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Inland Transport Committee

Working Party on Transport Trends and Economics

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Item 2 of the provisional agenda
**United Nations Economic Commission for Europe workshop
on "Urban Transport and Mobility"**

Transport Trends and Economics, 2012–2013
on Urban Transport and Mobility

Note by the secretariat*

1.   The mayors of the world's 25 largest cities are each responsible for more people than most national prime ministers. For example, London, ranked twenty-third in the world, has more residents than nations like Denmark, Ireland, New Zealand or Paraguay, and if Karachi, globally the largest city, was a country it would rank above Greece, Hungary or Portugal. The combined population of the world's eleven megacities — cities with more than 10 million inhabitants — equals that of Japan.

2.   According to a survey[1], there are eleven megacities in 2011. In addition to Karachi, Shanghai, Mumbai, Beijing, Delhi, Buenos Aires, Metro Manila, Seoul, Sao Paulo, Moscow and Jakarta are members of this select group of cities. Istanbul and Bangkok, with

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*   The Working party on Transport Trends and Economics at its twenty-fourth session approved the proposal of the secretariat for the transformation of the Report on the review of the transport situation in UNECE member countries and of emerging development trends to an annual publication on transport trends and economics in the ECE region and asked member countries to respond to the secretariat's questionnaire on the transport situation in 2011 and expected developments in 2012 (ECE/TRANS/WP.5/50, paras. 31–32). The Inland Transport Committee at its seventy-fourth session took note of the draft publication, and endorsed the decision by the Working Party to transform of the review into an annual publication on transport trends and economics in the ECE region (ECE/TRANS/224, para. 20–21). The following report outlines the working structure of the publication to be prepared for 2012 and proposes a possible theme for the consideration and approval of the Working Party.
[1]   http://www.citymayors.com

populations of more than nine million, are placed 12th and 13th in the list of largest cities in the world.

3.   According to the latest statistics, 80 per cent of European Union citizens live in urban areas, and 40 per cent live in large urban areas of over 200,000 inhabitants. They share in their daily life the same space, and for their mobility the same infrastructure. Public transport, cars, lorries, cyclists and pedestrians all share the same infrastructure. On average a European citizen makes 1,000 trips per year and half of these are less than 5 km long. For many of these shorter trips walking and cycling could be a true alternative. Urban mobility accounts for 40 per cent of all CO_2 emissions of road transport and up to 70 per cent of other pollutants from transport. One in three road fatalities occurs in cities. Congestion problems, too, are concentrated in and around cities. European cities increasingly face problems caused by transport and traffic[2].

4.   The car is by far the dominant urban mode, contributing about 75 per cent of kilometres travelled in EU conurbations. Cars cause so much congestion that, in some European cities, average traffic speeds at peak times are lower than in the days of the horse-drawn carriage. Increased car use has been accompanied by safety and environmental problems, as well as by a downward spiral of under-investment in public transport.

5.   Public transport is an important alternative to the car, playing a major role in the bigger cities where it carries 2.5–3 times as many people as private transport. Public transport is also important for an estimated 40 per cent of EU households who do not have a car. Predictions suggest that, without further intervention, public transport will maintain its market share in the next decade only in the larger conurbations where it has a clear advantage in terms of image, reliability and speed.

6.   Road transport is largely oil-dependent and produces the great majority of transport emissions to the air. In addition nearly all of Europe's city inhabitants are exposed to air pollution levels that exceed EU limits for particulate matter (PM). Substantial progress has been made over the last decade in reducing vehicle emissions, but hotspots continue to be a problem and growing traffic levels are a threat, or may even reverse progress in urban air quality and greenhouse gas emissions.

7.   The question of how to enhance mobility while at the same time reducing congestion, accidents and pollution is a common challenge to all major cities in Europe. Cities themselves are usually in the best position to find the right answer to this question that takes into account their specific circumstances. More than anyone else, city dwellers directly experience the negative effects of their own mobility and may be open to innovative solutions for creating sustainable mobility.

