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**Overview of Instruments Relevant to Transport, Environment and Health and
Recommendations for Further Steps**

Synthesis Report

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List of Abbreviations and Acronyms

CEE	Central and Eastern Europe
CEI	Central European Initiative
COWI	COWI Consulting Engineers and Planners AS
CSD	Commission on Sustainable Development
EC	European Commission
ECF	European Cyclists' Federation
ECMT	European Conference of Ministers of Transport
EEA	European Environment Agency
EIA	Environmental impact assessment
EU	European Union
FIELD	Foundation for International Environmental Law and Development
ICAO	International Civil Aviation organization
IGO	Intergovernmental organization
IMO	International Maritime Organization
INFRAS	Consulting Group for Policy Analysis and Implementation, Zurich
ISDE	International Society of Doctors for the Environment
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
POJA	Programme of Joint Action
REC	Regional Environmental Centre
SEA	Strategic environmental assessment
T&E	European Federation for Transport and Environment
TERM	Transport and Environment Reporting Mechanism
UNCED	United Nations Conference on Environment and Development
UN/ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UIC	International Union of Railways
WHO	World Health Organization

Executive Summary

At the Third Ministerial Conference on Environment and Health (London, 16 -18 June 1999), Ministers of the European region decided to improve and harmonize the implementation of existing legislation and policy responses related to environment and health problems caused by transport and to further develop them as needed. They also judged it appropriate to consider the feasibility of new international action, in so far as it would not overlap with but bring added value to and use the synergies of the actions already taken or being prepared. Consequently, the Ministers called on WHO and UN/ECE, jointly and in cooperation with other international organizations, to provide an overview of relevant existing agreements and legal instruments recommending which further steps were needed. This report has been drawn up to comply with the Ministers' request.

The report provides, in its first chapters, an assessment of trends and driving forces in transport development as well as of impacts of transport on human health and the environment. The essential role of transport in economic and social development and in the creation of wealth of our societies is fully acknowledged. The transport sector contributes considerably to economic growth. Furthermore, the improved efficiency and quality of transport services have opened up new markets by reducing the costs and risks for traded goods. The continuing expansion of transport, heavily dominated by road transport, however, raises serious concerns about the long-term sustainability of present mobility trends. Indeed, transport volumes and the number of motor vehicles in Europe have been growing steadily over the past 30 years. This growth is propelled by a complex combination of economic, socio-demographic, spatial, technological and other factors; higher disposable income, technological development, internationalization and reduced barriers to international trade, decreasing costs of transport, perceptions of costs, changes in patterns of production and consumption, as well as social factors such as increased leisure time and changes in lifestyles.

The increasing evidence of the environmental and health effects of transport places the transport-related issues at the top of the international political agenda. Traffic accidents are a major cause of death and disability and noise from traffic affects increasing numbers of citizens. Air pollution from transport is the cause of some of the best known environmental impacts and is associated with a heavy health burden. Most of the impacts appear close to the place where pollutants are emitted, for instance in dense traffic zones in urban areas. Other pollutants travel over long distances, some thousands of kilometres, before they are deposited on the ground, causing damage to sensitive ecosystems. Some of the effects of pollution originating from transport become apparent only after a considerable lapse of time and have global impacts, e.g. on climate, regardless of where the emissions originate.

Consequently, the subsequent chapters of the report focus on priority areas where further action is deemed both necessary and effective to encounter the environmental and health impacts of transport. The identified key challenges are integration of the transport, environment and health sectors, in particular in relation to decision-making processes, monitoring and impact assessment as well as the transport-related environment and health problems in urban areas, involving measures in land-use planning, demand management, intermodality and noise reduction.

The Governments have actively addressed a wide range of issues in transport, environment and health, at both international and regional levels, by means of numerous legal instruments and policy responses. But even though all of these instruments and policy actions are necessary and represent important steps forward, further action is needed. An overview of the international response to date highlights a number of “gaps” in the existing legislation addressing the key challenges identified as well as the lack of a Europe-wide strategy fostering cross-sectoral cooperation and synergies in terms of policies and legislation.

Recommendations for a stronger response in the priority areas are presented in the final chapter of this report. These recommendations are to serve as a basis for decisions to be taken at the high-level meeting of representatives of transport, environment and health ministers, to be held in May 2001. Three major types of action are distinguished:

- A new international legal instrument, viz. a framework convention on transport sustainable for health and the environment, focusing on integration and urban areas;
- Further development of existing international instruments;
- Closer cooperation with other organizations and projects.

Launching a negotiation process for a framework convention on transport sustainable for health and the environment is recommended as an adequate way of addressing the transport-related environment and health problems associated with integration and urban areas. Tackling key challenges for sustainable transport requires 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. Filling gaps in the scope and implementation of the existing legal instruments and policy responses alone does not seem sufficient. An overarching approach would be required to bring together all the actors involved and use the synergies of international actions that aim to promote similar goals in Europe and within national administrations.

Secondly, urban areas, where most transport activities take place and where the exposure of the population to transport-related impacts is the highest represent a particularly challenging area for further action. Areas where value could be added to present activities include in particular land-use planning, traffic-demand management and market creation for more sustainable transport. Further impetus also needs to be given to the development and promotion of public transport and to a modal shift from motorized transport to cycling and walking. The large health and environmental benefits that can be derived from encouraging cycling and walking in urban areas have not yet been given sufficient prominence in decision-making. The regulation of overall noise reduction, particularly in urban areas throughout Europe, would fill a gap in the existing international legislation.

The framework convention is proposed as the most appropriate and effective normative approach for addressing these key challenges at the pan-European level for various reasons. The advantage of the framework convention lies, first of all, in its flexibility; rather than just attempting to codify an inter-sectoral regime, it allows for progressive specification of commitments among those parties that are ready and able to move ahead. The framework convention may in addition be used to foster broad consensus around the relevant facts and the appropriate international and national response. What is more, a framework convention approach is in line with recent developments in international law, as it seems adapted for addressing also issues where subsidiarity is of specific concern, allowing, for example, policy directions to be developed on the basis of best practices to be applied at both national and local levels.

In parallel to negotiating a new international instrument, it is recommended to improve the implementation of existing international agreements and legal instruments related to transport, health and environment and to further develop them. The report contains specific recommendations for amending a number of these legal instruments. The recommended actions should be carried out with the greatest possible involvement of the three sectors. This approach, supplemented with improved monitoring and implementation mechanisms, would contribute to a more efficient transport system sustainable for health and environment.

Thirdly, much can be achieved through existing institutions and some of the gaps identified in the international response to date may best and most rapidly be filled by using ongoing activities and further strengthening cooperation between the relevant organizations and projects.

Introduction

A. Background

1. The long-term sustainability of transport developments has been a growing concern in the international debate on sustainable development.
2. In 1992, Agenda 21, adopted by the United Nations Conference on Environment and Development, identified transport as a key priority for action at national and international levels. The UN/ECE took up the challenge by launching a preparatory process that led to the adoption of the Vienna Declaration and its Programme of Joint Action (POJA) at the Regional Conference on Transport and the Environment in 1997.
3. The UN/ECE Inland Transport Committee has addressed the safety and environmental problems created by inland transport mainly by drawing up international legal instruments aimed at reducing the specific problems of road transport and at promoting more sustainable modes of transport. The most relevant UN/ECE legal instruments are the Conventions on Road Traffic and on Road Signs and Signals and the European Agreements supplementing them as well as the 1958 Agreement on the construction of vehicles.
4. Transport ministers have also been addressing these concerns within the Council of the European Conference of Ministers of Transport (ECMT), starting with the 1989 "Resolution 66" on Transport and the Environment.
5. During the preparation of the Third Ministerial Conference on Environment and Health¹ (London, 16-18 June 1999), the environment and health ministries of the member States of the WHO European Region identified, through a questionnaire, issues related to transport, environment and health as key priorities. This resulted in the decision to start a negotiation process involving transport, environment and health ministries which led to the adoption of the Charter on Transport, Environment and Health at the London Conference. In it countries confirmed their commitment to making transport sustainable for health and the environment. They further committed themselves to the follow-up and monitoring of the implementation of the Charter's Plan of Action. Among other things, the Ministers invited:

"WHO and UN/ECE, jointly and in cooperation with other international organizations, to provide an overview of relevant existing agreements and legal instruments, with a view to improving and harmonizing their implementation and further developing them as needed. A report of that overview should be submitted at the latest by spring 2000, recommending which further steps are needed. The report should cover the possibility of new non-legally binding actions and the feasibility, necessity and content of a new legally binding instrument (e.g. a

¹ Environment and Health Ministers of the Member states of the WHO European Region work together in a common process of joint ministerial conferences. The first two were held in Frankfurt in 1989 and in Helsinki in 1994.

convention on transport, environment and health) focusing on bringing added value to, and avoiding overlaps with, existing agreements.

A decision on negotiation of such an instrument shall be taken as soon as possible after the submission of the report, at a meeting of ministers of transport, environment and health of Member States or their representatives, convened for that purpose by WHO and UN/ECE at the latest by the end of the year 2000."

B. Work Undertaken

6. To comply with the Minister's request, WHO and UN/ECE have, with the assistance of consultants and the support of the Danish Ministry of the Environment, the French Ministry of Spatial Planning and Environment, the Swiss Agency for the Environment, Forests and Landscape and UNEP, produced a number of background papers, namely:

- *Political targets and objectives for transport, environment and health contained in major regional declarations*, spearheaded by UN/ECE (ECE Political Targets document);
- *Inventory of agreements and legal instruments relevant to transport, environment and health*, prepared by COWI under the supervision of UN/ECE and WHO, and with funding from the Danish Government (COWI Inventory);
- *Review of implementation and effectiveness of existing policy instruments on transport, environment and health, and of their potential for health gain*, prepared under the supervision of WHO and with support from the French Government and UNEP (WHO Implementation Review).

7. The first two documents were presented and discussed at a joint WHO-UN/ECE meeting in Geneva on 9 February 2000, at which it was agreed to:

- (a) Review the implementation / enforcement of existing legal instruments, and assess their effectiveness in meeting set political objectives and targets;
- (b) Focus on instruments that address cross-sectoral integration, including the involvement of health authorities in decision-making processes in transport policies;
- (c) Describe the potential health impacts of existing policy instruments; and
- (d) Identify priorities (among the issues addressed in the Charter and the Vienna Declaration), focusing on their political and legal dimensions in order to identify gaps, and recommend ways to fill them.

The WHO Implementation Review sought to cover the above-mentioned work.

8. At a second joint WHO-UN/ECE meeting held in Geneva on 7 June 2000, it was agreed to:

- (a) Complete the identification and analysis of gaps in existing instruments;

(b) Set up an informal working group consisting of international organizations (UNEP, REC, OECD, EC, ECMT), member States (Hungary, Denmark, United Kingdom) and non-governmental organizations (T&E, ISDE) with the task of cooperating closely with the UN/ECE and WHO secretariats in producing the report on gap analysis;

(c) Prepare a synthesis report that draws on earlier background documents, including the completed gap analysis, and provides possible recommendations to Ministers on next steps to be taken, as requested in the London Declaration and the Charter.

9. On 11 July 2000 an informal working group meeting was held in Geneva to enable the interested member states and international organizations to discuss further:

- The adequate criteria for identifying priority areas for action;
- The methodology for further analysing the gaps in the international legislation with respect to the priority areas; and
- The ensuing recommendations for further action.

10. A third WHO–UN/ECE meeting was held on 5 September 2000, to review and comment on the draft synthesis report prepared by the secretariats. The Meeting:

(a) Agreed that the comments and inputs provided by the member States and the other interested stakeholders during and after the meeting would be duly considered by the two secretariats in the finalization of the report;

(b) Agreed that the high-level meeting of transport, environment and health ministers or their representatives to be convened to decide on the recommendations of the report would take place in Spring 2001;

(c) Emphasized the importance of having concerted country positions for the recommendations and urged the participants to proceed to the necessary intersectoral consultations in time for the high-level meeting.

Synthesis report

11. The present report has been prepared to comply with the request of the London Ministerial Conference, and is in accordance with the advice given by the member States and the organizations present at the three joint WHO-UN/ECE meetings.

12. The report focuses on a list of priority areas for further action, and reviews the international responses in these areas. It further discusses the possibility of new non-legally binding actions; the feasibility, necessity and content of a new legally binding instrument; and other measures, such as improvements to existing instruments.

13. The recommendations contained in this report serve to inform a meeting of ministers or their representatives to be convened by the WHO and UN/ECE, as requested by the Charter on Transport, Environment and Health and by the London Conference Declaration.

