

# TRANSPORT

## A.1. POLICIES AND PROGRESS ON TRANSPORT ACCESS, INCLUDING THE RURAL POPULATION AND POOR

Major geopolitical changes characterise the last decade and a half: the disappearance of the Iron Curtain, reunification and EU enlargement had a major impact on Germany as a whole and German transport policy.

Additional factors are:

- the globalisation of markets and services, the increasing international division of labour and drastically rising freight traffic volumes
- the rise of business supply chains
- new information technologies
- the challenges of demographic change leading, among other things, to a concentration of an increasingly ageing population in urban agglomerations, while there are also regions with declining population
- a changing economic environment
- ecological challenges (e.g. air pollution, climate change, loss of biodiversity, noise)
- continuing deregulation and liberalisation (especially in air transport and shipping).

Germany as **an export-oriented nation** has been influenced by the world-wide economic crisis, which is reflected not only in the declining demand for transport. The German stimulus packages are aimed at providing targeted incentives for innovation and a long-term boost to economic growth. The first signs of macro-economic recovery indicate that the long-term trend of increased international interdependence and international division of work will continue.

Germany, as a **traditional transit country** in the middle of Europe, faces further rising freight traffic volumes which are attributable to globalisation. According to forecasts, in Germany a growth of 71% in freight traffic is to be expected by 2025 (compared with 2004) while passenger transport will only rise moderately until then. Regarding transit traffic, an increase of 136% in freight transport is to be expected by 2025.

The foreseeable **consequences of climate change and higher energy** prices, as well as the rising demand for energy in the face of declining raw material resources, show us vividly that:

- new patterns of mobility have to be supported;
- there is a need for new products (e.g. cars, materials) as well as new solutions for realising more energy- and resource-efficient and sustainable transport;
- the way in which we manage energy has to be reorganised.

In developing transport policy, it is essential to combine the desire for individual mobility with the demand for sustainable development. Therefore, the basis of any action is a **long-term vision for the sustainable mobility of people and goods** that covers the **entire transport system**, taking into account all aspects of sustainability (ecological aspects such as emissions, land use, biodiversity, security, noise and also social and economic aspects). The optimum balancing of ecological, economic and social aspects is already the basis for political and planning activities. Germany furthermore committed itself back in December 2007 to reduce its CO<sub>2</sub> emissions by 30% by 2020 compared to 1990 as part of the **German Integrated Energy and Climate Program**, which includes market incentive programmes on renewable energy and measures to support sustainable transport. In 2009, the **G8 Countries** agreed to limit global warming to 2°C; the transport sector will make its contribution towards achieving this goal.

Major policies and systematic approaches are

a) at the national level:

- The **National Sustainability Strategy 2002 and Progress reports (2004, 2005, 2008)**: The German government strives for sustainable development in terms of the economy, ecology, and social issues. Its policy is based on a long-term, global perspective that spans the generations. *More information:* <http://www.bundesregierung.de>
- The **Freight Transport and Logistics Master Plan**: in July 2008 the German government approved a systematic and intermodal transport policy approach. One of the predominant objectives of this integrated approach is to cope with the drastic rise of freight traffic due to increasing globalisation and therefore make the transport system as a whole more efficient and to further reduce CO<sub>2</sub> emissions. *More information:* <http://www.bmvbs.de>
- The **Federal Government Fuel Strategy**: As part of the **National Sustainable Development Strategy**, in 2004 the German government elaborated a strategy with a time horizon of 2020 on the basis of a matrix process conducted by experts and in the light of international developments. *More information:* <http://www.bmvbs.de>. Within the German government's Fuel Strategy, the National Innovation Programme on Hydrogen and Fuel Cell Technology (NIP) and the National Development Plan for Electric Mobility (NEE) focus on the electrification of transport (*cf. C. 3*).
- **National High-Tech Strategy and Environmental Technology Master Plan**: The German government launched the **National High-Tech Strategy** in 2006 to support the development of innovative environmental technologies and products and to develop lead markets. It was set up as an overall strategy on innovation policy to promote systematic research in Germany in various fields, such as climate change, use of natural resources and energy, mobility and cross-cutting technology (such as nano-technology, bio-technology). To further stimulate eco-innovations, an **Environmental Technologies Master Plan** was adopted at the end of 2008 to consolidate different policy instruments in the field of R&D and environmental policy, such as eco-design, technology procurement and market diffusion programmes for eco-innovations. *More information:* <http://www.hightech-strategie.de>; [http://www.bmu.de/wirtschaft\\_und\\_umwelt/downloads/doc/42558.php](http://www.bmu.de/wirtschaft_und_umwelt/downloads/doc/42558.php)

b) at the European level

- During the **German EU Presidency** (1 January 2007 – 30 June 2007), Germany addressed “transport and climate” policy in the Transport Council on a broad basis for the first time.
- The **Greening Transport Package** includes key EU policy developments which address the greening of transport (COM (2008) 433, 8.7.2008), the internalisation of external costs (COM (2008) 435, 8.7.2008) and the abatement of noise from railways (COM (2008) 432, 8.7.2008). A proposal on internalisation charges for lorries was also included (COM (2008) 436, 8.7.2008). In April 2009, a regulation setting binding targets for CO<sub>2</sub> emissions from new passenger cars was adopted (Regulation (EC) No 443/2009).

c) at the international level

- The German government is committed to **international targets for the reduction of GHGs** and is therefore strongly lobbying for international aviation and international

shipping to be included in a new global deal to be agreed at the Copenhagen Climate Conference in December 2009.