8.   The following table summarizes the users of cities infrastructure, the public transport alternatives and the negative results that users of cities infrastructure produce.

Public Transport	Users of cities infrastructure	Negative results
Bus	Public transport	CO_2 emissions
Tram	Cars	Road fatalities
Trolley	Lorries	Congestion
Metro – Underground	Cyclists	

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[2] www.proudcities.gr/sustainable_urb_transport.htm

Public Transport	Users of cities infrastructure	Negative results
Suburban trains	Pedestrians	
Light Rail Transit (LRT)	Motorcycles	
Automated People Movers (APM) / Personal Rapid Transit (PRT)		

Source: UNECE

9.   Automated People Movers (APM) are advanced transportation systems in which automated driverless vehicles operate on fixed guide ways in exclusive rights of way. Two of the best known APMs are the Docklands Light Rail system in London and Line 14 in the Paris metro system. Attractive features of APMs include the high frequency of their operations, and the low operating costs due to reduced staff levels. The deployment of vehicles is more flexible due to the removal of the requirement to comply with driver working conditions and award provisions. APMs are especially suitable to situations where there are relatively small numbers of people moving throughout the day. The construction of systems is cost competitive with new roads, but there are higher overheads due to the centralized control system and the computer technology. However, within their capacity restraints, they are far more effective per person moved in achieving sustainability targets than any system using vehicles with drivers.

10.   Personal Rapid Transit (PRT) systems are a type of APM which can effectively overcome the difficulties of scheduled public transport systems while retaining the benefits of individual travel. PRT systems involve a small driverless vehicle operating along a guided way. The Urban Light Transport (ULTra) system has been developed by Bristol University. The vehicle is a 4-seat capsule which runs on rubber wheels on its own guideway. Guidance is provided by computer responses to magnetic implants in the guideway. Vehicles are electrically powered, and have room for bicycles, wheelchairs and luggage. Fare systems are based on the use of a vehicle, rather than individual travel. Hence four people traveling together pay the same fare as one person traveling alone. This makes ULTra very competitive with car travel.

11.   Improving public transport includes various strategies that give discretionary travellers (those who have the option of driving) reasons to choose transit. These include:

        (a)   Improve transit service, including more service, faster service and more comfortable service;

        (b)   Reduce fares and offer discounts (such as lower rates for off-peak travel times, or for certain groups);

        (c)   More convenient fare structures and payment systems using electronic "smart cards";

        (d)   Commute trip reduction programmes, commuter financial incentives, and other transportation demand management programmes that encourage use of alternative transportation modes;

        (e)   Improve rider information and marketing programmes;

        (f)   Park & Ride facilities and promotion programmes (Rodier and Shaheen, 2006);

        (g)   Create a Multi-Modal Access Guide, which includes maps, schedules, contact numbers, and other information on how to reach a particular destination by public transit;

(h)   Parking and Road pricing can provide financial incentives for transit use.

I.   Challenges Facing Urban Transportation and Mobility

12.   A planner of urban transport is facing the following challenge: he or she has to best use the public land and financial resources as to optimize the urban transport network by achieving the optimal mobility, maximum elimination of negative effects (congestion, road fatalities, pollution) and maximum provision of transport services to users.