14. This report comprises an executive summary, an introduction and five report chapters:

- Chapter I, describes important trends and driving forces in transport development;
- Chapter II, outlines the environmental and health effects of transport;
- Chapter III, presents the key challenges to the attainment of more sustainable patterns of transport and a closer integration of environmental and health concerns into transport policies;
- Chapter IV, reviews the international response to the key challenges identified, including the main shortcomings and deficiencies of the international response to date; and
- Chapter V, outlines the key recommendations for a stronger response.

15. This report describes only succinctly the broad topic of internalization. There is wide agreement regarding the need to internalize the external costs of transport. Measures to that effect tend to reduce negative health and environmental impacts and congestion while allowing private choices under liberalized transport market conditions.

16. A number of recommendations have been discussed to promote the internalization of external costs. They include, for example, the introduction of a new road-pricing system for heavy-duty vehicles, based on infrastructure and external costs, the earmarking of revenues from road use or fuel taxes to finance public transport infrastructure on the national level or local initiatives to improve public transport, traffic calming and facilities for pedestrians and cyclists, or establishing mechanisms whereby car insurance premiums reflect more accurately the true risks and the full costs of accidents.

17. Due to its complexity, the issue merits a review in its own right. More extensive analysis should be undertaken to provide a sufficient basis for specific recommendations on further measures that would promote internalization.

18. The main focus of this report is on motorized road transport, as this accounts for the largest share of both passenger and freight transport. In addition, of all modes of transport, road transport is the one that has the biggest environmental and health impacts.

19. This report is the result of the joint efforts of the WHO and UN/ECE secretariats. The secretariats wish to thank the Danish, French and Swiss Governments and UNEP for providing assistance for the various background studies and consultancy mandates necessary to produce this synthesis report.

20. The secretariats also wish to acknowledge the expert contributions from ECMT, OECD, UNEP, ECF, FIELDS, INFRAS and ISDE to completing this overview of instruments relevant to transport, environment and health.

21. The secretariats further wish to acknowledge the contributions and constructive input received from member states, international organizations and non-governmental organizations during and after the three joint WHO – UN/ECE meetings.

I. TRENDS AND DRIVING FORCES IN TRANSPORT DEVELOPMENT

22. Transport plays an essential role in economic and social development and in the creation of wealth of our societies. It ensures access to jobs, housing, goods and services and provides for the mobility of people. Efficient transport services are also a sine qua non for European economic and social integration and for the opening-up of peripheral and isolated regions.

23. However, the continuing expansion of transport, heavily dominated by road transport, raises serious concerns about the long-term sustainability of present mobility trends. In particular, the increasing evidence of the substantial environmental and health effects of transport (further discussed in chapter II of this report), places the need to address effectively transport-related issues at the top of the international political agenda.

A. The economic aspects of transport development

24. In line with economic and social development in Europe and with the integration of the European economies and societies, transport and particularly the international transport of goods and people have increased steadily in the past years. The transport sector accounts today for close to 10% of GDP and employment in Europe.

25. The transport sector is a major economic actor and contributes considerably to economic growth. The improved efficiency and quality of transport services, particularly road and air transport, in an increasingly liberalized and competitive market environment have opened up new markets by considerably reducing the costs and the risks for traded goods. Furthermore, the transport industry itself, and in particular the manufacturers of motor vehicles, vehicle parts, accessories and auxiliary services, constitute in Europe today one of the most important sectors of industrial and, increasingly, service development.

26. However, the transport-related external costs, i.e. costs, that are not paid for by those creating them, are likewise estimated by recent studies in the order of nearly 10% of GDP, or 658 billion euros in west European Countries.² These figures are probably underestimated, because they consider only some of the impacts of transport (accidents, environmental impacts and

² In this estimate, west European countries include the 15 EC Member States, Norway and Switzerland. “*External costs of transport (accidents, environmental and congestion costs) in western Europe*”, INFRAS Zurich, IWW University of Karlsruhe, 2000.

congestion) and fail to include others (such as the effects on physical activity and psycho-social effects).

27. In the past decades, Governments have increasingly limited their role to the supply of the basic transport infrastructure and to the creation of national and increasingly international regulatory frameworks within which market forces improve the efficiency of transport services, thereby determining the demand for and supply of transport as well as its modal split in favour of road transport.

28. From the economic point of view, infrastructure investments should be added to the external environmental and health costs. As individuals are not faced with the full costs of transport use their decisions will not automatically maximize the well-being of society as a whole. This results in the misuse of resources, affects the efficient operation of markets and may promote environmentally unfriendly behaviour.

29. Many of the environmental and health disbenefits of the current transport systems fall disproportionately on the more vulnerable individuals of the population. Inappropriate investments might lock future generations into excessively unhealthy lifestyles.

B. Trends in transport development

30. Overall, significant progress still remains to be made in Europe to achieve more sustainable transport patterns and a closer integration of environmental and health concerns into transport policies. The recent Environmental Signal 2000 and TERM study of EEA,³ the EST project of OECD⁴ and the UN/ECE Environmental Performance Reviews (EPRs) show a number of disquieting trends.

31. Transport volumes and the number of motor vehicles in Europe have been growing steadily over the past 30 years. In the European Union, passenger and freight transport have more than doubled over the past 25 years and car ownership is approaching the figure of one car for every two inhabitants.⁵ The pace of this growth follows that of GDP. Recently, these trends have been found particularly alarming in a number of central and east European countries⁶ due to the expected strong economic growth⁷ and the historical evidence that indicates a strong correlation

³ *Environmental Signal 2000* (EEA, 2000) and *Are we moving in the right direction? Indicators in transport and environment integration in the EU. TERM 2000* (EEA, 2000).

⁴ *Indicators for the integration of environmental concerns into transport policies* (OECD, 1999). *Towards sustainable development in the CEI countries* (UNEP/OECD/Austrian Federal Ministry for Environment, Youth and Family Affairs), Vienna, May 1999.

⁵ *Environmental Signal 2000* (EE, 2000) and *Are we moving in the right direction? Indicators in transport and environment integration in the EU. TERM 2000* (EEA, 2000).

⁶ Such as Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania Slovakia and Slovenia.

⁷ *Towards sustainable development in the CEI countries* (op.cit.). *Environment in the European Union at the turn of the century*, EEA, 1999.

between economic growth and growth in transport.

32. Road transport is continuing to increase its market share compared to other modes. In developed market economies this is true for passenger and goods transport alike. Private passenger cars now account for more than 80% of traffic volumes there. It applies also to countries in transition, where individual passenger transport is widely seen as an expression of personal freedom and economic success and where goods transport, due to a lack of competitive alternatives, is increasingly dominated by road transport, even over extremely long distances, which, according to conventional wisdom, seemed to be the exclusive domain of rail, sea or even air transport.

33. Public and rail transport used to play an important role in central and eastern Europe, but they are quickly losing ground to private road transport, in part due to a lack of investment and maintenance of their infrastructure and fleets. A study of 14 central and east European countries and newly independent States predicted that, if current policies continue, by 2010 passenger car use will have doubled compared to 1994 levels; by 2030, it will have increased a further 150%. Road freight traffic is expected to increase even more rapidly.⁸

34. Under current conditions, rail, inland water and combined⁹ transport are not likely to make real inroads into the market segment taken by road transport and will not even be able to absorb a sizeable part of the expected 50% increase in goods transport in the next 10 to 15 years in Europe.

35. The development of regional transport infrastructures, where not properly coordinated with land-use and environment policies, has boosted urban sprawl and the functional segregation of peripheral areas. Public transport in these more sparsely populated areas is uneconomical, and the solutions found to limit the use of private vehicles and to meet the mobility and accessibility demands of people without cars have often had limited impact.

36. Aviation is the fastest growing mode of passenger transport; its market share in EU countries is already greater than rail. According to IATA, European passenger air traffic more than doubled during the 1985 – 1998 period (an average growth of almost 7% a year) and overall demand for this transport mode is expected to continue to grow. Between 1998 and 2015 it is estimated that European passenger air traffic will also more than double - to about 1 100 million passengers a year.¹⁰

37. Maritime transport is likewise increasing. During the past decade there has been an

⁸ *Towards sustainable transport in the CEI countries*. CEI, Central European Initiative, UNEP, OECD, Austrian Federal Ministry for Environment, Youth and Family, Vienna 1999.

⁹ Combined transport, in accordance with a joint definition of UN/ECE, EC and ECMT, is intermodal transport where the major part is undertaken by rail, inland waterways or sea and any initial and final legs are by road and are as short as possible.

¹⁰ European Air Traffic Forecasts 1985-2015, produced by IATA, January 2000, for Air Transport Action Group - ATAG.

increase of approximately 5% a year on a global level. The share of container goods in maritime transport has increased by about 6-8% a year¹¹. The development is towards faster ships, resulting in higher energy requirements. Increased energy consumption in turn leads to increased carbon dioxide emissions. The new maritime strategy set out in 1996 by the European Commission (COM (96) 81) aims *inter alia* at promoting short sea shipping. This is intended as an environmentally friendlier alternative to road transport. Between 1990 and 1997 there was a 23% ton-kilometre growth in short sea shipping, but this is still lower than the growth in road transport. For short sea shipping to be a viable alternative, it must be better integrated into the logistical transport chain, so its links to other modes of transport must be improved.

38. Following the implementation of relevant UN/ECE regulations¹² and EU Directives, emissions (CO, HC, NO_x, VOC and particulates) from new vehicles are up to 95% lower than those from vehicles manufactured before 1970. For an average vehicle, the level of noise, measured in acoustic power, is 70% lower and fuel consumption, directly linked to CO₂ emissions is, for comparable vehicles, more than 30% lower. New emission limits are entering into force in 2000-2001 and yet more stringent limits are to be introduced as from 2005 and 2008. These abatements will have an impact in particular in large urban areas in western Europe, as the vehicle stock is renewed.

39. While these achievements are important, and progress is continuous, several causes for concern remain. Firstly, the above-mentioned emission limits are not mandatory in all UN/ECE countries. Secondly, they concern new vehicles only, while a large part of the existing vehicle stock continues to pollute up to ten times more than newly manufactured vehicles. The roughly 30% improvement in CO₂ emissions since 1970 has already been offset by the increase in the number and engine power of vehicles and in the length and number of trips. In fact, the energy use by the transport sector in the EU continues to grow at about 3% per annum, with road transport responsible for 73% of transport's energy consumption. Carbon dioxide (CO₂) emissions from transport increased by 41% between 1985 and 1996, and it is estimated that, if this trend persists, it will jeopardize the European Union's ability to meet its targets under the Kyoto Protocol.¹³ Similarly, the growth in traffic will partly offset the reductions in NO_x and VOC emissions from individual vehicles and pose problems for Signatories to the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, if they are to remain below their emission ceilings.¹⁴

40. In recent years, the development of telework, and the increased use of information technology and electronic commerce, have been welcomed as positive developments, which may reduce the need for travelling, decrease transport volumes, facilitate inter-modality and improve the efficiency of transport systems. However, the implications of these trends in terms of

¹¹ The Institute of Shipping Analysis, Sweden.

¹² In the framework of the UN/ECE Working Party on the Construction of Vehicles (WP.29), recently renamed World Forum for Harmonization of Vehicle Regulations (WP.29), about 20 UN/ECE emission-related regulations annexed to the so-called 1958 Agreement on the Construction of Vehicles have been developed and are constantly updated.

¹³ *Are we moving in the right direction – indicators on transport and environment integration in the EU – TERM 2000*. (EEA, 2000).

¹⁴ *Integrated assessment of acidification, eutrophication and tropospheric ozone impacts in Europe*, IIASA, 2000.

improved sustainability remain to be fully clarified.

41. Projections up to the year 2010 show that on the basis of current policies (in place or in the pipeline) the demand for transport will continue to grow relentlessly and motorized road transport will increasingly dominate the modal split at the expense of more environment-friendly modes such as rail, inland waterways, cycling and walking.