- The **International Transport Forum**, as the major global platform for the transport sector including more than 50 states and giving political, economic, scientific and civil society circles the possibility of exchanging experiences and opinions on selected mobility issues of worldwide importance, is held once a year in Leipzig.
- There are numerous **international fora and partnerships** addressing sustainable transport issues and operating in the sectors of alternative and renewable sources of energy in transport, e.g. Indo-German Joint Working Group on the Automotive Sector, German Chinese Sustainable Fuel Partnership (GCSFP).

## A.2. FUEL PRICES AND TAX REFORM

Germany uses about 30% of its final energy consumption in the transport sector; nearly 94% of road transport is based on fossil fuels.

The purpose of the **German government's Fuel Strategy** is to concentrate resources on promising alternatives and to accelerate their development. The strategy for "**Reducing our dependence on oil**", as an important strategic leitmotif, is aimed at diversifying the energy supply in the transport sector by contributing to an accelerated shift to a low-carbon economy, based on energy and resource-efficient technologies and sustainable transport and a shift towards sustainable consumption behaviour. The focus is on determining appropriate and practicable solutions to meet the needs and challenges of today's and tomorrow's sustainable transport. Actions already undertaken have a double impetus: continuing to improve the fuel efficiency of new conventional vehicles and encouraging low carbon vehicles and promising fuels of the future and power train technologies that show a high potential in terms of availability and economic efficiency to decarbonise transport in the medium and long term.

The aim is to **decouple traffic growth from energy consumption**. The approach adopted, i.e. to organise today's transport levels in the year 2020 with at least 20% fewer CO<sub>2</sub> emissions, will be aimed at. There will be scope for further savings after 2020, because it can be assumed that efficiency technologies (batteries, fuel cell/hydrogen, second generation biofuels) will be further developed and that ETS, too, will be fully operational by then.

### A.2.1. REMOVING SUBSIDIES ON FUEL

- **Eco-tax:** In 1999, an **eco-tax** was introduced and graduated according to ecological criteria. It allows external effects to be internalised, on the one hand, while on the other hand tax revenue can also be generated. The aim was to use scarce resources sparingly. The petroleum tax was raised between 1999 and 2003 by about 3.07 ct/litre and year (up to 15.34 ct/l from 2003 on). Companies from the manufacturing industry are granted a tax reduction.
- The fifth step of the eco-tax entered into force on 1 January 2003. The implementation of the Directive restructuring the Community framework for the taxation of energy products and electricity (2003/96/EC) led to a complete restructuring of the German petroleum tax. The new German Energy Taxation Act, which entered into force on 1 August 2006, replaced the Petroleum Tax Act.
- **Biofuels:** Since 1 January 2007, the promotion of biofuels has substantially changed; the main focus is now on an **obligatory biofuel quota (Biofuels Quota**

**Act**) which contains an obligation for the petroleum industry to put biofuels into circulation. This is done in particular by blending biofuels with petrol and diesel. Moreover, a phasing out of the tax exemption for biofuels was introduced. With regard to the protection of legitimate expectations, tax relief was furthermore granted only on pure biofuels which are not assigned to the biofuel quota. Additional tax relief was granted for pure biofuels used in agriculture or forestry.

In 2009, the overall quota was modified by the Act amending the Promotion of Biofuels. The quota is now 5.25% (by energy content) for 2009 and 6.25% (by energy content) for 2010 to 2014. From 2015, the biofuel quota will no longer be based on energy content but on the potential for net GHG reduction. Biofuels with a high potential for net GHG reduction will therefore receive much greater support.

There should be no overcompensation of biofuels through tax relief. Therefore, there is an obligation to propose an adaptation of the tax relief on biofuels if there is evidence that biofuels are receiving more assistance than required.

- **CO<sub>2</sub>-based vehicle tax:** Since 1 July 2009, the vehicle tax for new passenger cars has been based on CO<sub>2</sub> emissions. The conversion of motor vehicle tax to a CO<sub>2</sub> basis is designed to tackle climate change by providing an incentive to buy efficient vehicles with lower CO<sub>2</sub> emissions.