13.   This equation is a continuous challenge for urban transport planners as cities are becoming bigger and bigger and more people are becoming users of cities infrastructure and transport services. The following graph illustrates the challenges that urban transport and mobility face.
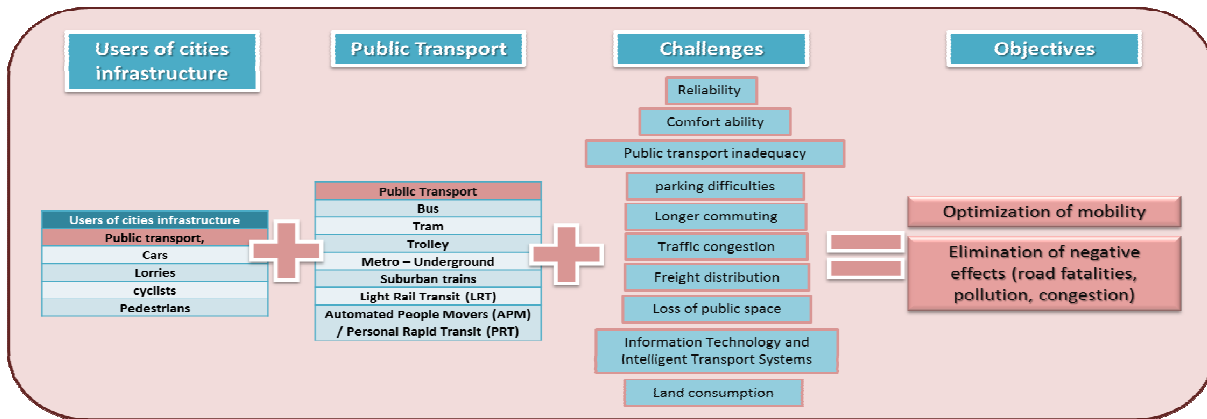
Source: UNECE, people.hofstra.edu

14.   The larger the city, the greater its complexity and the potential for disruptions if this complexity is not effectively managed. The most important transport problems are often related to urban areas and take place when transport systems, for a variety of reasons, cannot satisfy the numerous requirements of urban mobility. Urban productivity is highly dependent on the efficiency of its transport system to move labor, consumers and freight between multiple origins and destinations. The most notable urban transport challenges are:

(a)   Reliability: a citizen would use public transport if he/she could trust it. Trust for services provided, time schedules and connectivity is the most important factor for a user.

(b)   Comfort ability: users are looking for services. All means of public transport should provide services to their users. Air conditioning, cleanliness, ticketing machines, stations that protect and provide travelling info by electronic means, etc.

(c)   Public transport inadequacy: Many public transit systems, or parts of them, are either over or under used. During peak hours, crowdedness creates discomfort for users as the system copes with a temporary surge in demand. Low ridership makes many services financially unsustainable, particularly in suburban areas.

(d)   Parking difficulties: Since vehicles spend the majority of the time parked, motorization has expanded the demand for parking space, which has created space consumption problems particularly in central areas; the spatial imprint of parked vehicles is significant. Congestion and parking are also interrelated since looking for a parking space creates additional delays and impairs local circulation.

(e)   Longer commuting: people are spending an increasing amount of time commuting between their residence and workplace. An important factor behind this trend is related to residential affordability as housing located further away from central areas (where most of the employment remains) is more affordable. Therefore, commuters are trading time for housing affordability.

(f)   Traffic congestion: Congestion is one of the most prevalent transport problems in large urban agglomerations, usually above a threshold of about 1 million inhabitants. It is particularly linked with motorization and the diffusion of the automobile, which has increased the demand for transport infrastructures.

(g)   Freight distribution: Globalization and the materialization of the economy have resulted in growing quantities of freight moving within cities. As freight traffic commonly shares infrastructures with the circulation of passengers, the mobility of freight in urban areas has become increasingly problematic.

(h)   Loss of public space: The majority of roads are publicly owned and free of access. Increased traffic has adverse impacts on public activities which once crowded the streets such as markets, agoras, parades and processions, games, and community interactions. These have gradually disappeared to be replaced by automobiles. In many cases, these activities have shifted to shopping malls while in other cases, they have been abandoned altogether. Traffic flows influence the life and interactions of residents and their usage of street space.

(i)   IT and Intelligent Transport Systems: Improves public transport as operators can improve their services by having accurate information on the location and progress of vehicles. In addition travellers can get up-to-date information from the appropriate websites, stations and other points of information.

