



Strategising sustainable urban mobility in EU Neighbour Countries



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"There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things."

Niccolo Machiavelli
The Prince (1532)

Contents

- 0. Context of this report..... 4**
- 1. Introduction and aims..... 5**
- 2. Overview of EU urban transport policies..... 8**
- 3. Present status and direction of the transport sector in the EU15**
- 4. How to start getting involved19**
 - 4.1 Areas and activities to consider for affecting sustainable urban mobility 19
 - 4.2 Funding opportunities and knowledge/support sources 27
 - 4.3 Planning and implementing a sustainable urban mobility plan 32
- 5. Conclusions.....35**
- Annex37**
 - EU legislation relevant to mobility and transport in urban areas 37

0. Context of this report

This report constitutes a deliverable of the project “Increasing energy efficiency of Chişinău and Sevastopol municipalities based on existing positive experience”, co-funded by the European Union’s CIUDAD Programme (Cooperation in Urban Development and Dialogue). The project runs between May 2010 and April 2012. Its main objective is to incorporate the energy efficiency perspective in the administration processes of the municipalities of Chişinău, Republic of Moldova, and Sevastopol, Ukraine, to institutionalize it, and to prepare the ground for infrastructural investments aimed at improving energy efficiency in these municipalities. To this end, this report addresses energy efficiency and energy saving potentials in the urban transport sector.

1. Introduction and aims

Urban transport is a relevant subject because it affects each and every one of the residents of a city. Mobility has become an ever increasing need, however it may be accomplished: by walking, cycling, riding a bus, a tram, a train, a taxi, driving, navigating, flying... Transport is also important because it is a major consumer of energy—it is responsible for about one-quarter of total energy consumed in the EU—and a heavy emitter of GHG emissions—between one-fifth and one-third of all emissions; factors which are nowadays hot topics in the political agenda. As cities strive to be more self-sufficient in terms of energy security, the transport sector should be high in the list of priorities because of its immense potential in reducing energy consumption and GHG emission.

The challenge, admittedly, is enormous. Indicators typically show a deteriorating situation in terms of increased negative impacts across the region. An increasing dependence on passenger cars and air transport is foreseen¹, whilst demand for rail and public transport are, at best, not expected to grow. To illustrate, between 1990 and 2007 in the EU-27 road transport grew by 29%, domestic aviation by 30%, while rail transport shrunk by 41%. In line with the modal split trends, car ownership in the same period grew by 34%.²

Transport is a major culprit of several impacts to society. Demand for transport translates into demand for resources, such as oil-based resources, materials for infrastructure and vehicles, energy and land. There is also a well-known interdependence between mobility and urban sprawl, further increasing demand of energy, land and material. Likewise, transport creates demand for water (eg. used in the production of vehicles) and results in its pollution (eg. from road runoff). All of these activities, and especially the user phase of road and air transport modes, generate emissions of GHG and particulate matter, among others, which pollute the air, increase ambient temperature and are responsible for premature deaths (through the inhaling of car exhaust gases).^{3 4} Noise is yet another negative effect of transport, having the potential to decrease the quality of life of citizens.⁵

Other impacts of increased car ownership/use and their inter-relations are depicted in Figure 1.

¹ EEA Report N°2/2010 "Towards a resource-efficient transport system": <http://www.eea.europa.eu/publications/towards-a-resource-efficient-transport-system>

² Idem

³ A report issued by the US Environment Protection Agency in 2010 establishes a [causal relationship](#) between early death and fine particulate matter. The report indicates an estimate 63,000 to 88,000 related deaths in the United States per year. See: <http://californiawatch.org/watchblog/are-dust-smoke-and-exhaust-really-killing-9200-year-5020>.

⁴ Another study, this one by the University of Aberdeen, linking fine particulate matter generated by car exhaust fumes to increased number of deaths by heart and lung disease. See: <http://www.independent.co.uk/news/uk/car-exhaust-fumes-linked-to-urbansmog-deaths-may-be-most-dangerous-pollutant-1568798.html>

⁵ Banister et al (2000) quoted in Transport Research Knowledge Center (2009). „Transport and the environment“. Source: http://www.transport-research.info/Upload/Documents/200908/20090818_124030_53136_TRKC_Transport_and_the_Environment.pdf



A less than convenient cycle path somewhere in Europe.