Exemptions

- **Public transport:** The aim of **tax relief for fuels used in vehicles and track railways** for public transport is to improve the competitive position of the public transport sector (€54.02/1,000 litres for diesel or petrol).
- **Stimulus package:** For new passenger cars registered between 5 November 2008 and 30 June 2009, tax relief from the annual vehicle tax was granted for one year. This instrument focused on providing market stimulus to buy modern, environmentally-friendly cars.

One of the lessons learned is that the **obligatory biofuel quota** is a very important and appropriate instrument for promoting biofuels. Following a recommendation by the European Commission, Germany adopted a **National Biomass Action Plan** in April 2009. The action plan focuses on strategies to expand bioenergy efficiently and sustainably and includes concrete measures. *More information:* <http://www.erneuerbare-energien.de>.

Germany, like all the other EU member states, is committed to source **10% of German transport energy from sustainable renewable sources by 2020** (Renewable Energy Directive (2009/28/EC), Fuel Quality Directive (2009/30/EC)). This sectoral target for at least 10% of energy to be renewable (including biofuels, renewable electricity and hydrogen) in the transport sector by 2020 is accompanied in both directives by **binding sustainability criteria for biofuels**. The successful implementation of sustainability criteria for biofuels will be a crucial step; this means setting up a certification system for imported and domestically produced biomass used for the production of biofuels. These measures are supported by the promotion of R&D projects in the biofuels sector, especially in the field of plant breeding, and consulting activities.

## **A.2.2. ENCOURAGING ENERGY EFFICIENCY**

Increased energy efficiency not only makes it possible to further decarbonise transport but is a **highly efficient instrument in the face of rising energy prices**.

- The measures contained in the systematic and intermodal transport policy approach outlined in the **Freight Transport and Logistics Master Plan** are aimed in

particular at the efficient use of all transport modes, optimum use of existing infrastructures, targeted investments in transport infrastructures (e.g. innovative transport technologies (traffic and vehicle engineering, alternative drivetrains), a shift to more environmentally-friendly modes such as rail and waterways and, wherever possible, more efficient organisation of logistics and transport chains (e.g. HGV tolls as an important incentive for road hauliers, optimisation of transit traffic, telematics).

- **The National Airports Strategy** and the **National Ports Strategy** follow this approach, aiming in particular at the optimum use of existing infrastructure, further interlinking aviation and shipping with other transport modes on the basis of a sustainable, integrated transport policy, and avoidance of undesirable infrastructure development.
- **Aviation and shipping:** Germany encourages operators and manufacturers to take forward ambitious technological improvements in aviation and shipping with the aim of increasing fuel efficiency and reducing negative environmental impacts.
  - Germany, together with France and Norway, has proposed an international emissions trading scheme for **shipping** in order to reduce the growing emissions of that sector.
  - Efficiency in **air transport** has already been addressed by research initiatives on alternative fuels in aviation.

Other improvements are, among other things, the innovation programme for **inland navigation** in 2009 for the renewal of shipping space and the modernisation of the fleet of inland vessels, the elaboration of a National Ports Strategy for Seaports and Inland Ports and investments in the infrastructure of maritime and inland waterways.

- **Railway sector:** Germany is strengthening the railway sector as one of the energy-efficient modes of transport. The transport and railway policy objectives of the structural reform of the railways in Germany, launched in 1993, are still the leading guidelines (shift more traffic to the railways, limit the budgetary burden, more competition, economic efficiency of Germany's rail company, Deutsche Bahn AG).
- **Tolling scheme for HGVs above 12 t GVW with further differentiation according to emission category and PM reducing systems** from 1 January 2009 (for six-wheelers (three axles): 0.141 - 0.169 - 0.190 - 0.274 €/km depending on emission category; for vehicles with four axles or more: 0.155 - 0.183 - 0.204 - 0.288 €/km depending on emission category). The aim is to make costs user-related and to increase efficiency and the number of environmentally-friendly vehicles, leading to a positive trend towards even more efficient utilisation of transport capacity (e.g. acquisition of backloads). The share of Euro 2 vehicles fell from above 30% in 2005 to less than 3% in February 2010; the share of Euro 5 vehicles increased during this period from 1% to nearly 55%.
- Adoption of a **Directive on the promotion of clean and energy-efficient road transport vehicles** (Directive 2009/33/EC).
- EU action plan for the deployment of **Intelligent Transport Systems** ((COM (2008) 886, 16 December 2008).

Recent trends include policy initiatives on **Green Public Procurement (GPP)**, including a Communication on public procurement for a better environment (Regulation (EC) No 106/2008), which proposes a voluntary 50% GPP target for Member States to be reached as from 2010. The Commission has developed GPP criteria for ten priority products and service groups including transport.

Since 17 January 2008, the German government has had a **binding obligation for green public procurement** which obliges public authorities to lead by example and consider energy efficiency criteria and life-cycle costs when buying electronic devices or procuring services (“General administrative regulation on the procurement of energy-efficient products and services”).

A cabinet decision of 28 February 2007 stipulated that all **official trips taken on government business shall be climate-neutral**.