(j)   Land consumption: The territorial imprint of transportation is significant, particularly for the automobile. Between 30 and 60 per cent of a metropolitan area may be devoted to transportation, an outcome of the over-reliance on some forms of urban transportation. Yet, this land consumption also underlines the strategic importance of transportation in the economic and social welfare of cities.

II.   Initiatives in Urban Transport and Mobility

15.   There are several organizations that have initiated several projects and taken actions on urban transport and mobility analysis. Some of these initiatives are presented below.

A.   European Union

16.   The European Commission is working to improve citizens' quality of life and strengthen the economy by promoting sustainable urban mobility and increased use of clean and energy efficient vehicles. The European Commission adopted the Action Plan on urban mobility on 30 September 2009.

17.   The Action Plan proposes twenty measures to encourage and help local, regional and national authorities achieve their goals for sustainable urban mobility. With the Action Plan, the European Commission presents for the first time a comprehensive support package in the field of urban mobility.

18.   Local, regional and national authorities are free to use this support, and the tools that will be offered. By doing so, they will be better equipped to address the challenge of

sustainable urban mobility, which will facilitate their policymaking. In addition, Europe's citizens and companies will benefit from this on a daily basis.

19.   The actions are being launched over the three years following the Action Plan's adoption. The European Commission will conduct a review of the implementation of the Action Plan in the year 2012, and will assess the need for further action.

20.   The actions foreseen will:

(a)   Promote integrated policies to deal with the complexity of urban transport systems, governance issues and the necessary coherence between different policies, for example between urban mobility and cohesion policy, environment policy or health policy;

(b)   Focus on citizens' needs by promoting reliable travel information and a high level of protection of passenger rights;

(c)   Help to green urban transport by introducing new, clean vehicle technologies and alternative fuels and promoting smart charging to encourage transport users to change travel behaviour;

(d)   Address funding by exploring existing funding opportunities, innovative public-private partnership schemes and possible new funding solutions;

(e)   Support sharing experience and knowledge to enable better access to this information and help stakeholders to capitalize on these experiences and on relevant data and statistics;

(f)   Optimize urban mobility to encourage effective integration, interoperability and interconnection between different transport networks;

(g)   Improve road safety to achieve a high level of road safety, especially for vulnerable road users such as young people and the elderly.

B.   International Association of Public Transport

21.   The International Association of Public Transport (UITP) is the international network for public transport authorities and operators, policy decision makers, scientific institutes and the public transport supply and service industry. It is a platform for worldwide cooperation, business development and the sharing of know-how between its 3,400 members from 92 countries. UITP is the global advocate of public transport and sustainable mobility, and the promoter of innovations in the sector.

22.   A relevant publication of UITP is the "Mobility in Cities" which uses data of 2001, was published in July 2006 and:

(a)   Is a user-friendly database of 120 urban mobility indicators in 50 cities;

(b)   Analyses the role of public transport and provides recommendations for sustainable mobility;

(c)   Provides information on the evolution of urban transport policies in 30 cities.

23.   Other more recent publications on statistics in urban transport include the "Market Study of Urban Passenger Transport in Russia and Ukraine", published in May 2009 and the "Latest Figures on the Urban Bus Fleet in the European Union", published in May 2007.

C. International Transport Forum

24. The International Transport Forum (ITF) at the OECD is an intergovernmental organization with 54 member countries. It acts as a strategic think tank for transport policy and organizes an annual summit of ministers. Its goal is to help shape the transport policy agenda on a global level, and ensure that it contributes to economic growth, environmental protection, social inclusion and the preservation of human life and well-being. Recent ITF publications on urban transport and mobility are:

(a) The "Transport Outlook 2012. Seamless Transport for Greener Growth", where the broad growth expectations for mobility and transport, a closer look at private vehicle ownership and use and the challenges and policy priorities for the transport sector are illustrated.

(b) The "Key Transport Statistics 2012" where the main transport statistics for transport are illustrated but statistics for urban transport.

