_5994/Theses-and-Recommendations-of-the-Government-Commission-on-Transport-Infrastructure-Funding.pdf), for the full report (in German) see [http://www.bmvbs.de/Anlage/original\\_5991/Bericht-der-Paellmann-Kommission.pdf](http://www.bmvbs.de/Anlage/original_5991/Bericht-der-Paellmann-Kommission.pdf), accessed August 23, 2007

trucking charges on the freeways as well as in the shipping sector for new road, rail and waterway projects. The VIFG is also to serve as a clearing house and national competence center for public-private partnership initiatives in the transport sector. Unfortunately, Germany's first modern day road pricing initiative underwent a rather mishap-filled, much delayed start last year, although most of the technical kinks seem to have been worked by now.<sup>24</sup>

As a further PPP initiative, the German government and the VIFG are currently promoting the so-called A-Scheme. A stands for *Ausbau*, or expansion. Under this model, a private concessionaire is to expand an existing highway from four to six lanes. The concessionaire would receive his remuneration from two sources: an expected maximum of 50% of the overall investment as kick-off financing, and then a transfer of the heavy goods vehicle toll leveraged at that particular section of the highway. The average road would be about 50-70 kilometers long, and the contract would be for 30 years. There are currently at least four projects in the pipeline under this scheme. In the current 2010 Investment Framework Plan, all planned F-Model projects are listed with a 20% cost commitment on the part of the federal government, while planned A-model projects are still listed as 100% commitments for the federal government. This is due to the fact that no A-schemes have been successfully completed yet, so no predictions can be made as to its workability.

Meanwhile, Germany has also poured hundreds of millions of euros into the development of a magnetic levitation rail technology whose real world application remains limited and highly financially questionable, particularly after a crash on the test loop in the Emsland killing 23 people strongly tainted the public image of this supposedly very safe technology. Both government and private sector financing for future projects was called into question, yet plans to use the technology for a new rail connection from the center of Munich to its international airport continued and are currently in the hearing stage. The European Union refused to provide infrastructure funds for the project, however.

## 5 Summary Remarks

Mega-Urban transport infrastructure planning in Germany currently occurs in a complex context of multi-dimensional, multi-level public sector decision making which is increasingly influenced by private sector efficiency considerations. Mega-urban transport infrastructures are clearly recognized as crucial elements for enhancing Germany's competitiveness in the global economy, and there is significant inter- and intra-regional competition between major metropolitan areas to develop the most up-to-date and most efficient infrastructure systems. This particular paper has concentrated on developments in the road and rail sector with a few to describe and assess the key decision-making structures and procedures. If there is one central conclusion to be derived from this paper, it is that despite the rather sophisticated planning systems and assessment procedures, mega-urban transport infrastructure decision-making remains a highly politicized affair. It is also worth re-iterating the fundamental critique of the FTIP, namely that it falls far short of functioning as a strategic instrument for more sustainable transport policy making aiming at a reduction of transport demand and a clear modal shift in favor of more sustainable modes. Instead, the FTIP remains a politico-rational procedure for prioritizing individual projects.

---

<sup>24</sup> See the information on the new heavy goods vehicle toll at <http://www.bmvbs.de/en/Transport/Roads-,2075/HGV-toll.htm>, accessed August 20, 2007.