### A.2.3. PROVIDING RELIABLE ALTERNATIVES FOR THE POOR

All action is guided by the principle of sustainability, which is aimed at continuing to contribute, with common sense and prudence, to an economically efficient, socially just and ecologically responsible society. A good transport system is central to a prosperous economy and a necessary precondition for social participation. It facilitates transport access and links people to jobs, products to markets and supports national and international trade. Affordable mobility is a precondition for social participation. Germany has therefore strongly lobbied for public transport to remain a **public service obligation, with a high level of transport services**. Under the German EU Presidency, the successor to Regulation 1191 concerning public transport services (PSO) was adopted, which ensures a high level of public transport services and gives legal certainty for companies and public agencies.

The initiatives focus in general on a sustainable transport policy with the aim of ensuring affordable mobility over the long term.

- The basis for reliable transport alternatives for low-income groups is a functioning **projected development of the public transport system** which at the same time helps to protect the environment, improves the quality of life and supports the mobility needs of all, including those in rural areas and the elderly. Public transport should be attractive, accessible and – if possible – low carbon. The German stimulus package provides money for Deutsche Bahn AG to invest in the renovation of railway stations.
- Tickets known as “mobility” or “social” tickets enable people on low incomes to use public transport. They are designed to enable them to maintain social contacts and to be more flexible when looking for jobs. There is no federal approach. At present, the fare structures of the integrated transport associations are predominantly based on local authority boundaries. Beyond that, the prices of the tickets differ according to the target group (e.g. school pupil, student, apprentice, employed person, pensioner).
- **Barrier-free travel** addresses, among other things, the rights of air passengers with disabilities or impaired mobility. Passenger cars for certain groups of disabled people are completely exempted from motor vehicle tax. Besides this tax relief, people with certain disabilities have the possibility to choose between the right to free use of the public transport system or the vehicle tax relief. (*For more information see Chapter E*)

Economic development and poverty reduction require a functioning transport system. Many developing countries are facing the problem of rapidly rising GHG emissions in the transport sector. International fora therefore provide a good opportunity to exchange knowledge and experience so that the problem can be addressed.

- German **development cooperation** aims to improve energy efficiency in the transport sector and support environmentally-friendly means of transport. Germany therefore supports developing and emerging countries in setting up and developing

public transport systems, focusing especially on rail, better transport planning in municipalities, and education and training. Since 2008, Germany has been supporting, within the framework of IKLU ("*Initiative for Climate Change and Environmental Protection*") with funding totalling about €2.4 billion), investment with a clear focus on climate change and environmental protection by providing low-interest loans and grants, for example for energy-efficient transport systems (e.g. rail transport or buses).

- International climate initiative: The focus of the International Climate Initiative is on the following areas:
  - Promoting a climate-friendly economy. Key elements include increasing energy efficiency, expanding the use of renewable energies, reducing climate-damaging fluorocarbons. Both investment measures and support for capacity-building are planned for newly industrialising, developing and transition countries.
  - Promoting measures for adaptation to the impacts of climate change and conserving biodiversity of relevance for the climate. Projects cover the following categories: measures for adaptation to the impacts of climate change and measures for the conservation of biodiversity of relevance for the climate.

### **A.3. REGIONAL AND GLOBAL TRANSPORT SYSTEM INTEGRATION - ENCOURAGING EFFICIENT MODES**

The German government concentrates on the concept of an **integrated transport policy** focusing on an overall approach to optimise the transport system as a whole. This includes not only the design and financing of transport infrastructure but covers other transport-related areas such as innovation and regulatory policy as well. Each transport mode is to contribute with its own strengths to the management of the predicted increase of traffic (*see also C. 1*).

- **Copenhagen agreement:** Germany strongly supports a Copenhagen agreement with climate-related targets for the transport sector to create an ambitious and realistic framework for long-term emissions reductions. This will provide a strong impetus to come up with innovative solutions in shipping and aviation aimed at reducing CO<sub>2</sub> emissions and achieving further efficiency improvements. This will lead to feasible and market-based approaches.
- Requiring **international shipping and aviation** to reduce emissions
  - Germany will continue to address emissions from aviation at the European and international level.
  - Germany continues to work within the **IMO** and **ICAO** on market-based, technical and operational measures to reduce CO<sub>2</sub> emissions.
  - Emissions trading in conformity with the conditions of competition, including all flights arriving at or departing from an EU airport, within the EU Emissions Trading Scheme from 2012 (Aviation Emissions Trading Scheme).
  - Supporting a global agreement on reducing emissions from international aviation and shipping within UNFCCC, setting a target to reduce CO<sub>2</sub> emissions from aviation and shipping, despite forecast growth for both sectors.
  - Offering economic incentives for the development of **air transport** in line with environmental and climate change requirements, e.g. emission-related landing charges have been introduced at some German airports.