C. The driving forces behind transport

42. The growth in transport volumes is propelled by a complex combination of economic, socio/demographic, spatial, technological and other factors. Among the key factors identified in the recent strategy review of the EU Joint Expert Group on Transport and Environment¹⁵ are: growing GDP, higher disposable income, technological development, internationalization and reduced barriers to international trade, decreasing costs of transport, perceptions of costs, changes in patterns of production and consumption, as well as social factors such as increased leisure time and changes in lifestyles. It is expected that traffic for leisure purposes will grow in line with, or even above, income. In addition, urban sprawl, location choices not supporting public transport and the limited coordination of transport and urban development decisions make private transport the most flexible and convenient choice for travellers.^{16,17}

43. These factors are further boosted by political and institutional ones, such as investments inducing additional transport demand, fiscal or other policies that fail to account for all the external costs of transport, and labour market policies that result in the increased mobility of the work force.¹⁸

44. As well as competitive prices the road transport industry is able to offer passengers and freight transport, besides, a very high degree of control, scheduled pick-up and delivery as well as reliability and speed, i.e. excellent transport quality, which is increasingly difficult to match by other modes of transport. The increasingly competitive environment in Europe forces countries and economic actors to optimize logistical production and distribution systems. Just-in-time and lean production, international sourcing and distribution processes as well as the demands for smaller and time-sensitive consignments as a result of on-line shopping will most probably also support this trend towards the increasing use of road transport, both nationally and

¹⁵ "Recommendations for actions towards sustainable transport – A strategy review" Joint Expert Group on Transport and Environment, 26 September 2000, Report to the Commission (<http://europa.eu.int/comm/environment/trans/>).

¹⁶ "Note about driving forces of transport", H. Gudmundsson, National Environmental Research Institute, Denmark, November 2000, personal communication.

¹⁷ "Recommendations for actions towards sustainable transport – A strategy review" Joint Expert Group on Transport and Environment, 26 September 2000, Report to the Commission (<http://europa.eu.int/comm/environment/trans/>).

¹⁸ "Note about driving forces of transport" H. Gudmundsson, National Environmental Research Institute, Denmark, November 2000, personal communication.

internationally. Since transport costs today constitute only a fraction of the costs of manufactured goods, particularly of those goods with the highest growth potentials (i.e. time-sensitive express cargoes and goods delivered according to just-in-time concepts), service and quality parameters, rather than cost parameters, increasingly determine the development of transport and the choice of transport modes. The situation in countries in transition also shows that inadequate transport and road infrastructures are no deterrent to this trend.

45. In response to the globalization of the economy, national governments need to attract inward investment, which in order to accrue short-and medium-term revenue is directed towards transport goods, services and infrastructure which may not be the most environmentally or socially benign. Despite this, the adverse economic consequences of disinvestments and capital flight are such that governments are becoming unwilling to promote policies resulting in transport conditions that are environmentally-sound but investment-unfriendly. Furthermore, when capital, either private or public, becomes locked up in fixed transport infrastructure (roads, for example), there are clear systemic barriers to the short-and medium-term reform of transport patterns.

46. Another important aspect is that the private car, more than any other mode of travel, has become a social and cultural artefact, displaying attributes above and beyond those that satisfy functional requirements.¹⁹ The ownership of a car is linked to social status, identity and prestige, and fulfils a need for autonomy, freedom, privacy and flexibility.

¹⁹“Second OECD Workshop on Individual Travel Behaviour: culture, choice and Technology” Final report, OECD 1997 (document OCDE/GD(97)1).

II. ENVIRONMENTAL AND HEALTH EFFECTS OF TRASPORT

A. Environmental effects of transport

47. The environmental effects of transport are diverse and extend to every environmental medium (air, water and land). Air pollution from transport is the cause of some of the best known impacts. Some of these impacts appear close to the place where pollutants are emitted, for instance in dense traffic zones in urban areas. Other pollutants travel over long distances, some thousands of kilometres, before they are deposited on the ground, causing damage to sensitive ecosystems. Some of the effects of pollution originating from transport become apparent only after a considerable lapse of time and have global impacts, regardless of where the emissions originate. This is the case for emissions of the so-called "greenhouse gases", with carbon dioxide (CO₂) as the best known of these gases. Greenhouse gases lead to global climate change with some potentially disastrous effects, ultimately making some regions of the world uninhabitable. Transport is one of the main contributors to global CO₂ emissions and, due to its expected growth, its relative contribution is expected to increase, possibly even offsetting emission reductions in other sectors.

48. Ground-level ozone, a key component of summer smog, has increased to levels three to four times that of the pre-industrial era. This pollutant is formed from a mixture of nitrogen oxides and volatile organic compounds, the largest share of which, especially in urban areas, originates from transport. Ozone affects human health, for instance by impairing lung function, particularly in children and asthmatics. Most urban populations in Europe will continue to be exposed to high levels of ozone, with levels well above 60 ppb, which has been set as the maximum eight-hour average in the EC Ozone Strategy. Ozone also has ecosystem effects, as it causes leaf injury in plants, including crops and trees, significantly reducing plant growth and crop yield.

49. Emissions of nitrogen oxides, together with sulphur emissions, from transport contribute significantly to acidification, affecting fish populations and forest soils, especially in sensitive areas in Europe. Even with significant emission reductions foreseen by 2010, 2.5% (or 14000 hectares) of ecosystems in Europe will still remain unprotected against damage due to acidification.²⁰ Acidification also causes damage to buildings and cultural monuments through the corrosion of materials.

²⁰ Integrated assessment of acidification, eutrophication and tropospheric ozone impacts in Europe, IIASA, 2000.

50. Eutrophication is the third effect stemming from nitrogen oxide emissions. The increase in this plant nutrient in natural ecosystems causes some plant species to grow excessively and others to disappear, thus reducing biodiversity. In coastal and inland waters, blooms of algae deplete oxygen, affecting plants, fish and other life forms. Due to the high levels of nitrogen emissions that will remain even after ambitious reduction measures are implemented in 2010 in Europe, almost 20%, or more than 100000 hectares, is likely to be damaged due to eutrophication in 2010.²¹ Both acidification and eutrophication may be hazardous to human health, for instance by leaching heavy metals and by directly increasing nitrate concentrations in the groundwater normally used for drinking.²²

51. In addition to environmental impacts from air pollution, transport has some direct and indirect impacts on water pollution, some of which may be very significant. Examples of transport-related activities leading to water pollution are:

- The use of de-icers on roads and airport (salt is the most concentrated contaminant in drains during the winter months);
- Contamination of rainwater gutters by fuel or motor oil;
- Maritime fuel tank flushing.

52. Transport infrastructure uses up large areas of land and the impacts on land-use go well beyond the area directly covered by the infrastructure. One kilometre of a four-lane motorway, for instance, requires some 2.5 ha, but adding space for noise protection, embankments, interchanges, motorway junctions and service areas, brings this figure to an average of 8 ha of land directly withdrawn from other uses. On top of this, one has to add the overall affected area (impact zones of noise and pollution or required compensation and substitution areas) of 50 to 80 m along both sides of the road, which will bring the overall land-use of one kilometre of motorway up to 20 ha.²³ In addition to the economic costs of this land to society, transport infrastructures are also an important cause of habitat fragmentation, occasionally with severe effects on wildlife.

²¹ Integrated assessment of acidification, eutrophication and tropospheric ozone impacts in Europe, IIASA, 2000.

²² *Background brochure on the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone* (UN/ECE, 1999).

²³ *Towards Sustainable Transport in the CEI Countries* (CEI, UNEP, OECD, Austrian Ministry for Environment, Youth and Family, 1999).

B. Health effects of transport

53. Some transport policies can bring substantial health benefits, such as those enabling safe cycling and walking, and the use of public transport in urban areas. Other transport policies are associated with a heavy health burden: air emissions have been shown to lead to increased mortality and morbidity; noise has effects on stress and psychological well-being; traffic accidents are a major cause of death and disability.²⁴

54. While injuries and annoyance from traffic noise have long been recognized as the consequences of certain patterns of transport activities, evidence of a direct effect of air pollutants on mortality and respiratory and cardiovascular diseases has emerged only in the past decade.

55. Sedentary lifestyle, one of the two most important risk factors for non-communicable diseases and early mortality among populations of western countries, is closely associated with the use of motor vehicles. It is now acknowledged that successful strategies to address the high prevalence of sedentary lifestyles in the population must include the promotion of increased physical activity accomplished through daily errands, notably through walking and cycling, in combination with public transport. Education and information play an important role in raising awareness about the health benefits of more active lifestyles and promoting healthier behaviours, but alone cannot lead to the high levels of physical activity required to reduce chronic diseases in western societies.

56. Transport is now the dominant source of air pollution in urban areas. Despite the past decade's improvements in air quality in Europe, close to 90% of the urban population is still exposed to excess ambient levels of particulate matter, NO₂, benzene and ozone.²⁵

57. Current levels of air-borne particulate matter in Europe are estimated to have a major impact on mortality, resulting in 40,000–130,000 premature deaths a year in city dwellers older than 30 years.²⁶

²⁴ Unless otherwise specified, the health-related data presented in this section are based on “*Transport, the Environment and Health*”, edited by C. Dora and M. Phillips – Copenhagen, WHO Regional Office for Europe, 2000 (in press). <http://www.who.dk/london99/WelcomeE.htm> (accessed on 15 August 2000)

²⁵ *Are we moving in the right direction – indicators on transport and environment integration in the EU – TERM 2000*. (EEA, 2000).

²⁶ *Overview of the environment and health in Europe in the 1990s: Third Ministerial Conference on Environment and Health, London, 16–18 June 1999*. Copenhagen, WHO Regional Office for Europe, 1999 (document EUR/ICP/EHCO 02 02 05/6). <http://www.who.dk/london99/WelcomeE.htm> (accessed on 15 August 2000); and *Health risks of particulate matter from long-range transboundary air pollution – Preliminary assessment*. (UN/ECE Executive Body for the Convention on Long-Range Transboundary Air Pollution, EB.AIR/WG/1999/11).

58. A recent estimate of the health effects of air pollutants from traffic and their related costs, where particulate matter (PM10) was used as an indication of exposure, was carried out in Austria, France and Switzerland, as part of the preparation of the London Conference. The study found that in the three countries air pollution has been estimated to cause 6% of total mortality, or more than 40 000 attributable cases per year. About half of all mortality caused by air pollution was attributed to motorized traffic. This corresponds to about twice the number of deaths due to road traffic accidents in these countries. Traffic-related air pollution accounted also for: more than 25 000 new cases of chronic bronchitis (adults); more than 290 000 episodes of bronchitis (children); more than 0.5 million asthma attacks; and more than 16 million person-days of restricted activity.²⁷

59. Also other air pollutants have been linked to health effects. For example, ozone has been independently associated with reductions in lung function, increased bronchial reactivity and hospital admissions. It has also been associated with day-to-day variations in mortality in studies carried out in Europe. In addition, recent studies have suggested an independent effect from low levels of carbon monoxide on hospital admissions for and mortality from cardiovascular diseases.

60. Several components of diesel and petrol engine exhausts are known to cause cancer in animals and there is evidence of an association between exposure to diesel and cancer in human beings. Some evidence also suggests an increased risk of childhood leukaemia from exposure to vehicle exhaust, where benzene may be the responsible agent.

61. Some 40 million people in the 115 largest EU cities are exposed to air quality breaching the WHO air quality guidelines for at least one pollutant each year.²⁸

62. Most human exposure to air pollutants comes from traffic, and strong evidence is emerging of a direct link between respiratory problems, especially in children, and residence near busy roads, or roads with much heavy-vehicle traffic. Several studies show a correlation between transport-related air pollution and non-fatal adverse human effects, such as increased cases of bronchitis, attacks of cardiovascular diseases and asthma, and several millions of days of restricted activity or lost productive days.

²⁷ "Public health impact of outdoor and traffic-related air pollution: a European Assessment" Kunzli, N., et al. The Lancet, 356: 795-801 (2000).

²⁸ *Living in cities: The Transport dimension – a workshop with stakeholders – Rapporteur Summary Report.* Workshop organized by DG Energy and Transport, DG TREN of the European Commission (25-26 March 2000, Brussels).

63. Noise has become a concern for increasing numbers of citizens during the past decade. Around 65% of the people in the European Region, i.e. about 450 million people, are exposed to noise levels leading to serious annoyance, speech interference and sleep disturbance. Noise can also interfere with mental activities requiring attention, memory and the ability to deal with complex analytical problems. There is emerging evidence of an association between hypertension and ischaemic heart diseases and high levels of noise.

64. Road traffic is the predominant source of human exposure to noise, except for people living near airports and railway lines. Ambient sound levels have steadily increased, as a result of the growing numbers of road trips and kilometres driven in motor vehicles, higher speeds in motor vehicles and the increased frequency of flying and use of larger aircraft.

65. Noise from airports represents a growing concern. Aircraft operations generate substantial noise in the vicinity of both commercial and military airports. Aircraft takeoffs are known to produce intense noise, including vibration and rattle. The landings produce substantial noise in long low-altitude flight corridors. In general, larger and heavier aircraft produce more noise than lighter ones.²⁹

66. Although deaths from road accidents have been gradually decreasing, progress in achieving a reduction in mortality and injuries has been uneven across the region, and traffic accidents still cause approximately 120,000 deaths and 2.5 million injuries a year in the European Region.