## Bibliography:

- Altröck, Uwe, Güntner, Simon, Hünig, Sandra and Peters, Deike (Eds.) (2004) Perspektiven der Planungstheorie. (Perspectives on Planning Theory) Berlin: Leue Verlag
- BBR (Bundesamt für Bauwesen und Raumordnung/Federal Agency for Building and Regional Planning), Raumordnungsbericht 2005 (Spatial Development Report 2005), BBR: Berlin
- BMJ (Bundesministerium der Justiz/Federal Ministry of Justice) (2006) Gesetz über Finanzhilfen des Bundes zur Verbesserung der Verkehrsverhältnisse der Gemeinden (Gemeindeverkehrsfinanzierungsgesetz - GVFG). Berlin: 31.10.2006
- BMVBS<sup>25</sup> (Bundesministerium für Verkehr, Bau- und Stadtentwicklung/Federal Ministry for Transport, Building and Urban Development) (2007) Investitionsrahmenplan bis 2010 für die Verkehrsinfrastruktur des Bundes (IRP) (Investment Framework Plan until 2010 for the Federal Transport Infrastructure). Berlin: BMVBS
- BMVBW<sup>25</sup> (Bundesministerium für Verkehr, Bau- und Wohnungswesen/Federal Ministry for Transport, Building and Housing) (2003) Macroeconomic Evaluation Methodology of the Federal Transport Infrastructure Plan 2003. BMVBW: Berlin
- BMVBW<sup>25</sup> (Bundesministerium für Verkehr, Bau- und Wohnungswesen/Federal Ministry for Transport, Building and Housing) (2000) Flughafenkonzept der Bundesregierung (Airport Concept of the Federal Government) Berlin, BMVBW. Online under [http://www.bmvbs.de/Anlage/original\\_929083/Flughafenkonzept-der-Bundesregierung.pdf](http://www.bmvbs.de/Anlage/original_929083/Flughafenkonzept-der-Bundesregierung.pdf)
- Hamedinger, Alexander, Frey, Oliver, Dangschat, Jens S. and Breiffuss, Andrea (2008) Strategieorientierte Planung im kooperativen Staat. ("Strategic Planning in the Collaborative State") Berlin: VS Verlag für Sozialwissenschaften
- ISW (Institute for Urban Design and Housing) (n.d.) "Spatial Planning in Germany" <http://www.isw.de/pdf/ISW-Spatial-Planning-Germany.pdf>, accessed August 20, 2007
- Jänicke, Martin; Jacob, Klaus (Eds.) (2006): Environmental Governance in Global Perspective. New Approaches to Ecological and Political Modernisation. Berlin, Freie Universität Berlin, Department of Political and Social Sciences
- Halpern, Charlotte (2007) "La décision publique entre intérêt général et intérêts particuliers: les conflits autour de l'extension des aéroports Paris - Charles de Gaulle et Berlin – Schönefeld" Ph.D. thesis, IEP de Paris: Paris
- Peters, D. (2006) Planning for a Sustainable Europe? EU Transport Infrastructure Decision-Making in the Context of Eastern Enlargement. Berlin: Technical University Berlin.
- Peters, D. (2004) „Zum Stand der Planungstheorie.“ ("On the state-of-the-art of planning theory.") In: Perspektiven der Planungstheorie. (Perspectives on Planning Theory). Edited by U. Altröck, S. Güntner, S. Hünig, and D. Peters. Berlin: Leue Verlag, pp. 5-27
- Peters, D. (2003) "Cohesion, Polycentricity, Missing Links and Bottlenecks: Conflicting Spatial Storylines for Pan-European Transport Investments." European Planning Studies, 11:3
- Planungsgruppe Ökologie und Umwelt (1996) "Umweltwirksamkeit von Maßnahmen der Bundesverkehrswegeplanung (BVWP) - Fallstudien" F&E Vorhaben 109 020 80. Berlin: Umweltbundesamt
- PROGNOS and ProgTrans AG (2006) "Schlussbericht Nachhaltigkeitsaspekte der nationalen Seehafenkonzeption." Research project at the behest of the Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (German Environment Ministry), FKZ 905 96 159/02, Berlin, available online under: [http://www.bmu.de/verkehr/hafenkonzept\\_2010/doc/37419.php](http://www.bmu.de/verkehr/hafenkonzept_2010/doc/37419.php)
- Selle, K. (2006) Zur Räumlichen Entwicklung Beitragen. Planung Neu Denken. ("Contributing to Spatial Development: Rethinking Planning.") Dortmund: Dorothea Rohn Verlag.

---

<sup>25</sup> Note that due the early national elections and the subsequent reconfiguration of the national government in 2005, the Federal Ministry for Transport, Building and Housing, or "BMVBW" for short in German, was re-named the Federal Ministry Building and Urban Development, so that it is now abbreviated as "BMVBS".