- Implementation of **international regulations on pollutant emissions in maritime transport**, including gradual reduction of the maximum permissible sulphur content in marine fuel to 0.5% by 2020 (in special control areas such as the North Sea and Baltic Sea, essential reduction as early as 2015) and also preparatory work for a global model, capable of gaining majority support, for the inclusion of maritime transport in international climate change schemes.
- Support for more stringent standards for pollutants in the environmental committee of the ICAO with a particular focus on nitrogen oxides and particulates
  - The **tolling scheme for HGVs**, which was introduced back in 2005 and modified in 2009 (*see also C. 2.2.*).
  - **Rail transport** and the quality of the rail network have been improved, e.g. high quality standards for main and local lines, minimum of €2.5 billion annually to maintain the existing rail infrastructure (service level and funding agreement with Deutsche Bahn AG; the Deutsche Bahn Netz AG is responsible purely for maintenance. Additionally, €1 billion annually are available for construction and extension of the rail network. Specific public financing for regional and local infrastructure and regional transport also exists (Local Public Transport (Regionalisation Act), Gemeindeverkehrsfinanzierungsgesetz). Rail as a mode of transport was strengthened, among other things, by gradual harmonisation and liberalisation of rail transport at European level (rail freight transport and international passenger transport) and the consistent improvement of rail infrastructure (investment volume of about €36 billion during the last ten years).
- Innovation programmes such as the electrification of drivetrains:
  - The **National Innovation Programme on Hydrogen and Fuel Cell Technology (NIP)** and the **National Development Plan for E-vehicles** are both innovation programmes which stretch over several years to prepare for the commercialisation and introduction of innovative drivetrains and technologies for energy storage (fuel cell, EV) using technological innovations.
  - The **second stimulus package** provides investment to promote innovation in transport, above all for EVs, hybrid drivetrains and storage technologies. The focus is, especially, on a strategy to strengthen R&D in battery technology and drivetrains, to build up “model regions” as clusters to foster and gain extensive experience with the whole range of aspects concerning EVs, and to foster the market integration of EVs. Future EVs will use renewable energy and be able to provide flexible energy storage. The German government’s goal is to have one million EVs on the roads by 2020.
- Many regions support **smart ticketing** approaches (e.g. Brandenburg Ticket, Rhein-Neckar Integrated Transport Association) which allow passengers to move seamlessly between different modes. Improved interchange between cycling and other public transport (e.g. bike/bus and rail integration) is being encouraged.
- **Being able to move easily between different modes** provides, in particular, an environmentally-friendly option for travel to work or for sustainable travel in general. Parking facilities close to motorways can be one instrument allowing car-pooling as one option for travel to work. Another example of support for improved interchange is the improved cycle storage facilities at stations, car hire, bike and rail integration provided by the Deutsche Bahn AG.
- **Additional investment** of approximately €12 billion in 2009 and 2010 **in the transport sector** (2005: approximately €9 billion) via additional revenue from the tolling scheme for HGVs, the Construction and Transport Job Creation Programme

and the first and second stimulus packages, which will make it possible to maintain the infrastructure and to remove bottlenecks in the rail, road and waterway sectors and systematically upgrade busy major transport arteries and hubs as a consequence of the already noticeable bottlenecks in transport infrastructure and the foreseeable considerable increase in the volume of traffic. Additionally it creates jobs and public demand. Additional investments to reduce bottlenecks can contribute to reduce CO<sub>2</sub>-emissions. Since 2007, planning procedures have been accelerated (reduction of nearly two years) and, above all, public procurement procedures have been simplified for a fixed time in the framework of the stimulus packages.

Research instruments which focus on reorganisation, traffic reduction or information aim at “indirect reduction” of emissions as well, for example:

- the programme entitled “**Traffic management systems of the future – innovative transport with dynamic networks**” to optimise road and rail transport as well as shipping via telematics and to combine them across the modes,
- the programme entitled “**Faster, convenient and environmentally-friendly by rail and bus**” to optimise the efficiency and attractiveness of public transport with organisational innovations, new means of transport and new interchange technologies. The programme entitled “Better understanding of mobility” supports, for example, research activities related to holiday and leisure traffic, which accounts for about 50% of traffic (in terms of passenger kilometres) in the private motorised transport sector, and addresses new forms of transport for leisure time,
- the programme entitled “**Promotion of structures which reduce traffic demand and substitute for physical transport**” to address the reason for transport demand.
- the project “**Safe and intelligent mobility – test Germany (SIM-TD)**”, which is co-financed by the Federal Government is a field trial testing applications of vehicle-to-vehicle- and vehicle-to-infrastructure communication. These applications can contribute to enhance road safety and will make traffic more efficient thus preventing traffic congestion and reducing CO<sub>2</sub>-emissions.

Other projects are to be discussed, such as **SES II** (Single European Sky), **SESAR ATM Master Plan** (air traffic management master plan) or the Commission’s Communication on the “Future of Transport”, published in mid-June 2009.

