



Department of Economic and Social Affairs

Commission on Sustainable Development  
Ninth Session  
16 - 27 April 2001, New York

**TRANSPORT AND SUSTAINABLE DEVELOPMENT  
IN THE ECE REGION**

BACKGROUND PAPER NO. 11

Prepared by the  
Economic Commission for Europe (ECE)

# **TRANSPORT AND SUSTAINABLE DEVELOPMENT IN THE ECE REGION**

## **I. Introduction**

During the past decades, ECE member countries, particularly in Western Europe, have experienced an economic growth which has led to unprecedented levels of prosperity and welfare but also to environmental and health problems. The transport sector has substantially contributed to both effects. In Central and Eastern European ECE member countries, after decades of economic stagnation and environmental neglect, the transition process initiated a decade ago has led to a healthier economic situation and to an increased awareness of environmental problems. However, the evolution of the transport sector towards a substantial shift to road transport in these countries, while important for economic development, may aggravate environmental problems if appropriate measures are not taken.

## **II. Transport and sustainable development in the ECE region**

### *1. Transport and socio-economic development*

Transport is indispensable for the well functioning and development of economic activities, for the production and distribution of goods and services as well as for trade. Transport has, therefore, been at the very basis of the economic development in western European ECE member countries in the past decades, contributing to the economic prosperity and social well-being of their citizens. In particular, it has played a most strategic role in the opening up of peripheral and isolated ECE countries and regions and in their integration into the national, European and/or global economy. The transport sector has itself become an important sector of the economic activity in western European ECE countries where it accounts on average for about 7% of GDP and for more than 10% of employment. Furthermore, the transport equipment industry, in particular the motor vehicle industry, is one of the most important and dynamic industrial sectors in many ECE countries.

For these reasons, transport has always been a strategic area of responsibility of ECE Governments, which have played a major role in facilitating mobility and accessibility, including through the supply of transport services. ECE Governments are more recently limiting their role to the planning of infrastructures and the establishment of a regulatory framework within which mobility and transport services can become safer, more efficient and more environmentally sound. With the growing concern of the long-term sustainability of transport developments, ECE Governments are also committed to strengthen their integrated efforts to this end.

Transport has also played a major role in the economic development and integration of the ECE region as a whole through the facilitation of international transport. The notion of international transport is particularly relevant in Europe, which, in contrast to other continents, is divided into numerous countries and where the movement of persons and goods often implies the crossing of one or more borders.

Road transport is, of all modes of inland transport, the one which has increased the most in the ECE countries in recent times, at both national and international level, while other more sustainable modes of inland transport, such as rail, public and inland water transport, have stagnated if not declined. Current transport deregulation policies in ECE member countries and the still widely felt aspirations of populations, particularly in Central and Eastern European countries, to personal mobility after decades of lack of alternatives in transport are expected to lead to a continuous growth in road transport in the years to come.

## *2. Environmental impact of transport systems*

In the ECE region, transport has also led to environmental and health concerns. Indeed, transport consumes energy and causes air, water, soil and sea pollution as well as noise and vibrations. With regard to air pollution, transport is responsible for emissions of CO<sub>2</sub>, NO<sub>x</sub>, VOCs, HC, CO, lead, particulates and SO<sub>x</sub>. Road congestion, particularly in large urban areas and along main transport corridors in ECE countries, aggravates the situation. Noise in the vicinity of airports also raises concerns. In the ECE region, transport accounts for a large share, and an increasing one, of the total final energy consumption. Transport infrastructures, while badly needed in Central and Eastern European and in peripheral ECE countries for development, adversely affect the environment through land taking and visual intrusion, and in some other ECE countries the construction of new infrastructures faces increasing opposition.

