Czech Republic
National Reporting for CSD-18/19
Thematic profile: Transport

1) Policies and progress in the field of the transport access, including the rural and less populated areas

Transport is one of the key sectors of the Czech Republic's economy with substantial significance for international relations. Demand for the transport of passengers and goods have been growing constantly. Therefore it is necessary to develop legislative and economic conditions for providing public transport services and establishing transport infrastructure corresponding to growing transport demands. On the other hand it is possible to reduce traffic optional, which means decreasing trips with low added value arising from inconvenient transport system and land use planning and externalities not included in total transportation price.

An overarching document, which sets inter alia basic transport priorities and objectives, is the **Sustainable Development Strategy of the Czech Republic**, based on the Government resolution No. 1242 of 8 December 2004. Among such objectives we can count the increase in quality, efficiency and safety of the transport in the Czech Republic. The general objective follows from requirements laid on sustainable transport, reduction of dangerous emissions and noise and increase in the energy efficiency of the transport. Therefore, it is necessary to complete the construction of the basic railway and road infrastructure network (TEN-T) and connecting routes of national and regional importance.

The Czech Republic's Transport Policy for 2005 – 2013 is a complex document, which sets strategic and conceptual goals for transportation and transportation networks.

The Transport Policy stipulates what the state and its executive structures must implement with respect to international obligations, what they intend to implement with regard to social needs, and what can be implemented by financial aspects in the field of transport. The primary topics covered in the Transport Policy in terms of achieving its objectives include the harmonization of conditions in the transport market and creating conditions for improving the quality of transport based on sustainable development.

Overarching objective of the Transport Policy:

Create conditions for ensuring a quality transport with the focus on its economic, social and environmental impacts within the framework of sustainable development principles, and lay realistic foundations to initiate changes in proportions among individual transport modes.

Cross-cutting priorities:
- *Implementation of research and development results, and new, advanced technologies, including intelligent transport systems and services (telematics),*
- *Equal opportunities and social policy,*
- *Creating conditions for competitiveness in the open market,*
- *Reducing transport impacts on the environment and human health in line with the principles of sustainable development.*

Specific priorities:
- *Create conditions for ensuring a quality transport,*
- *Ensuring a quality transport infrastructure,*
- *Securing financial resources for the transport sector,*
- *Supporting transport development in regions.*

The Transport Policy contains also measures for implementation of the goals, which follow the main priorities. The transport sector is also covered by the State Environmental Policy of the Czech Republic 2004 – 2010, which specifies a number of environmental requirements such as: using alternative fuels, support environmentally friendly transport, increasing security of transportation of dangerous substances, implementing telematics systems reducing the risk of congestion, development of cycling, internalization of external costs, etc.

The upgrading of railway transit corridors is considered as a basic construction priority. At present, the modernization of transit railway corridor III and IV is in progress. As completed projects in this context we can mention the modernization of the railway transit corridor I and II which make part of the core trans-European network TEN-T. Also the passages through railway junctions are being modernized. Among those completed we can mention the passage through Děčín, Bohumín, Ostrava, Svinov and Ustí nad Labem. The passage through Kolín and Breclav railway junctions is under construction as well as the reconstruction of the Brno railway junction, etc. Apart from the above, the work is in progress concerning the provision of the interoperability of the trans-European conventional railway system in the field of command and safeguarding equipment, vocal and data service, upgrading of the traffic control on the railway infrastructure. Scope and focus of projects related to these actions will depend on the existing and expected scope of the train transport and demands for the quality of the carriage.

From the point of view of direct utilization of water transport, the Czech Republic has to reflect its geographical limits. Consequently, only a single waterway along the Elbe river flow remains as a single connection with other European waters and maritime routes. The development of the Elbe flow is however substantially limited by the national environment protection bodies.

Among other urgent objectives we can mention the following: the building of until now missing safe infrastructure for the cycle transport; modernization of the railway transport and establishing its function as a core network from the aspect of both freight and passenger transport - with respect to the reduction of external damage; increasing the energy and economic transport efficiency; reduction of dangerous transport emissions and preparation for oil break; support for public transport and network of multimodal transport terminals, including the public logistics centres based primarily on the railway transport; provision of high quality transport services and increase in the transport safety; implement telematics applications in all transport modes; introduce appropriate system of pricing policy concerning transport infrastructure; internalization of externalities - as part of transport prices.