67. A third of the reported deaths and serious injuries involves people below 25 years of age, and it is estimated that victims die on average 40 years earlier than their life expectancy. This represents a significant cost to society in terms not only of lost productivity but also of health care costs, pain, suffering and disability.

68. The most recent estimates of the external costs of transport indicate that accidents remain the most important category, totalling about 156 billion euros a year, i.e. nearly 30% of the total external costs of transport, or about 2.3% of the gross domestic product of the 17 European countries covered by the study.³⁰

²⁹ WHO Guidelines for Community Noise. Geneva, World Health Organization, 2000 (<http://www.who.int/peh/noise/noiseindex.html> accessed on 26 October 2000).

³⁰ "External costs of transport (accidents, environmental and congestion costs) in western Europe" INFRAS Zurich, IWW University of Karlsruhe, 2000.

69. One of the relevant and as yet poorly investigated aspects of traffic accidents, which also illustrates the complexity of the interplay between the different health effects of transport, is the barrier to engaging in walking and cycling caused by the fear of accidents. The severity of accidents (i.e. the number of deaths per total number of accidents with injuries) is almost twice as high for pedestrians as for car occupants, and these users account for around 30–35% of deaths and 20-21% of injuries. The fear of injuries contributes to avoidance of cycling and walking and to the reduction of the total amount of regular physical activity, thereby increasing the health risks associated with sedentary lifestyles.

70. Current policies on urban land-use planning and transport in most countries restrict opportunities for cycling and walking. This also contributes to the high and unhealthy levels of inactivity in all countries of the region. Pressure to minimize commuting time in spite of the great distance travelled has led to a development of highly specialized and expensive transit infrastructures. However, the provision of new infrastructures can generate more trips and traffic and may result in disorganized urban morphologies and landscapes and increase overall levels of noise.

71. The effect of sedentary lifestyles on heart disease is well documented. According to the WHO *Global Burden of Disease*, physical inactivity is the second most important risk factor for health, after tobacco smoking, in established market economies.³¹

72. Half the adult population in developed countries is sedentary or engages in minimal physical activity. Yet half an hour of moderate physical activity (e.g. by walking or cycling) per day would lead to a 50% reduction in the risk of heart disease, adult diabetes and obesity, and a 30% reduction in the risk of developing hypertension, with a reduction in blood pressure similar to that obtained with pharmacological therapies. The consistent results of a number of epidemiological studies strongly suggest that physical activity has a protective effect against the risk of developing colon and other cancers.³²

73. Children represent a particularly vulnerable group when it comes to health risks posed by transport. Due to their still limited perception of and reaction to road traffic dangers and the traffic environment, they are at a higher risk of being involved in accidents. Parents react by restricting their children's freedom to walk and cycle. This not only contributes to unhealthy levels of inactivity in children but also hinders the development of their independence, reduces

³¹ Established market economies include: the EC, Canada, the United States, Australia, New Zealand and Japan).

³² *Physical activity and health: a report of the Surgeon General* (1996) United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Disease Prevention and Health Promotion, Atlanta, United States.

their opportunities for social contact and establishes attitudes towards car use, which continue into adulthood. In countries where leaded petrol is still used, children exposed to lead from fuel are at a higher risk of suffering negative impacts on neuro-cognitive functions. Children are also particularly vulnerable to the effects of noise. If chronically exposed to aircraft noise, for example when attending schools located near airports, their reading acquisition, attention and problem-solving ability may be impaired.

III. KEY CHALLENGES

74. To fulfil the mandate given by the Ministers at the London Conference, the WHO and UN/ECE secretariats set to identifying the areas where most progress towards transport sustainable for health and the environment could be made through further action at international level.

75. To this end, the analyses of trends and of the environmental and health impacts of transport (outlined in chapters I and II) were matched with the findings of the various background documents,³³ with inputs received through close consultations with other organizations, and with the outcomes of relevant studies they had undertaken.³⁴ All together, this led to the identification challenges requiring action, whose common denominators are the magnitude of their health burden and environmental impacts. This applies in particular to the urban environment, where most transport activities are carried out and the exposure of the population to transport-related hazards is the highest. Furthermore, the key areas for action identified seemed to be insufficiently covered by international legislation.

76. A survey of the existing international legislation (described in chapter IV), helped to highlight further the apparent gaps in the international response to date. An important finding of this survey is that attempts to fill gaps in the scope and implementation of the existing mass of international policy responses with precise corrective measures may not be sufficient to reach sustainable transport goals, in the absence of an overarching integration strategy to link transport, environment and health decision-and policy-making. Therefore, the main focus of this overview is on identifying other approaches that would be more cost-effective in meeting the key challenges on the way to transport sustainable for health and the environment.

77. The key challenges were clustered around the following two themes:

(a) Integration of the transport, environment and health sectors, in particular in relation to decision-making processes, monitoring and impact assessment, both at the national level and in local decision-making, but especially in urban settings, where most of the effects are felt, to ensure that health and environment are appropriately taken into account;

³³ Political targets and objectives for transport, environment and health contained in major regional declarations, spearheaded by the UN/ECE (ECE Political Targets document); Inventory of agreements and legal instruments relevant to transport, environment and health, prepared by COWI under the supervision of UN/ECE and WHO, and with funding from the Danish Government (COWI Inventory); Review of Implementation and Effectiveness of Existing Policy Instruments on Transport, Environment and Health, and of their Potential for Health Gain, prepared under the supervision of WHO and with support from the French Government and UNEP (WHO Implementation Review).

³⁴ For instance, OECD Guidelines on Environmentally Sustainable Transport (EST), ECMT resolutions, Regional initiatives for sustainable transport such as the Green Paper on the Impact of Transport on the Environment and other relevant work from the European Commission as well as EEA, the CEI Declaration for sustainable transport and HELCOM 21.

(b) Transport-related environment and health problems in urban areas, involving:

- Land-use planning;
- Demand management and market creation for more sustainable transport;
- Intermodality and the citizens' right to sustainable mobility and to safety;
- Noise reduction.

78. It should be noted that transport-related environmental and health problems include also other major issues, such as those related to the need to reduce air pollution from transport and traffic accidents. However, international legal instruments or policy action to address these problems are already in place or in the pipeline. Therefore, value would be added by focusing on areas, where, according to the analyses completed for this overview, new action would help fill a gap in present international action.

79. On air pollution from transport, for example, work has already been undertaken, notably within the framework of the UN/ECE Convention on Long-range Transboundary Air Pollution and its eight protocols. As to the specific problem of particulate matter, a work programme has been adopted under the Convention to prepare for negotiations on measures to reduce particulate matter pollution to start in 2004. The work-plan covers work on the health impacts of fine particulates in collaboration with WHO/EURO. It foresees the development of monitoring programmes for particulate matter and modelling of its atmospheric transport across the European region. The efforts are intended to lead to an integrated approach to evaluate abatement measures for particulate matter together with other air pollutants, such as sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia. The programme is coordinated with work by the European Commission and also takes into account the results and data developed under the EC Auto Oil Programme.³⁵

80. In the framework of the UN/ECE 1958 Agreement, about 20 Regulations have drastically reduced emission limits for newly constructed and approved motor vehicles. Similarly, on the road safety front, a number of effective policies exist to reduce deaths and injuries from traffic accidents, including, *inter alia*, speed limits, the use of seat belts, drink-driving policies. The 1968 Convention on Road Traffic and the European Agreement supplementing it contain legally binding provisions on these areas which are periodically updated. The main issue is to ensure enforcement.

³⁵ The Auto Oil Programme is a study aiming to provide policy makers in the EU with an assessment of the most cost-effective package of measures, including vehicle technology, fuel quality, improved durability and the non-technical measures necessary to reduce emissions from road transport compatible with the Air Quality Framework Directive (96/62/EC). Auto Oil II is a similar programme with a scope widened to include stationary emissions sources, alternative fuels and other non-technical measures, e.g. road-traffic policies.

81. The key challenges identified through this overview are further developed below.

A. Integration of Transport, Environment and Health

82. Integrating environment and health concerns into transport policies is one of the key challenges for achieving transport that is sustainable for health and the environment. Indeed, the analyses carried out in the context of this overview indicate that:

(a) Several countries still have difficulties in following an integrated and cross-sectoral approach involving all relevant parts of the administration and stakeholders to tackle transport-related issues. These issues are relevant both "horizontally", i.e. across different sectors of the administration, and "vertically", i.e. in the relation between the national, sub-national and local levels of the administration, and decision-making chain;

(b) Governments have acted to address some of the environmental and health effects of transport. However, their interventions have tended to focus on the people who generate the problem rather than on those who suffer its consequences, on reducing rates rather than on absolute levels, on risks rather than on exposure, on health risks separately rather than on considering the whole range of risks, and on the environment or on health, separately;

(c) The lack of adequate financial resources and institutional settings in countries in transition severely limits their capability to enforce the instruments that they have ratified or developed at the national level. Environmental concerns in transport and land-use planning policies and strategies are often overruled by the pressure to improve economic performance, and too often international assistance and finance, e.g. through international financial institutions, has favoured highway projects over those for public transport;

(d) There has been a failure to internalize the external costs of transport. Moreover, existing systems of charging for transport are applied differently for different transport modes, resulting in two forms of disparity. First, government infrastructure cost-recovery requirements differ markedly, e.g. between railways and roads. Second, taxes are not always designed for efficiency, missing opportunities to charge in proportion to the external environmental and health costs generated in the use of transport infrastructure. In addition, formal appraisals of the costs and benefits of any of the range of policies that have been proposed in the literature to address transport-related issues, including health policies, are few and far between. In none of the major European studies of policies concerning the health costs of transport³⁶ is there a single reference to an example

³⁶ e.g. Royal Commission on Environmental Pollution, 1994; ECMT, 1998; UIC, 1994.

of applying cost-benefit analysis to the appraisal of transport policies or projects which would improve health;

(e) There has been an over-reliance on technical fixes, with improved environmental performance of individual vehicles and fuels offset by the growth in road traffic.

83. To support integration, a number of tools still need to be developed to promote the necessary cross-sectoral integration at both horizontal and vertical levels and to ensure that health and environment issues are clearly on the agenda when transport decisions are being made and policies formulated. They include:

(a) Institutional mechanisms that give practical directions (e.g. providing a standard set of operational procedures and decision-making processes) on how to ensure the full involvement and input of the health and environment sectors into decisions on transport and land-use and the development of an integrated transport policy at international, national, sub-national and local levels, for example by:

- (i) Systematically involving health and environment authorities in decisions on transport projects and policies and land-use planning;
- (ii) Establishing cross-sectoral taskforces, inter-ministerial committees, etc.;
- (iii) Better training of health personnel, etc;

(b) The introduction of clear objectives explicitly aimed at the attainment of environment and health benefits/reduction of health risks as a goal for the transport sector and for land-use planning. Introducing objectives would help to direct efforts towards a common goal, thereby strengthening integration across the involved sectors. It would also provide greater transparency and political accountability, and allow for benchmarking the results obtained against clear goals;

(c) Improved methods and practices to develop the health aspects of environmental impact assessment (EIA) and strategic environmental assessment (SEA);

(d) The internalization of the external costs of transport through the development of tax instruments (such as, road-pricing systems), which provide incentives to reduce environmental and health costs. This will also make many of the regulatory measures introduced to reduce health and environmental damage more effective and cheaper;

(e) Improved methods to value the external costs of the health effects of transport by including aspects which so far have not been considered, such as costs and missing benefits resulting from reduced physical activity;

(f) Better data to feed into decision-making processes, including epidemiological data on health outcomes, and indicators to monitor progress and enable comparative analyses.

B. Addressing transport-related environment and health problems in urban areas³⁷

84. The vast majority of the health effects of transport occur in urban areas, where around 80% of the European population live. For example, about 65% of traffic accidents are reported in built-up areas, compared to only 5% on motorways. In addition, air pollution is higher in urban areas, increasing the risks of exposure to it of a large number of individuals, among whom some are particularly vulnerable to the effects of air pollutants, such as children and the elderly. Annoyance from noise is reported mostly by urban dwellers living, working or studying in the vicinity of busy roads, railway tracks and airports. Furthermore, as more than 50% of trips undertaken in urban areas by car are shorter than 5 km, and 30% are shorter than 3 km, the largest potential for a modal shift towards public transport and walking and cycling lies within urban transport.