Of all modes of inland transport, road transport is clearly the mode which has the biggest environmental impact in terms of energy consumption and air pollution. Road transport is responsible for important shares of CO<sub>2</sub>, CO, NO<sub>x</sub>, VOC, HC, lead, particulates and a smaller share of SO<sub>x</sub>. A large part of all pollutants from road transport is released in urban areas. Although, rail and inland transport account for comparatively less environmental externalities, railways cause noise and vibrations but also pollution, both directly (diesel traction) and indirectly (electric traction). Inland navigation causes water and air pollution. Air transport causes noise and vibrations, but also gaseous emissions which, for being released at high altitude, are considered to be particularly harmful. Additionally, air transport presents the highest specific energy consumption of all transport modes. Maritime transport causes sea pollution through accidents and discharges as well as air pollution. Finally, the transport of dangerous goods represents a potential risk for the environment through accidents.

ECE Governments are aware that, if they want transport to continue to play, both at national and regional level, its economic and social role in future, they must promote a development of the transport system which is compatible with sustainable development.

## **III. The role of the ECE**

The Plan of Action recently adopted by the ECE has confirmed that, in the field of transport, the ECE is a forum for cooperation among member Governments, with the overall objective to facilitate and develop international transport while improving its safety and environmental performance. Since its creation in 1947, the ECE has provided a major contribution to this endeavour. It has done so mainly through the development and continuous updating of a set of international legally binding Agreements and Conventions covering a broad

range of transport issues. These ECE legal instruments have defined coherent pan-European infrastructure networks for the various modes of inland transport, simplified border-crossing procedures and established commonly agreed transport safety and environmental regulations.

The ECE has played and continues to play a key role, in particular, in the improvement of the safety and environmental performance of newly manufactured motor vehicles. In the framework of the ECE Inland Transport Committee, the Working Party on the Construction of Vehicles (WP.29) has developed a number of ECE Regulations annexed to the so-called 1958 Agreement, which set up specific emission limits for the various gaseous pollutants and noise as well as requirements on energy consumption. Motor vehicles manufactured in countries Parties to the 1958 Agreement and applying those Regulations comply with those limits and requirements. These ECE Regulations are constantly updated to keep pace with the best available technology and respond to demands from society for increased environmental protection. The emission limits for CO, HC, No<sub>x</sub>, VOC and particulates established in the latest ECE Vehicle Regulations in force are considerably lower than those in force thirty years ago. Also lower is the level of noise, measured in acoustic power, and fuel consumption, directly linked to CO<sub>2</sub> emissions. The impact of these abatements in the improvement of air quality will be more noticeable as old, highly polluting vehicles are replaced progressively with the new, much cleaner ones. WP.29, which has recently become the World Forum for Harmonization of Vehicle Regulations, will in future develop global regulations, which may be expected to further reduce emission limits of motor vehicles and introduce new less polluting fuels.

The ECE has also played a role in promoting the development of more environmentally sound transport modes such as rail, inland water and combined transport and has developed a number of related legal instruments to this end, including the AGC, the AGN and the AGTC respectively.

It is widely admitted that the full and effective implementation of these ECE legal instruments on transport in Central and Eastern European as well as Caucasus and Central Asian member countries would make transport systems in those countries more efficient, safer and more environmentally sound.

ECE governments, in the framework of the Convention on the Long-Range Transboundary Air Pollution and its related eight Protocols, have established requirements and limits for the overall emissions of gaseous pollutants produced by all kinds of sources and sectors, including transport. The Protocol to Abate Acidification, Eutrophication and Ground-level Ozone adopted in Gothenburg (Sweden) in 1999, sets differentiated emission ceilings for 2010 for sulphur, No<sub>x</sub>, VOCs and ammonia, which were negotiated on the basis of assessments of pollution effects and abatement options. Once the Protocol is fully implemented, Europe's sulphur emissions should be cut by at least 63%, its No<sub>x</sub> emissions by 41%, its VOC emissions by 40% and its ammonia emissions by 17% compared to 1990. The Protocol also sets tight limit values for specific emission sources (including cars and lorries) and requires best available techniques to be used to keep emissions down. Guidance documents adopted together with the Protocol provide a wide range of abatement techniques and economic instruments for the reduction of emissions in the relevant sectors, including transport. Scientific work has started to

prepare for incorporating also fine particulate matter pollution into the Gothenburg Protocol, when it is up for its new review, scheduled for 2004.