A revision of the time horizon for the implementation of the principle of sustainable transport development based on strategic national and international documents was elaborated. The time horizon was submitted to the Ministry of Transport as a tool for the implementation and monitoring of the Transport Policy. A next step was updating the set of indicators for the Sustainable Development Strategy of the Czech Republic. For the transport sector, the two most important were selected: the Passenger transport intensity and Freight transport intensity. Both are depending on transport performance and GDP. The indicator in the Passenger transport intensity was decreasing over the last two years because of a rapidly increasing GDP. The indicator in Freight transport intensity has been also decreasing since 2003. In line with the principles of sustainable development, it is necessary to decouple GDP and transport performance. Most suitable way is increasing GDP and stabilization or decreasing transport performance. The trend of both indicators is almost in the principle of sustainable development. The indicators are part of Structural indicators, which the European Commission uses for monitoring of the Lisbon Strategy. In the Czech Transport Yearbook, there are published figures, which show the trends in the modal split of passenger and freight transport:
Modal split of passenger transport:
http://www.sydos.cz/cs/rocenka-2007/yearbook/htm_uk/uk07_511000.html

Modal split of freight transport:

http://www.sydos.cz/cs/rocenka-2007/yearbook/htm_uk/uk07_521000.html

It is especially the National Network of Healthy Cities and Agenda 21, which are focusing on rural regions. Its activities are mainly to support implementation and education of principles of sustainable development, health and quality of life in municipalities and regions (Safety trips to school, Mobility week, Day without accidents, etc.).

2) Fuel prices and tax reform

- o Removing subsides on fuel
- o Encouraging energy efficiency
- o Providing reliable alternative for the poor

The ecological tax reform (EDR) is gradually being introduced in the Czech Republic. The concept is the introduction of new excise taxes on solid fuels and electricity, to motivate the preference for environmentally friendly forms of energy, particularly from renewable sources, and greater efficiency. More important from the perspective of transport is an increase in excise taxes on fossil fuels. The concept of EDR is to increase taxes and charges on the products and services with negative impacts on the environment and human health while reducing labour taxes. It shifts the tax burden from the price of the work to environmentally harmful commodities (energy and fuel) and contributes to the active employment policy.

It should be seen as the main instrument for the shift towards sustainable development. The greening of the tax system should not be understood as a tool to penalize damaging economic practices, but also as a instrument to stimulate eco-orientation of the economy, giving impulses to innovation and development of promising sectors.

At the international level, the issue of taxing fuel for international air transport was open. In the future there should be taxation inland flights, which are significantly harmful in comparison with the rail.

In connection with the introduction of electronic tolls in the Czech Republic, the power charging of the car will be used. Currently used support of environmentally friendly vehicles is:

- Reduced rate of road tax, or full exemption from road tax on electric-powered vehicles, hybrid vehicles, vehicles on CNG and LPG and bioethanol E85,
- Reduced rate of power charging. Vehicles satisfying the stringent emission limits are paying lower rate of power charging,
- Reduction in excise duty on gaseous fuels (CNG, LPG), zero excise duty on pure biofuels. For blends of biofuels with fossil fuels, there is an excise deduction according to the proportion of biofuels,
- Introduction of a fee to support the disposal of old cars to be paid with the registration of the used vehicle in relation to the implementation of emission limits EURO measures to discourage from buying old, used and most polluting cars.

Fuels for public freight and passenger water transport are exempted from excise duty at present, in compliance with EU legislation. Also used in the water transport, in compliance with EU Directives, is standard fuel (diesel-oil) with an additive of bio-fuel. The Ministry of Transport, supporting efficient use of energy and seeking to contribute to environmental protection, in compliance with NAIDES programme implements supporting modernization programme of freight transport vehicles. It includes subsidies for the exchange of fuel units that provide the reduction of emissions and increase the efficiency of waterway freight transport. Public transport associated with recreational water transport is supported through exemption from fuel excise duty and also subsidised by communities in case of water transport as an alternative to surface transport.

3) Regional and global transport system integration encouraging efficient modes

All Czech regions (except for one) have a system of integration of public transport with a different degree of the integration. The integration is based on the collective timetables for different transport companies operating in a region and/or different modes (buses, trams, railways). Individual carriers are collaborators, not competitors, in this system. The best-integrated transport systems are developed in the capital city of Prague and the surrounding Central Bohemian region and in the Southern Moravia region, with the core in the city of Brno.