85. The continuing expansion of motorized transport in urban areas today raises crucial questions about the efficiency and the environmental and social implications of land-use and transport policies. There is a need to intervene in these urban areas, where most of the environment and health impacts of transport and land-use planning occur. Specifically, there is a need to develop and adopt **urban planning strategies and land-use policies** that recognise the health and environment implications of policy and practice in urban planning and the need to go one step further by pursuing health and environment objectives as a central part of urban planning.³⁸

86. Conventionally, demand for transport goods and services has been treated as any other economic demand that needs to be matched with supply. However, particularly in the context of transport, it is becoming clear that demand is exceeding what can reasonably be provided without overstepping environmental and social limits. **Demand management** therefore becomes necessary, although it is recognized that this policy approach is still to be further developed and

³⁷ What is said here and further on concerning urban areas is applicable to a great extent also to sensitive areas as well as to transport corridors with heavy traffic and major transport infrastructures.

³⁸ WHO *Healthy Urban Planning - A WHO guide to planning for people*, by Hugh Barton and Catherine Tsourou

more broadly applied, using positive experience developed at the local level. A comprehensive, strategic portfolio of tools for demand management is one which overlaps significantly with other branches of environmental transport policy. These tools can be distinguished as:

- (a) Measures aimed at influencing the consumer at the point of purchase and point of use. Examples include both “soft” measures, such as labelling and information about the environmental performance of vehicles/services, and “hard” measures, such as taxation;
- (b) Measures intended to inform, educate and influence the consumer. Examples include information and training programmes, such as those promoting a shift towards walking and cycling in combination with public transport and raising awareness of the health benefits of more active transport methods and the health costs of vehicle use;
- (c) Measures that alter institutional and material factors influencing demand. Examples include land-use planning that results in an overall reduction in kilometres travelled by motorized vehicles, vehicle regulations, and the adoption of standards and norms, for example on noise and air pollution levels.

87. **Intermodality**³⁹ is an essential notion of transport within the framework of sustainable mobility. It is a relatively new concept that implies a sustainable and integrated approach when designing, planning and operating transport infrastructures and systems. The implementation of intermodality requires optimal overall management of transport modes by infrastructures and transport service providers ensuring wideranging, well-adapted, and synchronized transport services, which reduce breaks in a journey to a minimum in terms of time and space.

88. In order to induce the modal shift from private car use to public transport, as well as to increase the incentives for individuals to combine the use of different modes of transport, conditions that increase customer friendliness, safety, comfort and speed have to be created. Such measures include integrated scheduling for several modes, tariff integration, making public transport more flexible and attractive to use, park-and-ride schemes, etc.

(2000) – in press.

³⁹The following definitions have been agreed upon between UN/ECE, the European Commission and ECMT relating to goods transport:

-“Multimodal transport: Carriage of goods by at least two or more modes of transport.

- Intermodal transport: The movements of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes.

- Combined transport: Intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final legs by road are as short as possible.”

For passenger transport no broadly agreed definitions seem to exist.

89. **There is a need to upgrade the “status” of walking and cycling to that of “real transport modes”.** The rights of pedestrians and cyclists need to be given the same consideration as those of the drivers and passengers of motorized vehicles. A pre-requisite is to address the safety concerns of cyclists and pedestrians, as these appear to be the single most important deterrent to choosing walking or cycling as means of daily transport. The upgrading of the status of walking and cycling may entail a range of measures at national and/or local level:

- (a) Amending highway codes to clarify the rights and obligations of pedestrians and cyclists;
- (b) Improving the safety conditions of walking and cycling, including through infrastructures (e.g. cycling paths, protected lanes, improvements of road pavements and light, extension/creation of residential and pedestrian areas, etc.) and non-infrastructure measures (e.g. enforcement of speed limits, improvements in driving behaviour, education and information, etc.);
- (c) Establishing minimum technical standards for non-motorized vehicles and infrastructure such as separate cycling paths and signals;
- (d) Systematically including walking and cycling opportunities in any transport and land-use plan;
- (e) Collecting statistics and indicators related to non-motorized modes of transport, in order to measure progress in modal shifts;
- (f) Promoting close cooperation between national and local authorities to improve the role of cycling and walking in urban areas;
- (g) Promoting research on the quantification and economic valuation of the health effects of walking and cycling.

90. There is, moreover, a need for further progress in the assessment and monitoring of transport-related impacts that have so far received limited attention, such as **noise in urban areas**, particularly from road traffic and in the vicinity of airports. This includes the setting of objectives and of harmonized noise indicators, to allow comparisons within and across different member States, and to facilitate communication to the public, as well as noise maps and action plans based on the common indicators.

IV. THE INTERNATIONAL RESPONSE TO DATE TO THE KEY CHALLENGES IDENTIFIED

91. Faced with challenges presented by a wide range of transport, environment and health-related issues, Governments have been neither insensitive nor inactive. Annex 2 to the London Charter provides an extensive though not exhaustive list of over 220 existing legally and non-legally binding international instruments as well as European Community law deemed to be of relevance to transport sustainable for environment and health.

92. The rationale for the Ministers in London to request an overview of the relevant existing legislation was twofold. Confronted with the unsustainability of the current transport trends notwithstanding the mass of existing legislation, they felt the need, on the one hand, to improve and harmonize the implementation of existing agreements and legal instruments and to further develop them as needed. On the other hand, they judged it appropriate to consider the possibility and feasibility of new non-legally and legally binding action, in so far as it would not overlap but add value to and use the synergies with the actions already taken or being prepared.

93. The mismatch between the extensive mandate and the resources and time available for fulfilling it imposed some limitations as to the methodology chosen to carry out the legislative survey, its scope and the level of detail of its outcome.

94. As a first step, officials directly involved in the implementation of the international agreements and legal instruments were requested to estimate the relevance of their provisions to the sustainable transport targets and objectives included in the Vienna Declaration and the London Charter by means of a questionnaire. On the basis of the replies, COWI⁴⁰ in close consultation with the two secretariats prepared an inventory covering altogether 85 instruments.⁴¹ During the course of the inventory, a number of possible “gaps”⁴² were identified. This list of potential gaps served as one of the criteria for selecting the key challenge areas described in the previous chapter. Moreover, the COWI inventory helped to identify the instruments specifically addressing the key challenge areas.

⁴⁰ Danish COWI Consulting Engineers and Planners AS.

⁴¹ The some 95 pieces of European Community legislation listed in the Annex 2 to the London Charter were not covered by the questionnaire survey. The European Commission contributed instead to a general review of the existing EC directives, regulations etc., which was annexed to the COWI inventory.

95. The selected instruments were given a closer scrutiny by UN/ECE to analyse the relevant provisions addressing the “priority gaps” and to identify potential shortcomings. A closer reading of the instruments in question enabled to make the following general observations to be made:

(a) In many cases, an instrument which was reported to “address” a given key challenge had its primary focus elsewhere and contained a mere reference to the issue in question;

(b) Concepts related to sustainable transport; the integration of transport, environment and health sectors; demand side management; intermodality, etc. are all fairly new and still rather abstract. Even though many of the recent international instruments examined can rightfully claim to aim at promoting these concepts, the relevant provisions are rarely legally binding and are too general to give rise to specific obligations. A fortiori, they lack compliance monitoring systems;

(c) Most instruments addressing the key issues did not cover the whole European region nor did they represent the interests or reflect the commitment of the transport, environment and health sectors alike.

96. A limitation of the overview lies in the fact that it could not address the implementation aspects of the existing international instruments, because many lack detailed mechanisms to monitor the degree of their implementation and requirements to report on it at international level.⁴³ A general survey of the provisions contained in the legal instruments or declarations of intent does not allow definite conclusions on the level of their practical implementation to be drawn, save by taking stock of the evidence of the transport-related environmental and health effects, and by looking at some characteristics of the instruments that provide indications as to whether the instrument is likely to be effectively implemented. Neither has it been possible to estimate to what extent a proper implementation of the existing instruments would improve the situation in the identified key challenge areas.

97. Notwithstanding the merit of better implementation of the existing provisions, the main conclusions of the present analysis remain unchanged, and indicate that the relevant international response to date is not sufficient to cover the key challenge areas identified. Indeed, the attempts to fill gaps in the scope and implementation of the existing mass of international policy responses with precise corrective measures may not be feasible nor sufficient to respond to the sustainable transport challenges identified. The main gap seems to lie in the lack of an overarching

⁴² Issues not covered or inadequately covered by legislation.

⁴³ The WHO “Review of implementation and effectiveness of existing policy instruments on transport, environment and health” aimed at filling that need as far as legal instruments addressing transport-related air pollution are concerned. The report focused also on the characteristics of instruments which make them more likely to achieve their aims (the so called predictors for effectiveness).

integration strategy, which would bring together and use the synergies of policies and legislation relevant to transport, environment and health.

98. The more specific results of that analysis are summarized below.

A. Integration of the transport, environment and health sectors

1. Sustainable development of transport

99. Several international and regional forums are engaged in work defining and putting into practice the concept of sustainable development with regard to transport.

100. In the most recent political declarations, integration of the environmental and health concerns into transport policies is explicitly recognized as a priority for attaining transport sustainable for health and the environment.

101. **Agenda 21**, adopted at the United Nations Conference on Environment and Development in 1992, considers transport in several chapters.⁴⁴ It recognizes that current patterns of transport are not sustainable and may compound both environmental and health problems.

102. At the OECD Conference "Towards Sustainable Transportation" in Vancouver, Canada, 1996, it was stated explicitly that "our current transportation system is not on a sustainable path. Our admirable achievements in terms of mobility have come at some considerable environmental as well as social and economic cost. The challenge now is to find ways of meeting our transportation needs that are environmentally sound, socially equitable and economically viable. Accessibility, not mobility, is the issue". **The Vancouver Principles for Sustainable Transport**, drawn up at that Conference, proposed a set of principles as well as strategic actions for responding to them.

103. In the **Vienna Declaration**, adopted at the UN/ECE Regional Conference on Transport and the Environment at the Ministerial Level, November 1997, the Governments undertook to reduce the negative impact of transport on the environment and human health by promoting measures to reach volumes and patterns of transport that are compatible with sustainable development. In the very first paragraph, the Ministers decided explicitly to "Work towards a

⁴⁴ For instance, Chapter 9 on Atmosphere and chapter 7 on Human Settlements.

close integration of environment, health and transport policies at the local, national and international level.”

104. The **Programme of Joint Action** of the Vienna Declaration fosters sectoral integration through setting a programme of activities to be undertaken by UN/ECE Governments and other interested parties for improving the environmental performance of the transport sector.

105. Under the **WHO London Charter on Transport, Environment and Health**, adopted at the Ministerial Conference on Environment and Health (June 1999), Governments undertook to carry out the plan of action and to incorporate the recommendations into their transport and transport-related policies, thereby confirming their commitment to making transport sustainable for health and the environment. The Ministers emphasize the urgent need for the “multisectoral integration of environment and health requirements and involvement of health authorities in decision-making on transport, land-use and infrastructure policies.” As a sign of the priority, the first paragraph of the London Charter’s Plan of Action deals with integration.⁴⁵

106. At the EU level, the Amsterdam Treaty, signed in 1997, makes sustainable development an overall objective for the European Union. The new article 6 of the Treaty establishing the European Community now stipulates that the integration of environmental concerns into the policies of other sectors is one of the main means of achieving sustainable development.

107. To meet the requirement set in this article 6, the heads of government of the EU launched at their summit in 1998 the so-called Cardiff process, focusing on the integration of the environment, to start with, in the transport, energy and agriculture sectors. Following the mandate of the Cardiff summit, the EU Transport Ministers adopted a strategy outlining the specific means by which the sustainability of the sector will be improved.⁴⁶

⁴⁵ Other soft law which addresses sustainable transport and sectoral integration includes:

The Ministerial Declaration of the Central European Initiative: Towards Sustainable Transport in the CEI Countries, 1997; the Charter of European Cities and Towns Towards Sustainability (The Aalborg Charter), 1994; the Environmental Health Action Plan for Europe, 1994; the European Conference of the Ministers of Transport (ECMT) Resolution 66 - on transport and the environment, 1989.

⁴⁶ EU Council Strategy on the integration of environment and sustainable development into the transport policy, 6.10.1999.

108. Within the framework of its multi-year programme of work, the United Nations Commission on Sustainable Development will discuss transport at its ninth session, to be held on 16 – 27 April 2001.

109. A joint ad hoc transport and environment expert group has recently been established under the Vienna Programme of Joint Action to contribute to the identification of concrete short-to long-term measures for the achievement of sustainable mobility in the UN/ECE member countries. The implementation of the Programme of Joint Action will be reviewed in 2002.

110. A steering group of member States, IGOs and NGOs is leading the implementation of the action plan of the Charter on Transport, Environment and Health. They initiate activities, facilitate, endorse and followup projects that are consistent with the goals set in the plan of action, with a focus on integration.