The ECE Convention on Environmental Impact Assessment in a Transboundary Context (1991, Espoo Convention) prescribes measures and procedures to prevent, control or reduce any significant adverse effect on the environment, which may be caused by a proposed activity e.g. in the field of transport. Furthermore, in order to integrate environment and health issues into policies, plans and programmes of the economic sectors including transport, the ECE is in the process of developing a legally binding instrument on Strategic Environmental Assessment.

More recently, in 1997, the ECE organized in Vienna a Regional Conference on Transport and Environment, where Ministers and high level officials of both the transport and environment sectors sat together for the first time in an international forum. The Conference adopted a Declaration by which ECE Governments committed themselves to «undertake to reduce the negative impact of transport on the environment and human health by promoting measures to reach volumes and patterns of transport which are compatible with sustainable development». To this end, the Declaration set up a comprehensive strategy, which included : promotion of less polluting vehicles and fuels ; promotion of transport efficiency ; protection of sensitive areas ; promotion of sustainable urban transport ; safe transport of dangerous goods ; and prevention of water pollution. It also included improved land use planning. The Conference also adopted a Programme of Joint Action and endorsed two new legal instruments, one aimed at adopting uniform norms for periodical technical inspections of vehicles, and another to promote combined transport on inland waterways. In addition, the Conference endorsed amendments which will oblige heavy commercial vehicles in international traffic in Europe as from 2002 to comply with the emission standards in force at the date of their manufacture and/or to have passed periodical technical inspections. A network of national Focal Points has been established and a number of Lead Actors volunteered to undertake specific elements of the Programme of Joint Action. A Joint Meeting on Transport and Environment, comprised mainly of the members of the Bureaux of the Inland Transport Committee and the Committee on Environmental Policy, is steering the follow up to the Vienna Conference. An Ad hoc Group of Experts has been created to assist in this task. A mid-term review meeting is foreseen in 2002.

The Third Ministerial Conference on Environment and Health (London, June 1999) adopted a Charter on Transport, Environment and Health, in which member countries of the WHO's European region confirmed their commitment to making transport sustainable for health and the environment. The ECE is also participating in the follow up and monitoring of the implementation of the Charter's Plan of Action, which requests for a number of specific transport, environment and health related "products" to be delivered by the Fourth Environment and Health conference to be held in Budapest in 2003. In this context, ECE and WHO have provided jointly a report which reviews the relevant international response to date in priority areas for the transport sustainable for environment and health and contains recommendations for further action in these fields. The recommendations include developing of a new legal instrument focusing on integration of environment and health concerns into transport policies and decision making and urban areas, further development of existing international instruments as well as closer cooperation with other organizations and projects. Decisions on further steps are expected

to be taken at a High-level meeting of ministers of transport, environment and health or their representatives, which will be held in Geneva on 4 May 2001.

While these efforts have already produced noticeable results and progress is continuously made, a number of causes of concern remain. First and foremost, the reduction in energy consumption of new vehicles achieved through technology and regulation has been largely offset in the ECE region by a sharp increase in the number and engine power of vehicles in recent years. This problem will require further technological research, including on new less polluting fuels and engines, but also economic incentives to encourage the use of low-consumption vehicles and wider transport and urban planning decisions. Second, the latest vehicle emission limits adopted are not mandatory in all ECE countries. Third, these emission limits concern newly manufactured or yet to be manufactured vehicles, while a large part of the existing vehicle park, particularly in Central and Eastern European ECE member countries, is comprised of older, more polluting vehicles. The transfer of part of road traffic of goods to other modes of inland transport appears to be less easy than desirable and will require considerable improvement in the efficiency and reliability of these modes, including in their infrastructures.

Coherent, integrated and long-term solutions, which assure the commitment and involvement of all the relevant actors at the international, national, regional and local levels are crucial for assuring in future an efficient transport sustainable for health and the environment. Such an approach is currently being considered by ECE Governments. It involves reinforcing of the implementation of existing legislation and the development of relevant monitoring mechanisms. It also requires better transport demand management as well as land-use- and urban planning. Finally, development of the necessary mechanisms at the national level to achieve the desired level of cross-sectoral integration might be facilitated by an overarching integration strategy common of all ECE member countries.