25. The ITF annual summit for 2012 was dedicated to "Seamless Transport: Making Connections" (2–4 May 2012, Leipzig, Germany) where some of themes focused on urban transport, such as:

(a) Seamless Urban Freight Transport: The need for a new policy approach;

(b) Urban Connectivity: Improving the Door-to-Door Journey;

(c) Rethinking the Last Mile: New Approaches to Urban Logistics;

(d) Leipzig by Bicycle.

D. The PEP

26. The PEP — the Transport, Health and Environment Pan-European Programme — established in 2002, aims to bring together key players from the three sectors on an equal footing. The Workshop on Sustainable Development of Urban Transport: Challenges and Opportunities (7–8 June 2012, Moscow) discussed the key issues and challenges for sustainable urban mobility in the Russian Federation, environmental and health impact of motor transport in cities, how to plan and manage transport for attractive, sustainable and liveable cities.

27. The PEP provided, as results of its workshop, a set of recommendations for the development of sustainable urban transport.

E. The World Bank

28. The World Bank supports client countries and cities in their effort to develop urban transport policies and projects tackling the challenges that Urban Transport systems in large developing cities face due to the continuous growth of urban population, private vehicle ownership, congestion, and the fragility of public transportation systems.

29. In 2011 the World Bank published the "Urban Transport Projects: Patterns and Trends in Lending 1999–2009" where an overview of the 1999–2009 urban transport programme is illustrated worldwide.

30. World Bank provides different statistics on urban transport, such as:

(a) Motor vehicles (per 1,000 people);

(b) Passenger cars (per 1,000 people);

(c)   Population in the largest city (per cent of urban population);

(d)   Urban population;

(e)   Vehicles (per km of road).

III.   UNECE, Urban Transport and Mobility

31.   So far, UNECEs only analysis of urban transport and mobility, has been through its participation in the PEP programme. The Working Party on Transport Trends and Economics (ECE/TRANS/WP.5/50, para. 30–32) approved the secretariat's proposal to transform the report which reviewed the transport situation in UNECE member States and the emerging development trends into an annual publication on transport trends and economics in the ECE region. In addition, at its last session, WP.5 (ECE/TRANS/WP.5/50, para. 42) adopted its terms of reference and rules of procedures whereby WP.5 should review general transport policy and development trends and analyse specific transport economic issues. It should encourage the exchange of data between member States on transport policy developments, particularly relating to inland transport. As mentioned above, many initiatives by different organizations on urban transport and mobility exist but few of them focus on data collection and statistics analysis. The data collected from these organizations is either generic and in parallel specialised (number of vehicles per habitants or loans given for urban development, World Bank), or dedicated to urban development for specific cities (UITP) and mainly do not cover the ECE region.

32.   *Transport Trends and Economics 2013: Urban transport and mobility*[3] will include data received from the capitals of the 56 UNECE member States and will focus, inter alia, on:

(a)   Urban transportation networks analysis (km of bus lanes, km of bicycle lanes, etc.);

(b)   Urban transport capacity (number of buses, trams, etc.);

(c)   Time schedules analysis in correlation with capacity management;

(d)   Ticketing;

(e)   Population and km of pedestrian roads.

33.   The main objective of this publication is:

(a)   The mapping of UNECE capitals' urban networks and the illustration of urban transport and mobility indicators;

(b)   To shed more light on one of the biggest challenges in developing sustainable urban transport systems – that of creating economically, efficient, socially affordable and accessible, as well as environmentally-friendly urban transport systems;

(c)   To underline the magnitude of negative social, economic and environmental effect of transport in urban areas where the majority of population of UNECE is currently living;

(d)   To provide policymakers with best practices and successful examples from the region allowing then to make informed policy decisions;

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[3] forthcoming

(e)   To bring together visions of policymakers from different levels of Governments (national, regional, local) as well as transport planners and academia and provide a platform for thinking about future policy choices.