111. OECD is in the final phase of its project on environmentally sustainable transport (EST), which includes a vision and a series of quantifiable criteria for environmentally sustainable transport in 2030. A conference on the final phase of the EST project was held on 4-6 October 2000 in Vienna to discuss and agree on how policy guidelines can be reached.⁴⁷

112. The European Conference of Ministers of Transport (ECMT), which advises transport ministries, concerns itself with environmental issues, which in itself is a sign of integration. It regularly adopts resolutions on road safety, emissions reductions and the internalization of the external costs of transport. These instruments are not legally binding but are actively reviewed for compliance and are designed to address issues in a practical way. Forty-seven Ministers agreed a common strategy towards developing sustainable transport policies at the annual meeting of the ECMT Council in 2000.

113. The European Commission's Directorate-General for Environment is currently drawing up the sixth environment action plan, using the integration approach. The action plan is expected to be brought into the co-decision process by the end of 2000.

114. The EU Transport Ministers have been invited to present a progress report on the implementation of the transport strategy at the Gothenburg summit in June 2001. The European

⁴⁷ *Environmentally Sustainable Transport – International Perspectives - OECD's EST Project EST -Project Summary.* OECD, June 2000.

Commission is also working on a long-term Community strategy for sustainable development, which is expected to be presented at that summit.

115. At the EU level, where the concept of integration is the most advanced, a question, which might be raised is whether health is sufficiently integrated in other policies together with the environment. Article 152, as amended by the Amsterdam Treaty, gives a strong legal basis for actions towards improving public health, but it does not call for the same level of integration as it does for the environment in Article 6.

116. Beyond the EU, integration is promoted in a number of non-legally binding programmes described above, e.g. Charter, EST, Programme of Joint Action or ECMT. The practical application and, thus, the achievement of a coherent integration of environmental, transport and land-use policy at all levels of decision-making has, however, proven to be extremely difficult.

117. Since fiscal changes, investment decisions and land-use planning play a crucial role in making transport sustainable for health and the environment, the administrative bodies dealing with these issues should be more involved in the process of integration and should integrate environment and health considerations into their own activities. The capacity-building requirements of integration do not seem to be adequately addressed in the current policy responses.

118. The integration of health and environment into transport policy is a long-term process needing high-level commitment to a systematic involvement of all the relevant players within the countries and should be supported by the coordinated efforts of the international organizations. Ways for monitoring compliance, which are lacking outside the European Union level, need to be examined.

2. Tools for integration: environmental impact assessment (EIA) and strategic environmental assessment (SEA)

Environmental impact assessment

119. The single most important instrument on EIA is the legally binding UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (1991, Espoo Convention), which prescribes measures and procedures to prevent, control or reduce any significant adverse effect on the environment, particularly any transboundary effect, which may be caused by a proposed activity or any major change to an existing activity.

120. Existing EIA manuals, that incorporate the health aspect include the WHO *Environmental Health Impact Assessment procedures for urban development projects*, 1985, and the World Bank *Health Aspects of Environmental Assessment*, 1997.

121. Following the London Ministerial Conference mandate, the WHO is leading the development of guidelines for making health impact assessments of policies, strategies, programmes, projects and legal measures with implications for transport. These guidelines are being prepared as part of the larger project on "Integration of environmental health policies into the sustainable development strategies of economic sectors" and, as such, focus on environmental health hazards generated by all industrial economic activities and sectors in general.

Strategic environmental assessment

122. The need for integrating environmental and health concerns into strategic decision-making processes that may have significant environmental effects was emphasized in the Rio Declaration and has been referred to in a number of other non-binding international documents.⁴⁸

123. At the EU level, the Directive on Environmental Impact Assessment (EIA) of the effects of projects on the environment was introduced in 1985 (85/337/EEC) and amended in 1997 (97/11/EC). The Council of Ministers and the European Parliament are currently working on a directive on environmental assessment of certain plans and programmes (SEA). The directive is expected to be adopted by spring 2001. Member States will then have three years to integrate the new instrument into their national systems.

124. The European Commission's Directorate General on Energy and Transport has recently developed the *Manual on Strategic Environmental Assessment of Transport Infrastructure Plans*.

125. The development of a **legally binding** instrument on SEA at the UN/ECE level is currently being considered. The Working Group on EIA at its second meeting discussed the development of a protocol on strategic environmental assessment to the Espoo Convention. At their second meeting (26 - 27 February 2001, Sofia), the Parties to the Espoo Convention are expected to formally decide to start the negotiations of such a protocol. The aim is to

⁴⁸ WHO Community Noise Guidelines; Health 21 - Health for All Policy Framework for the European Region for the 21st Century, 1998; Ministerial Declaration of the Central European Initiative: Towards Sustainable Transport in the CEI Countries, 1997; Charter of European Cities and Towns Towards Sustainability (The Aalborg Charter); 1994 Environmental Health Action Plan for Europe, 1994.

submit the draft protocol to the Kiev Ministerial Conference “Environment for Europe” provisionally scheduled for 2003. WHO is contributing to this process through the development of guidelines providing practical guidance on carrying out assessments of health impacts within SEA and EIA and through its participation in the negotiation of the protocol.

126. As part of the implementation of the London Charter's Plan of Action, the Austrian Government is supporting the development of guidelines for the assessment of the health impacts of air pollution.

127. Only a relatively small number of countries have introduced separate SEA systems. It is more common to apply elements of SEA as part of EIA or other planning regimes. The EU and pan-European initiatives to strengthen EIA and regulate SEA are expected to result in the wider introduction of SEA in Europe.

128. The international responses' focus on health, however, continues to be weak. In particular, practical guidance on how to take account of health impacts is lacking.

B. Addressing transport-related environment and health problems in urban areas⁴⁹

1. Urban and land-use planning

129. The application of land-use planning to limit motorized traffic in urban areas has been taken up in a few recent, non-legally binding resolutions and declarations, which address environment, transport and health issues in general or in relation to urban areas. The relevant soft law includes the following:⁵⁰

(a) The ECE Guidelines on Sustainable Human Settlements Planning and Management (1996), which recommend two main principles for transport planning and management: firstly, protecting and promoting the most energy-saving, pollution free and least dangerous means of travel: cycling, walking and public transport; secondly, linking land-use planning and organizing public transport as closely as possible with the goal of limiting developmental and operating costs for public transport on the one hand and discouraging competition from private vehicles, on the other;

⁴⁹ What is said here and further on concerning urban areas is applicable to a great extent also to sensitive areas as well as to transport corridors with heavy traffic and major transport infrastructures.

⁵⁰ See also Agenda 21, 1992; European Conference of the Ministers of Transport (ECMT) Resolution 66 - on transport and the environment, 1989; Health 21 – Health for All Policy Framework for the European Region for the 21st Century, 1998; Environmental Health Action Plan for Europe, 1994.

(b) The Vancouver Principles for Sustainable Transport, 1996;

(c) The Charter of European Cities and Towns Towards Sustainability (The Aalborg Charter), 1994.

130. The WHO Healthy Cities Programme is the only programme that explicitly seeks to link transport, sustainability, health and urban planning at the urban level. It has recently produced *Healthy Urban Planning – A WHO guide to planning for people*. This publication provides comprehensive guidance for urban planners, not only on the principles of integrating health and urban planning, but also on the practical ways that this can be achieved at different geographical levels.

131. Relevant EU instruments include:

(a) The European Spatial Development Perspective (ESDP): Towards Balanced and Sustainable Development of the Territory of the European Union (adopted in May 1999);⁵¹

(b) The EU Transport Strategy⁵² (October 1999);

(c) The European Commission's Communication "Sustainable Urban Development in the European Union: A Framework for Action", 1998. (COM(1998) 605 Final);

(d) The proposal for a decision on a Community framework for cooperation to promote sustainable urban transport (Nov. 1999);

(e) The European Sustainable Cities & Towns Campaign.⁵³

⁵¹ ESDP is a set of guidelines intended to provide a framework for spatial planning in Europe. The integration of transport and the detailed planning of land-use is considered as particularly effective in the large urban regions, where there is scope for reducing dependency on the private car and promoting other means of mobility (public transport, cycling).

⁵² EU Council Strategy on the integration of environment and sustainable development into the transport policy (6.10.1999) stresses sustainable land-use and transport planning as a means for reducing the need for travel while promoting the environmentally less harmful modes of transport.

⁵³ Aims to promote sustainable development at a local level and to support European local authorities in the development and implementation of appropriate policies and actions.

132. UN/ECE is developing *guidelines for central and local governments on a strategic approach to integrating urban transport management with land-use planning and environmental policies*. The guidelines are being developed as a follow-up to the joint Workshop on Encouraging Local Initiatives Towards Sustainable Consumption Patterns (Vienna, February 1998) and following a joint decision by the UN/ECE Committees on Environmental Policy and on Human Settlements. The primary focus of the project lies at the intersection between national and local policies and consumer behaviour. The guidelines are expected to be ready in 2002.

133. The ECMT-OECD Sustainable Urban Travel Project is designed as a follow-up to the work undertaken in preparation of the 1995 publication “Urban Travel and Sustainable Development”. The workshops include “Land-use planning for sustainable urban transport; implementing change”; “Implementing strategies to improve public transport”; “Managing car use in cities”; “Evaluation methodologies for infrastructure investment and urban sprawl”. The accent of the work is on the implementation of sustainable transport policies and includes peer reviews of policy implementation and institutional arrangements in several countries including the Netherlands and Hungary (under way), Norway and Sweden (planned). The work is to be presented to Ministers in 2001.

134. Until recently there have been very few international initiatives for promoting land-use planning, in particular with respect to urban areas – due to subsidiarity. The intersectoral approach to land-use policies is not sufficiently reflected.

135. The future UN/ECE guidelines will provide necessary guidance to governments on a strategic approach to integrating urban transport management with land-use planning. The integration of the relevant concepts and principles developed in the WHO guidelines on “Healthy Urban Planning” into the UN/ECE work under development could be a first step towards strengthening the health-related aspects of the UN/ECE project.

2. Demand management

136. Demand-side management is mentioned as an important issue in a number of political declarations and instruments, notably in:

- The WHO Charter on Transport, Environment and Health;
- The Vienna Declaration and the Programme of Joint Action;
- The Rio Declaration and Agenda 21.

137. Demand-side management is dealt with in the 1995 Green Paper *Towards fair and efficient pricing in transport policy* and in the 1998 White Paper *Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU*.

138. As part of the implementation of the London Charter's Plan of Action, Italy expressed interest in supporting the establishment of a clearing house on transport, environment and health.⁵⁴

139. The EU Expert Group on Transport and the Environment has a working group on transport demand-side management and will soon present a proposal on what measures are needed in demand side management. Moreover, before the end of the year 2000, the Commission is expected to present an update of the 1992 White Paper on a Common Transport Policy and a Green Paper on a policy strategy on clean urban transport, with particular attention given to demand-side management.

140. European transport policy makes insufficient use of demand-management techniques. Demand management tends to be overlooked in favour of expanding infrastructure to meet demand and technological solutions. Furthermore, demand-management interventions have tended to focus on point measures. i.e. measures addressed at consumers operating at both point-of-purchase and point-of-use and, to some extent, on non-point measures (i.e. measures operating beyond the purchase and use stage). The infrastructural aspects of demand management/formation and the long-term broad effects of non-point measures have either been ignored or underexplored.

141. There is therefore a need to take demand management more seriously in transport policy programmes, and to place it on a par with other more complex, more costly (and possibly less effective) methods.

3. Intermodality in urban areas

142. A number of non-legally binding documents aim at promoting intermodality and the modal shift towards less polluting means of transport in urban areas.

⁵⁴The clearing house will be a service to disseminate information, to ensure access to the latest scientific information, tools and experiences on health impact and cost assessments, and on transport, environment and health policy implementation. It will also facilitate the international monitoring of the impacts of transport on health and the environment, and the networking of interested parties. Finally, it will provide an easy and transparent access to relevant information for the public.

143. The London Charter, the Vienna Declaration and Programme of Joint Action for example, seek to promote a shift to modes of transport, which have lower specific emissions and accident risks (public transport, cycling and walking).

144. The Ministerial Declaration of the Central European Initiative: Towards Sustainable Transport in the CEI Countries, 1997, stresses the importance of maintaining the high share of public transport in the cities of Central Europe by improving the infrastructure of tram, underground and bus systems, the facilities and rolling stock and by offering attractive services and demand-oriented public transport.⁵⁵

145. With respect to urban transport, EU policy generally reflects the need for improved public transport, in terms of efficiency and quality, intermodal and combined transport and favouring pedestrians and cyclists in urban areas. The preconditions for walking and cycling, such as adequate infrastructure, should be improved. Discouraging the use of motor vehicles and encouraging the use of low-emission vehicles in urban settings have also been suggested. Other objectives include: furthering access to public transport, providing for the convenient, economic and safe movement of people, and establishing the right policy framework.⁵⁶

146. Most of the policy responses seeking to promote intermodality are regional and do not cover the European area as a whole. None of these actions is legally binding. They all lack detailed provisions, practical guidance and measurable targets for intermodality. Moreover, in spite of the important investments in infrastructure involved, assistance to transition countries is not touched on.