#### **A.4. URBAN TRANSPORT PLANNING AND POLICIES**

Germany advocates an **integrated policy for future-oriented and sustainable urban transport**, optimising the efficiency of individual transport modes and their interaction, making cycling, walking and local public transport more attractive by means of forward-looking urban planning. At a time when more than 70% of the population is living in cities and approximately 80% of all jobs can be found there, when mobility in the sector of passenger transport is on the rise and goods transport is increasing, the challenge of managing the traffic situation in the city (centres) is becoming greater. Urban transport systems are focal points of economic development and innovation, supporting the **function of the cities as locations for business and science**. At the same time, the development of cities and transport has to take social needs into account, ensuring the **mobility of the inhabitants of the cities and the urban fringes within the framework of the provision of services of general interest**, thus guaranteeing **opportunities for participation and inclusion**. An important factor is **demographic change** which will, among other things, lead to the concentration of an increasingly ageing population in the urban agglomerations and the rising demand for barrier-free travel (among other things,

rights of air passengers with disabilities or impaired mobility). In the long term, the consequences of demographic change will also lead, for instance, to demands for new technologies to meet changing mobility needs. And, in the light of this, it is all the more necessary to **strengthen local public transport as a contribution to tackling climate change and affordable mobility.**

This facilitates a switch to low-carbon modes of transport such as walking and cycling.

Within the competence of the German federal government, the following **measures** must be taken:

- efforts to enhance the attractiveness of local public transport, such as
  - promoting innovative and promising technologies, increasing the capacity and safety of the transport systems and facilitating intermodal uses (e.g. DELFI, eTicket). More information: <http://www.delfi.de/>,
  - ensuring barrier-free access wherever possible as a quality gain for all users.
  - promoting consumer protection (e.g. strengthening passengers' rights),
- elaboration of a framework for demand-responsive mobility offers (e.g. car sharing, ride share and commuter services, alternative types of service)
- provision of funds for the benefit of local public transport within the scope of federal funding competence
- funds for the regionalisation of short-distance passenger transport by rail
- elaboration of an initiative at federal level for urban commercial transport
- support for new market development to better meet individuals' requirements for motorisation in the (near) future, with the emphasis on **EVs** for short-distance and city traffic and efficient combustion-engine-based drivetrains for longer journeys
- the **National Cycling Plan 2002-2012** covers, amongst other things, the development and extension of cycling infrastructure, which is vital in enabling cycling to become an attractive alternative to car journeys for short trips and, in addition, improves health. This will be completed by systems to rent bikes or infrastructure for cycle storage and a nationwide pilot project entitled "Innovative public bike rent systems – new mobility for cities".
- **launch of a National Traffic Noise Mitigation Package** by the Federal Ministry of Transport, Building and Urban Affairs (BMVBS) in February 2007. The package contains a raft of ongoing and new initiatives to avoid traffic noise and to protect against its impacts, for example by reducing noise emissions from vehicles of all kinds, doubling the funds for noise mitigation on the roads and railways to €50 million annually for federal highways and €100 million annually for the railways. It also includes a programme to retrofit the freight wagon fleet with low-noise composite brake blocks. The progress achieved since then provided the chance to launch a **National Traffic Noise Mitigation Package II** in August 2009. It contains additional measures such as a reduction of the noise mitigation values for federal highways by a clearly noticeable 3 dB(A) no later than 2011 (creating investment needs of up to €1.5 billion by 2020). For rail traffic, an extensive testing programme for innovative noise mitigation measures for the tracks of the federal railways has been launched (for up to €100 million totally). Furthermore a noise-related rail access charge system will be introduced within the next four years. For air traffic, a closed legal framework will be finalised in 2009 and provide up-to-date passive noise protection for residents living near airports and provide planning certainty for airports (triggering expenditures of up to €75 million for military airfields and €614 million for civil airfields).
- road safety aimed at a significant reduction of accidents

- **the National Climate Initiative** of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) . This initiative aims to tap into existing potential for emissions reductions cost-effectively and advance innovative model projects for climate protection. It includes programmes in the area of mobility such as the Zero Emission Mobility (ZEM) project and the Mobility Management project.

#### **A.5. VEHICLE EFFICIENCY AND EMISSIONS POLICIES**

Germany, as a **traditional transit country**, faces rising freight traffic volumes, which are attributable to globalisation and an increasing international division of labour. For economic and environmental reasons, it will not be possible to manage the expected additional traffic volume by specifically constructing new, and upgrading the existing, transport infrastructure. Germany, therefore, is endeavouring in particular to enhance the efficiency of the transport system and to make full use of the capacities available in an optimum way. Combined with regulatory instruments, such as tightened emission limits and the use of innovative technologies, improving the efficiency of transport is a priority field of action in efforts to achieve sustainable mobility.