4) Urban transport planning and policies

The public urban transport operates in all cities and traditionally has a big share on modal split, although it is gradually decreasing since 1990. This trend slows down in the past years thanks to measures aimed to increase quality of public transport, such as purchases of new low-floor vehicles or tariff integration with suburban buses and trains. Another positive fact is that no tramway or trolleybus system was closed during that period. The negative trend is a continuous growth of operating costs which will not be covered by municipalities anymore. This is causing the rise of fares with negative impacts on the overall numbers of passengers. The other instruments of urban transport policy (such as mobility management, car sharing or car free housing) are only at the beginning of their wider implementation. Setting measures restrictive to the individual road transport (parking policy, congestion charging, preference of public transport and nonmotorised modes, etc.) has not yet found greater support at the political level.

The competitiveness of public transport system potentially lies in many factors, while some of them may be elucidated by the example of long-distance railway passenger transport ordered within the regime of public service obligation by the Ministry of Transport. Generally it needs to be noted that the long-distance passenger railway transport is governed by the railway timetable (called a basic integral timetable) offered to passengers. The timetable of course accepts main transport flows of all important relations of the Czech Republic (or where the corresponding railway infrastructure is available). However, it also seeks to stimulate latent demand for transport and redistribute the passengers from private cars to trains (suburban transport represents more advantageous conditions for such changes). One of the indisputable potential advantages of the timetable, besides transport-operational advantages like circulations or crossings, is the timetable with characteristic repeating times of train departures in the same time-interval, called a cycle.

Among main factors having impact on the use/non-use of trains for commuting to work, to school or visits we may include first of all the travel time, quality of railway vehicles, ticket price, inclusion of trains into integrated transport system, etc. Nevertheless, the travel time is apparently the most important factor which depends on the quality of the given railway infrastructure (in terms of the speed and capacity). The Czech railways have recorded a substantive progress in this context thanks to the construction of transit railway corridors as well as partial adjustments of lines with (supra)-regional character (electrification of lines, for example). The travel time is currently also affected by a number of obsolete railway vehicles the upgrading of which (or procurement of new ones) is supported by the Ministry of Transport through the vehicle renewal programme.

The radial connection Prague – Usti nad Labem can serve as a typical example of growing competitiveness of the railway with the individual transport. Thanks to the reconstructed railway corridor (and its speed and capacity parameters), it is possible to operate the given area with a multi-segment transport. The first (higher) segment is constituted by a line connecting main residential agglomerations (Prague and Usti nad Labem). The second (lower) segment provides transport service for regional centres and their connecting lines (Kralupy nad Vltavou, Hnevice – Steti, Roudnice nad Labem, Lovosice - Litoměřice), a system based on the application of the basic integral timetable. The results

of this transport arrangement may be illustrated by data on the development of tickets sold for the relation in question. The data were provided by the Czech Railways, joint stock company (a contractual carrier), to the Ministry of Transport. From the period with one-segment transport service on the relation concerned up to the present time of two-segment service (60-minute interval at rush hours), the development of the number of passengers as an index of the change is as follows: 2002 = 100 %; 2004 = 109 %; 2006 = 152 %; 2007 = 184 %; 2008 = 325 %. Even if the data on the modal shift within the relation are not available at the Ministry of Transport, the above development can be considered as successful with regard to the objective competition of private car transport making use of the D 6 motorway.

Water transport in cities is particularly limited to passenger recreational navigation or ferries within urban transport services. Waterway freight transport offers its services primarily to the building industry in the centre of the capital city of Prague (collection of demolition materials) as an alternative to undesirable road transport in the cities with access to water transport.

5) Vehicle efficiency and emissions policies

The Czech Republic implemented the Decision No. 1753/2000/EC of the European Parliament and of the Council establishing a scheme to monitor the average specific emissions of CO_2 from new passenger cars that gives an overview about the current state and trends of gradual decrease of these emissions to achieve the value of 120 $g.km^{-1}$. Emission limits EURO are accepted in the Czech Republic and the latest regulation No. 715/2007 of the European Parliament and of the Council on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information will enter into force on 1 September 2009. A novel of the Act No. 56/2001 Coll. is being prepared including improvement of vehicles technical state and emissions production controls. The improvement of the obsolete fleet of the freight waterway transport is supported by the involvement of the Ministry of Transport in the implementation of NAIDES programme of modernization of vessels. The programme covers the exchange of fuel units, subsidies for radar and steering equipment, renewal of plating of vessel hulls, increase of vessel mouths, etc.

6) Development of any transport technology research and development (public sector or private)

The Transport Research Centre (CDV) has dealt and deals with several projects of the Ministry of Transport focusing on sustainable transport including the next R&D project "Indicators utilization for regional development assessment according to sustainable transport". The goal of this project is to create a set of indicators for an assessment of regional development in line with the principles of sustainable transport, including methodology for elaboration and evaluation of these indicators. The project includes pilot studies with a practical application of proposed indicators set in selected localities.