4. Noise reduction

147. There are a number of agreements and legal instruments which address the issue of noise, focusing on noise measurement methods and mapping of noise affected areas, noise reduction

⁵⁵ Other non-binding instruments addressing intermodality in urban areas are: the WHO Healthy Cities Programme, which requires cities to carry out a programme of action to promote healthy and sustainable urban planning policies within the city; Health 21 - Health for All Policy Framework for the European Region for the 21st Century, 1998; European Conference of the Ministers of Transport (ECMT) Resolution 97/5 - on cyclists; the Charter of European Cities and Towns Towards Sustainability (The Aalborg Charter), 1994; European Conference of the Ministers of Transport (ECMT) Resolution 66 - on transport and the environment, 1989.

⁵⁶ EU policy action and documents which advocate these improvements include: the European Sustainable Cities & Towns Campaign; *Cycling: the way ahead for towns and cities*, the European Commission's (Environment DG) publication on urban cycling, a handbook for local authorities; EC Transport Strategy, October 1999; Sustainable Urban Development in the European Union: A Framework for Action (COM (1998) 605 Final); the Green Paper on the Citizen's Network, 1995.

measures including in sensitive areas (near schools) and times (nights, weekends) as well as noise emission and/or noise emission standards and control measures.

148. A number of legally binding UN/ECE agreements specify technical requirements related to motor vehicles, addressing, among other things, their acceptable noise level. These agreements include:

- The UN/ECE Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the basis of these Prescriptions, of 1958. The UN/ECE Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of such Inspections, of 1997;
- The UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (1991, Espoo Convention).

149. The legally binding instruments listed tend to focus on limiting noise from individual sources and on specifying technical requirements for new vehicles, equipment and parts.

150. Among the non-legally binding instruments are notably:⁵⁷

- The WHO Guidelines for Community Noise, 2000, which cover community noise in general. The Guidelines contain objective information on the maximum noise level acceptable for a given activity (sleeping, communicating) and leaves it to the regulatory bodies of governments to establish the complying regulations.

151. The existing regulations on noise emission sources include directives on emission standards for road and off-road vehicles relating to permissible sound level and the exhaust system of motor vehicles (Directive 70/157/EEC with various amendments, the latest being 96/20/EC) and motorcycles (78/1015/EEC and amendments).⁵⁸

⁵⁷ Other documents where noise is addressed include: European Conference of the Ministers of Transport (ECMT) Resolution 25 – concerning vehicle noise levels, 1972; European Conference of the Ministers of Transport (ECMT) Resolution 66 – on transport and the environment, 1989; Ministerial Declaration of the Central European Initiative: Towards Sustainable Transport in the CEI Countries, 1997; Health 21 – Health for All Policy Framework for the European Region for the 21st Century, 1998.

⁵⁸ Within the 5th Community Environmental Action Programme for 1993-2000, one of the top priority objectives in relation to transport has been to further tighten up the provisions on emissions and noise from road and off-road vehicles and aircraft. Moreover, among the areas identified for priority action in the Council Strategy on the integration of environment and sustainable development into the transport policy are the problems of noise from road, railways and aviation.

152. A proposal for an EU directive on environmental noise contains the following main elements:

- Harmonization of noise indicators and assessment methods;
- Noise mapping and action plans for ‘agglomerations’, ‘major roads’, ‘major railways’ and ‘major airports’, based on the common indicators and assessment methods;
- Target-setting for the common noise indicators by member States;
- Information to the public on noise maps and action plans;
- An EU data bank on noise maps and action plans, and periodical reports based on these;
- Provisions for the setting of EU goals on the reduction of the number of noise-affected EU citizens, combined with the strategies and measures to reach the goals. An important element of the latter will be the source-related EU policy.

153. UN/ECE is currently working on a new vehicle regulation on the rolling noise of tyres (in parallel with the EU proposal for a directive on comparatively reduced noise tyres). The draft establishes maximum noise limits to be fulfilled by tyres in order to be type-approved and fitted to vehicles.

154. The evidence of insufficient national noise emission standards together with unsustainable trends in noise pollution indicates insufficiencies in the existing legislation. Except with regard to air transport, the focus on overall noise pollution regulation is a relatively new phenomenon. A holistic and integrated approach to reducing human exposure to noise is lacking at the international level.

155. The monitoring of noise exposure and the exchange of information among member States are strongly handicapped by the large variety of noise indicators and assessment methods used in the different member States.

156. Existing international legislation on noise emission is incomplete and not all of it contributes effectively to reducing noise exposure.

157. Preliminary analysis also suggests that where health effects are considered, the focus has been on physical health, while the psychosocial factors of noise have been disregarded.

158. Reducing of noise levels requires the cooperation of all the sectors concerned, at the international, national, local and regional levels, as well as the involvement of the private sector and NGOs.

V. RECOMMENDATIONS

159. The background documents prepared to fulfil the mandate set out in the Ministerial Declaration of the London Conference, close consultations with other organizations involved in the field of transport, environment and health as well as the analysis of relevant studies that they have undertaken have shown several key challenges in the achievement of a transport system sustainable for health and the environment. Following the OECD definition, this means a system where "transportation does not endanger public health or ecosystems and meets needs for access consistent with (a) use of renewable resources below their rates of regeneration, and (b) use of non-renewable resources below the rates of development of renewable substitutes".⁵⁹

160. In the spirit of the Vienna Declaration and of the London Charter, the broad criteria used to identify and further analyse these key challenges included:

- Their relevance to transport, environment and health;
- The magnitude of the associated environment and health burden;
- The insufficiency of the existing international response in addressing them, i.e. existence of "gaps" in the international legal and policy instruments currently available;
- The added value of new actions aiming at filling the gaps.

161. As described in Chapter III, the priority areas for further action included:

(a) Integration of the transport, environment and health sectors, in particular in relation to decision-making processes, monitoring and impact assessment;

(b) Transport-related environment and health problems in urban areas,⁶⁰ involving:

(i) Land-use planning;

(ii) Demand management and market creation for more sustainable transport;

⁵⁹ OECD : *Environmentally Sustainable Transport – International perspectives* – OECD EST Project Summary, Paris, June 2000).

⁶⁰ What is said here and further on concerning urban areas is applicable to a great extent also to sensitive areas as well as to transport corridors with heavy traffic and major transport infrastructures.

- (iii) Intermodality and citizens' right to sustainable mobility and to safety;
- (iv) Noise reduction.

162. The following sections propose some options for further action that have emerged from the evaluation. They are presented in the form of recommendations to provide a basis for decision-making at the high-level meeting of representatives of transport, environment and health ministers, foreseen in the decision by the London Conference. Three major types of possible action are distinguished:

- (a) Development of a new international legal instrument, viz. a framework convention on transport, environment and health;
- (b) Further development of existing instruments;
- (c) Closer cooperation with other organizations and projects.

A. Framework convention

163. An analysis of the environment and health impacts of transport and of the implementation and effectiveness of existing instruments leads to conclusions that are consistent with those reached by the OECD Environmentally Sustainable Transport Project and the TERM 2000 report of the European Environment Agency:⁶¹ **current policies are not sufficient to achieve transport sustainable for health and the environment.**

164. In reflecting on the potential solutions for bringing about improvement across the European Region, the following considerations are necessary.

165. All the identified priority gaps have a common theme: their implementation depends heavily on the integration of health and environment concerns into transport policy decision-making at the international, national, regional and local levels. Consequently, their solutions lie in a long-term process rather than a short-term policy or technical adjustment. Furthermore, filling gaps in the scope and implementation of the existing policy responses may not be sufficient to reach sustainable transport goals, because the greatest gap seems to lie in the lack of an overarching integration strategy, which would bring together the various actors and use the synergies of the policies and legislation relevant to transport, environment and health.

⁶¹ EEA: *Are we moving in the right direction? - Indicators on transport and environment integration in the EU - TERM -2000-* Environmental issues series no. 12, Copenhagen, February 2000.

166. The Programme of Joint Action, the London Charter as well as the integration process at the EU level (the so-called Cardiff process) generally recognise the usefulness of such an approach.

167. The options available differ as to the degree of legal commitment they imply.

168. In the presence of the 1997 Vienna Declaration and its Programme of Joint Action and the 1999 London Charter, it seems unlikely that a further broad soft-law instrument would add any significant value. The Vienna Declaration and the London Charter, with their respective plans of action and follow-up processes, are an important step forward in the identification of the main problems and of the practical measures to be taken to move towards sustainable transport. However, further steps are needed to develop the mechanisms necessary to achieve the desired level of cross-sectoral integration, and to secure the highest possible level of political commitment to carry out the actions identified in these two documents.

169. On the other hand, a full-fledged binding convention dealing in detail with all of the identified gaps and setting firm and binding international commitments does not seem appropriate. Such a legal regime would be neither adequate to the nature of the problems nor politically feasible, as the field of action remains broad and involves a wide range of complex and sometimes highly controversial issues. Specific fiscal measures and economic instruments, for instance, are areas where political consensus on binding international legislation is unlikely to be achievable in the coming years. Furthermore, the intersectoral nature of the issues in question make them complex by definition, as the aims and interests of the three sectors involved may clash. Finally, the normative regime chosen should be flexible enough to take into account the different degrees of cross-sectoral integration currently in place within the pan-European region.

170. Consequently, the normative approach that seems to be best suited to addressing the selected key issues is that of a framework convention. The framework approach has become a successful tool in international law, as it is appropriate to broad cross-sectoral issues. The advantage of a framework convention lies especially in its flexibility: it is open to adjustments and supplementary regulation as required. Rather than attempting to codify an intersectoral regime once and for all, it allows for the progressive specification of commitments among those parties ready and able to move ahead. Moreover, one of the main strengths of such a process is to facilitate the development of a broad consensus around the relevant facts and the appropriate international response.

171. The Convention on Long-range Transboundary Air Pollution with its eight protocols, the Vienna Convention to Protect the Ozone Layer with the Montreal Protocol and its amendments, and the United Nations Framework convention on Climate Change illustrate the adequacy of the framework convention approach for addressing complex and long-term issues. In all of them a normative scope was first defined in general language and specified later in a sequence of protocols.

172. The example of the Convention on Biological Diversity demonstrates further that a framework approach may pave the way for future cooperation even on highly controversial issues. At the UNEP conference for the adoption of the Convention on Biological Diversity, the crucial question of safety against the risks of biotechnology was deferred for future cooperation and possible protocols, although the prospect of international regulation in this field was initially unacceptable to some countries. Finally, after five years of talks, the Cartagena Protocol on Biosafety was signed in January 2000.

173. A framework convention approach is in line with recent developments of international law, as it seems adapted also for addressing issues, such as urban transport, where subsidiarity is of specific concern. While traditionally international law addressed only transboundary issues, more recent instruments, e.g. the Aarhus Convention or the Protocol on Water and Health,⁶² continue the development started by the conventions on human rights, under which close international cooperation serves to solve problems of a mainly a domestic nature. Likewise, those adopting UN/ECE transport conventions realized at a very early stage that domestic transport issues such as regulations on road signs need international coordination to be effective.

174. Based on the above considerations, launching a negotiation process for a framework convention on transport sustainable for health and the environment is recommended as an adequate way to address the transport-related environment and health problems associated with integration and urban areas.⁶³

175. By adopting a framework convention the member States of the UN/ECE and WHO/EURO would give a strong signal of their political commitment to improving the long-term sustainability of transport and land-use planning policies in the region. The legally binding nature of a framework convention and the parliamentary process of ratification it implies may be of important added value in particular for those measures that everyone agrees are necessary but difficult to implement.

⁶² The 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

⁶³ What is said here and further on concerning urban areas is applicable to a great extent also to sensitive areas as well as to transport corridors with heavy traffic and major transport infrastructures.