The **guiding principle of “moving away from oil”** is supported by the measures contained in the German government’s Integrated Energy and Climate Change Programme, which provides incentives in particular for industry and consumers aimed at **speeding up the supply of and demand for especially energy-efficient passenger cars and creating a stable market for innovative mobility concepts**. It aims to encourage the development of innovative technologies and fuels to decarbonise transport in the medium and long term.

- Implementation of the EU directives and regulations on pollutant emissions and CO<sub>2</sub> emissions from cars and light-duty vehicles and emissions from heavy-duty trucks.
  - **Introduction of European new car CO<sub>2</sub> standards:** The instrument aims to reduce the specific energy consumption of new passenger cars by legislative measures. The EU New Car CO<sub>2</sub> Regulation (EC) No 443/2009, establishes a target of 130 g CO<sub>2</sub>/km in 2012 (with a phase-in period up to 2015) and a long-term target of 95 g CO<sub>2</sub>/km target by 2020. The regulation allows the use of so called eco-innovations which will be taken into account when measuring the CO<sub>2</sub>-emissions of a car. Therefore the regulation gives an incentive to explore all kinds of measures to reduce CO<sub>2</sub>-emissions from cars.
  - In addition 10 g CO<sub>2</sub>/km are to be achieved via non-engine-related measures such as increased use of biofuels, low-rolling-resistance tyres, control of tyre pressure systems, energy-efficient air conditioning systems and measures to reduce emissions from light duty vehicles. The Commission has now forwarded proposals for most of these measures and will shortly come up with a **framework for CO<sub>2</sub> reduction for light duty vehicles**. In this way, the automotive industry is receiving a strong push towards innovation, while at the same time the regular development cycles are taken into account.
- **Scrappage scheme:** The German scrappage scheme, worth €5 billion, provides a strong consumer incentive for buying modern passenger cars (private consumers receive a €2,500 grant to trade in vehicles that are at least 9 years old and buy a new model). The new vehicles bought in exchange for the old ones are more energy-efficient and therefore contribute to CO<sub>2</sub> reduction in the transport sector.

- **National innovation programme on the promotion of low-emission HGVs:** Government grant of a maximum of €4,250 for road hauliers to compensate for additional costs for extra equipment in order to reduce pollution emissions beyond statutory emission standards.
- Measures **to combat traffic noise** (see C. 4)
- Transport-related measures for **improving air quality:** instruments include
  - Clean air plans and action plans (low emission zone in cities, tightened limits for harmful substances, tightened limits for Euro 5/6 and Euro VI).
  - Incentives of €330 for **retrofitting of PM10 filters** (since 1 August 2009) to accelerate retrofitting of diesel passenger cars with PM10 filters before the end of 2009. This instrument focuses not only on the reduction of PM emissions but also on the strengthening of demand for PM10 filters. Alternatively, the existing instrument, involving temporary tax reduction, remains in force until the end of 2009.
- **Second Stimulus Package – R&D and model regions for EVs:** The activities within the German model regions for EVs are initially to be focused on selected clusters. They will then be gradually extended and interlinked, both within the model regions and nationwide. The clusters bring co-benefits as well, such as discussions about a reasonable framework for mobile energy supplies of the future, energy saving, energy use and supply chains. Furthermore, substantial R&D efforts are supported in all relevant fields, e.g. power train, battery, grid integration.
- **New EU Renewable Energy Directive:** Germany strongly supported the EU Renewable Energy Directive, which includes a 10% renewables target in transport by 2020. This provides a strong incentive to use alternative and sustainable fuels from renewables. At the same time, it gives a clear market signal at national, EU and international level to encourage sustainable production. (see C. 2.1 as well).

Other projects yet to be realised include, for example, a revision of the German regulation on **CO<sub>2</sub> labelling of cars** as well as the proposal for a new **Directive on tyre labelling** (COM (2008) 779, 12 November 2008).

#### **A.6. DEVELOPMENT OF ANY TRANSPORT TECHNOLOGY RESEARCH AND DEVELOPMENT (PUBLIC SECTOR OR PRIVATE)**

Research plays an important role in addressing the issue of innovative transport. Research funds are not only an investment in a clean environment but also help to create sustainable jobs in Germany.

The **revised environmental State Aid Guidelines**, which provide a 10% bonus on maximum aid intensity on eco-innovation investments (OJ No C 82, 1.4.2008), give additional flexibility and incentives.

The German government focuses on existing structures, supporting agencies and structures (e.g. German Aerospace Center (DLR), NOW GmbH, DBFZ,) in order to exchange and develop knowledge in new areas. Close links to stakeholders in the scientific community, automotive industry, component supply industry, the boards of academic advisers to the relevant Federal Ministries as well as the German Advisory Council on Climate Change (WBGU) and the German Council for Sustainable Development.