- The R&D project „Investment optimisation for nature protection during building and reconstruction of road and railway infrastructure in the Czech Republic". The project outcome will be a methodology of investment optimisation.
- The COST 341 project "Habitat fragmentation due to transport infrastructure". The main objective is to promote a safe and sustainable pan-European transport infrastructure through recommending measures and planning procedures with the aim of conserving biodiversity and reducing vehicular accidents and resulting fauna casualties. The international handbook „Wildlife and Traffic – An European Handbook for Identifying Conflicts and Designing Solutions" is a very important outcome.
- The COST 350 project "Assessment of environmental resistance concerning the transport" focused on integral evaluation of environmental impacts of transport on model area, incl. evaluation of possible measures towards decreasing the negative impacts on the environment.

- The COST 356 project „Environmentally sustainable transport in the sensitive areas - assessment and implementation" focused on production and validation of assessment criteria of sensitivity of regions with a special regime of protection as well as impacts of transport on the environment.

CDV is a member of several international organizations active in the field of sustainable transport development. The Central European Initiative (CEI) allows making available important information from this group to specialists in the Czech Republic, including the possibility of collaboration on research projects (project "Promotion of the CDV membership in working group on Environment and Transport"). CDV prepares materials for the Transport, Health and Environment – Pan-European programme (THE PEP) Clearing House web page (project „The promotion of the CDV membership on the Pan-European Programme Transport, Health and Environment").

The Ministry of Transport is also responsible for the area of satellite systems. A main contribution of systems of satellite navigation is not only the exact positioning of the means of transport but also the provision of adequate high quality and guaranteed service for applications supporting the management and organization of the transport process as a whole. Intelligent transport systems (ITS) are typical for such applications in the transport sector. ITS may contribute to the reduction of negative environmental impacts. As modern control systems, ITS may provide better traffic control (notably on highways) and accordingly better utilization of energy by a smooth movement of the traffic flow. Furthermore, ITS may contribute to the improvement of quality and attractiveness of public transport. Another example how to use ITS for the improvement of the environment may be equipment (technologically feasible today) making possible to monitor the amount of emissions produced by moving vehicles. This could be used in the future for electronic toll systems, for instance.

7) Road, rail and marine systems construction standards and changes in anticipation of climate change impacts (sea level rise, and increased frequency and severity of weather events)

In the Czech Republic, the EURO emission standards are valid in the road transport. At present new vehicles must meet EURO 5 emission limits. In the air transport, aircrafts must fulfil the ICAO standards. The Czech Republic does a greenhouse gases emissions inventory covering all transport modes every year. A specific methodology of emission calculation, which has been created by the Transport Research Centre and approved by the Ministry of Transport, is used for the inventory. The calculation is based on fuel consumptions, transport volumes and a set of measured emission factors. Also, the air transport joined the worldwide emissions trading system, which should provide financial benefits to the airlines with a less emitting vehicle fleet. The climate change in the sector of inland waterway transport shows increasing fluctuation of precipitation having impact on variable river flows serving as waterways. For this reason the need to stabilize navigation conditions, particularly on the Elbe at the Czech-German state borders, is still more urgent.

8) Capacity building needs on transport activity assessment and analysis for integrated planning (e.g. urban transit, assessing fiscal incentives, inter-modal freight management systems)

CDV successfully participated in the European Social Fund (ESF) project "Increasing qualification in the field of transport" that was realized in cooperation with VŠB-Technical University of Ostrava. The project was focused on human resources development with the goal of progressive enhancement of professional occupation in the field of transport sector. Training courses prepared within the framework of lifelong learning were realized to create a high quality corporate educational and research and development base covered by a specialist for this issue. CDV cooperates with many important European and worldwide research institutions and associations and within its activities it contributes to the transformation of basic and application research results into the practice. CDV is also

one of the founder members of Environmental Education Centre (KEV, member of UNESCO centres) that is an association of schools and institutions as well as pedagogues and persons interested in ecological education in line with the principles of sustainable development. CDV in cooperation with this association organizes seminars and workshops and its employees regularly participate in these courses with presentations focusing on specific issues such as "Transport and environment, cross-sectional framework educational programme issue" and "Transport and environment, cross-sectional school educational programme issue". The collaboration results were also published in informative and methodological guidelines for cross-sectional topics "Transport and environment for primary schools" and "Transport and environment for secondary schools".