176. The proposed negotiation process for a framework convention would necessarily need to clarify the legal and institutional arrangements to avoid duplications and use synergies with the Vienna, London and other relevant processes. In that respect it is important to keep in mind that the Vienna Programme of Joint Action is to be implemented in the period 1997 to 2007. The London Charter Plan of Action has an open-ended timeframe for its implementation, but some of its milestones coincide with those of the Programme of Joint Action (for example, member States adopting the Charter committed themselves to setting national health targets by the year 2004). The experience that UN/ECE has gained in the field of legal instruments has shown that the negotiation of a framework convention requires two to four years, while its ratification and entry into force require a further two to six years. The implementation of a framework convention and its potential future protocols could therefore constitute the follow-up to the Vienna and London processes, if its preparation starts now, though parallel implementation of the processes should be considered as a feasible option also in the longer run. The role and scope of the proposed framework convention fit well within those of the existing two processes; it will affect policy-and law-making whereas the Vienna and London processes serve to coordinate individual projects.

177. A framework convention would have the potential of bringing closer together the important technical and policy work carried out by several international organizations, such as UN/ECE (both transport and environment constituencies), OECD, ECMT, EEA, EU, CEI, etc., and by WHO, emphasizing the health elements of this debate. In the long run such a convention process might be a converging platform for the Vienna Declaration and the London Charter as well as, possibly, for other processes. Furthermore, the proposed instrument should use synergies with the integration process at EU level to which it would add value by adding more health components.

178. Attention should be paid to ensuring a cost-efficient negotiation process. Moreover, care should be taken to avoid resources being detracted from the implementation of the Vienna and London processes or from other processes relevant to sustainable transport.

179. The negotiation of a framework convention might lead to more resources becoming available for transport, environment and health concerns. In most administrations the fact of negotiating and implementing a legally binding instrument allows, within the internal budgetary process, additional resources to be committed to a topic. Furthermore, a binding commitment by recipient countries is an important aspect in the priority-setting of financial support from donor countries and international financial institutions. A framework convention could therefore help to mobilize more resources for a sustainable transformation of the transport systems in economies in

transition and for the necessary investments to maintain or regain a higher modal share of public transport.

180. Finally, following a common path on the way towards transport sustainable for health and the environment should be perceived as a profitable long-term investment; it is cheaper for societies to prevent damage than to pay for repairing it later.

181. If a framework convention is to be a successful tool towards transport sustainable for health and the environment it is essential that all three sectors, transport, environment and health, as well as those dealing with other relevant issues, such as finances, land-use planning and the public, are fully involved throughout the negotiation and implementation. None of the existing processes has yet managed to achieve a full sense of ownership among all relevant sectors. A new legal instrument with a focus on integration between sectors would represent a major opportunity for the representatives of all the sectors concerned to be involved on an equal footing.

182. In the same manner, the broad involvement of all the relevant authorities at the national, regional and local levels of administration is not only necessary for addressing the priority problems of urban areas but is also a key factor for facilitating the negotiation and implementation.

183. A framework convention would allow the development of sets of policy options and would display best practices to be applied at both national and local levels.

184. By defining commonly agreed principles for the whole region, a framework convention would help to create a level playing field, by reducing the potential economic competitive disadvantages of unilateral actions and favouring economies of scale for the introduction of new technologies for all parties.

185. Finally, the framework convention would have to create a basis for achieving the sustainable transport aims by clarifying the different roles and responsibilities of the various authorities and stakeholders.

186. The proposed framework convention on transport sustainable for health and the environment would aim *inter alia* at:⁶⁴

⁶⁴This list is only indicative of elements that could be included in a framework convention. It would have to be specified further during the potential negotiation process.

- (a) Defining the concept of transport sustainable for health and the environment meeting both accessibility and environmental and health requirements;
- (b) Establishing a set of common environmental and health objectives, principles and procedures for the integration process;
- (c) Promoting an integrated approach to transport, environment and health so as to ensure environment and health gains and reduce risks and inequalities caused by transport and land-use policies, including those caused by air pollution, noise, traffic accidents and lack of physical activity, focusing on higher-risk groups;
- (d) Favours the coordination of activities as well as the exchange of best practices and the access of all parties to up-to-date information;
- (e) Establishing obligations for parties to report on progress achieved on the basis of a common and integrated set of targets, indicators and assessment methods to be developed;
- (f) Promoting mechanisms (e.g. financial and technical assistance) that facilitate the implementation of the instrument across the region;
- (g) Setting a framework and procedures for coordinated action by transport, environment and health authorities in urban areas to promote the integration of transport, land-use policies and urban planning. This would avoid unnecessary urban sprawl, and reinforce the commitment of public institutions to organizing a transport system which accommodates and provides safe conditions for public transport users, cyclists and pedestrians;
- (h) Establishing an international framework for the stronger management of transport demand. This should include on the one side regulatory standards for new modes of transport and land-use and the material infrastructural changes required to support them and tools for promoting behavioural change. Demand-side measures should be addressed not simply in terms of measures at the local and regional level, but in terms of strategic 'infrastructural' measures at national and international levels;
- (i) Establishing obligations for parties to encourage the development of local and regional action plans, local environmental and health targets for transport, with common indicators for measuring progress, the systematic promotion of intermodality and modal shift by

means of urban and land-use planning, the use of economic instruments, awareness-raising and education and the promotion of cycling and walking. The instrument should reflect the principle of subsidiarity (i.e. deal with competence issues between the different levels of government), providing guidance on the types of policies needed, but leaving implementation decisions to the local level;

(j) Promoting the implementation of a range of measures designed to internalize the external costs of transport;

(k) Setting the basic regulatory framework for an integrated approach to noise reduction, especially in urban areas, taking full account of current EU developments;

(l) Promoting education, information and communication on the health benefits of physical activity;

(m) Setting recommendations for parties to support national and international research efforts in issues needing clarifications and where there is no commercial interest in undertaking such research (e.g. on the health benefits of walking and cycling).

187. All of these elements should be formulated so as to address in the best possible way the identified priorities of integrating environmental and health concerns into transport policy and focusing on urban areas. Measures should be adapted to the economic and social situation prevailing in the different countries or groups of countries.

188. The secretariat of such a framework convention should be able to collaborate closely with all the relevant sectors and key international actors. The Protocol on Water and health has already set a successful precedent of a common UN/ECE and WHO secretariat. A similar arrangement may be considered, should the framework convention be negotiated.

B. Further development of the international response to date

189. In parallel to negotiating a new international instrument, it is recommended to improve the implementation of existing international agreements and legal instruments related to transport, environment and health and to further develop them. The recommended actions should be carried out with the greatest possible involvement of the three sectors. This approach, supplemented with improved monitoring and implementation mechanisms, would contribute to a more efficient

transport system sustainable for health and environment. Opportunities for addressing the various gaps identified by further developing existing instruments and on-going initiatives are listed below:

- (a) Further improving the implementation and the synergistic use of resources in the Programme of Joint Action and the London Charter;
- (b) Actively providing inputs to further develop the health impact assessment dimension of environmental impact assessment (EIA) within the Espoo Convention and within the negotiations for a protocol on strategic environmental assessment (SEA):
 - (i) Action on transport-related strategic environmental assessment, including health assessment, at the pan-European level would best be taken within the context of the Working Group on Environmental Impact Assessment and within the timeframe for the preparation of the future protocol;
 - (ii) The health expertise of the Working Group on EIA composed of representatives of Parties and non-Parties to the Convention will be reinforced with new representatives from the health sectors (including WHO);
- (c) Further amending the UN/ECE Conventions on Road Traffic and on Road Signs and Signals as well as the European Agreements supplementing them with a view to improving road traffic safety, with emphasis on issues such as drivers' behaviour towards pedestrians and cyclists, drink-driving, use of mobile phones while driving, daytime use of vehicle lights and other issues currently under consideration by the UN/ECE Working Party on Road Traffic Safety;
- (d) Further amending the UN/ECE Conventions on Road Traffic and on Road Signs and Signals and the European Agreements supplementing them in order to establish minimum technical standards for non-motorized vehicles and infrastructures such as cycling paths and signals; further developing, in the framework of the 1958 and 1998 Agreements, respectively UN/ECE and/or global regulations aimed at reducing fuel consumption and CO₂ emissions, at improving the quality of fuels and at introducing new alternative fuels. The UN/ECE Working Party 29 could further investigate standardization for electric vehicles;
- (e) Further expanding and clarifying the provisions of annex II to the European Agreement on Main International Traffic Arteries (AGR), 1975, with regard to environmental impact assessment concentrating on noise reduction measures;

(f) Including a new annex III to the European Agreement on Main International Railway Lines (AGC), 1985, containing provisions relating to environmental impact assessment for the construction of new lines and the rehabilitation of existing lines, concentrating on noise reduction measures;

(g) Including a new annex V to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC), 1991, containing provisions relating to environmental impact assessment for the construction of new lines, the rehabilitation of existing lines and the construction of combined transport terminals, concentrating on noise reduction.

190. In addition to the further development of existing legal instruments, mechanisms may need to be developed to ensure the adequate implementation of existing legal instruments at the national level. The analysis of legal instruments undertaken also highlighted that the lack of information on the level of implementation of many of the relevant legal instruments, particularly in the field of transport, is due mainly to the non-existence of monitoring mechanisms. Therefore, mechanisms to obtain information relevant to monitoring the actual implementation of existing instruments seem to be necessary. Such monitoring mechanisms, which could be administered by the relevant administrative committees of these legal instruments, may be a first step towards better implementation of the provisions of these legal instruments.

C. Closer cooperation between organizations and projects

191. Much can also be achieved through existing institutions and some of the gaps may best and most rapidly be filled by using ongoing activities and further improving cooperation between the relevant organizations, namely UN/ECE, WHO, OECD, UNEP, ECMT and EC. Activities that are relevant to the priority gaps are listed below:

(a) Harmonizing guidelines being produced for urban areas regarding transport, land-use planning, health and the environment, including:

(i) A UN/ECE project which is developing international guidelines on the integration of urban transport policies and land-use planning. The Steering Group responsible for preparing the guidelines is open to experts designated by member States, IGOs and NGOs. The governments and organizations could be invited to designate experts to the Steering Group, which would provide balanced representation of the transport, environment and health sectors;

(ii) A WHO project on Healthy Urban Planning, putting health considerations more clearly on the agenda of urban and land-use planners;⁶⁵

(b) Taking full advantage of the synergies offered notably by:

(i) The OECD Guidelines on Environmentally Sustainable Transport;

(ii) Regional initiatives for sustainable transport, such as HELCOM 21 and the CEI Declaration for sustainable transport;

(iii) Resolutions developed by ECMT;

(iv) UNEP/Habitat joint Sustainable Cities Programme;

(c) There should be increased coordination with the various databases, that seek to promote sustainable urban development, notably:

(i) The Sustainable Cities Report and Good Practice Guidance;

(ii) The European Sustainable Cities & Towns Campaign and its Database on Good Practice in Urban Management and Sustainability;

(iii) Local Sustainability, the European Good Practice Information Service developed and operated by the EURONET/ICLEI Consortium with the financial support of the European Commission, Directorate General for Environment, Nuclear Safety and Civil Protection;

(iv) European Academy of the Urban Environment's SURBAN database on sustainable urban development in Europe;

(v) Campaign Interactive, the web page of the European Sustainable Cities & Towns Campaign and the European Sustainable Cities Project;

⁶⁵ The guidelines produced by the WHO are starting to be disseminated and implemented through the WHO Healthy Cities Network.

(vi) The Best Practices database developed jointly by UNCHS (Habitat), Dubai Municipality and the Together Foundation with the support of the Best Practices Partners and the Governments of Spain, United Kingdom and Switzerland;

(vii) The Annual Bulletin of Transport Statistics of UN/ECE, which collects statistics and indicators related to non-motorized transport modes. This information source should be used more actively to monitor the progress in modal shifts;

(viii) The WHO Healthy Cities network and related indicator-based reporting system;

(ix) The WHO initiatives on the standard collection of information, including on physical activity, e.g. International Physical Activity Questionnaire, and EURO Health Information System, National Environmental Health Action Plans (NEHAPs) monitoring indicators, the forthcoming reporting on health impacts of policies (Health Impact Assessment Programme);

(d) There should be increased coordination with projects, such as the EEA TERM, to strengthen the development and use of relevant health indicators;

(e) The development of a manual of best practices in integrating environment and health concerns into transport policy by describing the institutional setting of some of the national and sub-national administrations which are most successful in this respect would be recommended;⁶⁶

(f) An additional gap identified during the preparation of this report involves aeroplane emission charges. If the International Civil Aviation Organization (ICAO) arrives at an agreement on the issue at its 2001 General Assembly, there would be no need to pursue this matter further. If not, aeroplane emissions charges would be taken up by the European Civil Aviation Conference, or by other countries of the European region, which could join the initiative of the European Union for a European charging system.

⁶⁶ For examples, please refer to “Integrating Environment in Transport – A survey of EU Member States Policies”, Swedish EPA/ERM, 2000.