One of the main challenges ahead in transport is to build on the promising first steps and to encourage the contribution of research on future topics. The key areas in this respect are the following:

- applied research via the National Hydrogen and Fuel Cell Technology Innovation Programme (NIP) (<http://www.bmvbs.de/>, <http://www.now-gmbh.de/>), the German Biomass Research Centre (<http://www.dbfz.de/>), the Fraunhofer Institute for Environment, Safety and Energy Technology UMSICHT (<http://www.umsicht.fraunhofer.de/>), and the Helmholtz Association (<http://www.helmholtz.de/>); the use of test vehicles in day-to-day operation in cooperation with German automobile manufacturers,
- initiatives, model projects and pilot projects such as “**Shipping and maritime technology for the 21<sup>st</sup> century**”; “**Transport and transport technology**” or “**Sustainable solutions through innovative transport technologies**”. A new focus will be “Transport management 2010”; “**Traffic management system of the future – innovative transport design in dynamic networks**” to optimise road, rail and aviation by using telematics. The **European research agenda “ACARE-vision 2020”** supports the German aviation industry in finding solutions for innovative lightweight design as well as power trains and on-board systems and innovative concepts for aviation (Aviation Research Programme IV),
- climate monitoring (National Climate Data Centre, Global Precipitation Climatology Centre, Satellite Centre for Climate Monitoring and Maritime Data Centre (each centre operated by the German Meteorological Service) ([www.dwd.de/](http://www.dwd.de/))),
- further activities, such as the announcement by the Deutsche Bahn AG that it will establish a centre of excellence for environmentally-friendly rail technologies in Kirchmöser/Brandenburg.

Recently, there has been a trend towards focusing on raw materials. This includes the **EU Raw Material Initiative** (COM (2008) 699, 4.11.2008), which proposed an integrated strategy to deal with various challenges related to access to raw materials, including secondary raw materials that can be obtained in the EU through more and better recycling.

At the European level, two of the **Joint Technology Initiatives (JTI)** established under the Seventh Framework Programme for Research and Technological Development for the period 2007-2013 (FP7) address, for example, the issues of “Clean Sky” and “Hydrogen and Fuel Cells”. Both issues are linked to sustainable development.

There are already a large number of studies concerning the **sustainability of biofuels**. There is further need for research to find a suitable methodology for addressing and minimising the indirect impact of biofuels on land use and to review the effects for international biodiversity.

Helping people to make **low-carbon travel decisions in future** is still a major challenge because it involves the question of behavioural change.

The **aviation industry** has experienced increasing growth rates in recent years. In 2007, turnover surpassed €20 billion. Eurocontrol, the European organisation for air traffic control, predicts a doubling of air activities between 2003 and 2025 in Germany alone.

#### **A.7. ROAD, RAIL AND MARITIME SYSTEMS CONSTRUCTION STANDARDS AND CHANGES IN THEM, IN ANTICIPATION OF CLIMATE CHANGE IMPACTS (SEA LEVEL RISE, AND INCREASED FREQUENCY AND SEVERITY OF WEATHER EVENTS)**

The German government adopted an overall **German Adaptation Strategy on Climate Change** on 17 December 2008, which establishes a framework for action to adapt to the consequences of climate change in Germany. It describes above all the strategy of the

German federal government but provides guidance for other players, such as the federal states. The strategy is the first part of a medium-term process of cooperation with the federal states and relevant stakeholders in which the risks of climate change will be evaluated, possible measures will be addressed and adaptation strategies will be defined and implemented.

Climate change will have impacts on the transport sector, e.g. waterborne freight transport, risk management, infrastructure and new shipping technologies. This will require **policies for adapting to climate change**. Forecasting and early-warning systems and also risk management and rescue, infrastructure and shipping technology may have to be reviewed and adapted to changing conditions.

**Kliwas**, a special research programme, addresses the implications of climate change for shipping and maritime traffic.

#### **A.8. CAPACITY BUILDING NEEDS ON TRANSPORT ACTIVITY ASSESSMENT AND ANALYSIS FOR INTEGRATED PLANNING (E.G. URBAN TRANSIT, CONGESTION RELIEF, NON-MOTORISED TRANSIT, VEHICLE EFFICIENCY PROGRAMMES DEVELOPMENT, ASSESSING FISCAL INCENTIVES, INTER-MODAL FREIGHT MANAGEMENT SYSTEMS)**

Capacity building is an ongoing target with a strong relationship to and interdependence with the aforementioned challenges.

#### **Note**

This national report outlines relevant policies, activities and instruments at the national level which cover strategies for an even more sustainable German transport policy. The structure of the report is based on the theme-specific issues mentioned in the guideline document on the preparation of the national reports for CSD 18/19, anticipating the overall aim of this reporting initiative, and focusing on the proposed means of implementation. This report does not give a complete list of all relevant activities; numerous policies and activities at local authority, federal state and federal government levels as well as international partnerships are not included. The report provides an overview of activities which characterise the national profile of transport policy implementation. It does not completely cover all activities that are related to the implementation of EU legislation.