This report intends to be an initial exposure for local governments (LGs) to the subject of sustainable mobility: an introductory urban sustainable mobility guide for LGs. Its outcome is to deliver:

- a general understanding of the sector and its relevant policy processes in the EU,
- an indication of the availability of resources—and where to find them,
- a description of relevant areas to potentially focus on to affect the urban mobility situation, including a selection of best practices across Europe, and
- foundations for a theoretical framework through which to transform the city's vision into reality (ie. the cyclical approach to management).

Putting together all the pieces of the puzzle in order to produce a coherent, inclusive and successful sustainable urban strategy is a complex task. The cyclical management approach that is proposed in this report delivers the tools and processes necessary to achieve it—from the formulation of a vision, to the understanding of appropriate goals and time frames, to the mandate and implementation, and to the monitoring and evaluation.

And as in all facets of life, planning and implementing a strategy requires a good deal of common sense and a thorough understanding of the needs of those affected. Otherwise, obstacles can appear unexpected. This holistic approach will, undoubtedly, be as crucial as any one of the other steps along the way.



...and a more convenient one.

2. Overview of EU urban transport policies

This section aims to provide a brief overview of the present policies related to urban transport in the EU. It first looks briefly at the historical inclusion of transport policy as a common theme in the Union, and then moves on to discuss in more detail the content of recent European positions on the subject, namely the Green Paper of 2007⁸ and the Action Plan on Urban Mobility of 2009.

As early as 1957, when the European Economic Community was created (formed by France, Italy, Germany, Belgium, the Netherlands and Luxembourg) the Member States agreed to develop a common transport policy. The 1992 Treaty of Maastricht, also called the Treaty on European Union, further granted political, institutional and budgetary foundations for a European Commission transport policy, developing a mechanism of community funding for the pan-European network.⁹ That same year the EC issued its first White Paper¹⁰ on the future development of the common transport policy, its main aim being to open-up the transport market among Member States.¹¹ Between 1995 and 1998 the EC, through the ‘Citizens’ Network’ initiative developed the first set of policy proposals in the area of urban mobility, with a focus on best-practices.¹² It recognised the high relevance of citizens’ needs and inputs in the decision-making process.

With the turn of the century, the EC published a **White Paper** in 2001, setting medium-term objectives. The paper, titled, ‘European transport policy for 2010: time to decide’ aims to guide the development of the European transport sector in a sustainable and modern direction. It proposes around 60 “measures to develop a transport system capable of shifting the balance between modes of transport, revitalising the [railways](#), promoting [transport by sea](#) and inland waterway and controlling the growth in [air transport](#). In this way, the [White Paper](#) fits in with the sustainable development strategy adopted by the European Council in Gothenburg in June 2001”.¹³ And, importantly, it highlights the concept of intermodality—journeys involving more than one mode of transport—recognising that the solution to an increasing demand for transport in the EU cannot be the continuous construction of new transport infrastructure, but rather must be the optimization of use of the transport systems.¹⁴ In the EC’s mid-term review of the 2001 White Paper, issued in 2006 and titled ‘Keep Europe moving – sustainable mobility for our continent’, newly arising concerns, such as increasing energy prices, the enlargement of the EU, international efforts to combat climate

⁸ A green paper released by the European Commission is a discussion document intended to stimulate debate and launch a process of consultation, at European level, on a particular topic. A green paper usually presents a range of ideas and is meant to invite interested individuals or organizations to contribute views and information. It may be followed by a white paper, an official set of proposals that is used as a vehicle for their development into law. Source: http://en.wikipedia.org/wiki/Green_paper

⁹ CIVITAS VANGUARD. Power Point presentation. Section “The evolution of sustainable transport policy in Europe”. July 2010.

¹⁰ White papers published by the [European Commission](#) are documents containing proposals for [European Union](#) action in a specific area. They sometimes follow a [green paper](#) released to launch a public consultation process. Source: http://en.wikipedia.org/wiki/White_paper

¹¹ http://europa.eu/legislation_summaries/environment/tackling_climate_change/l24007_en.htm

¹² http://ec.europa.eu/transport/urban/urban_mobility/urban_mobility_en.htm

¹³ http://europa.eu/legislation_summaries/environment/tackling_climate_change/l24007_en.htm

¹⁴ Lowe, David (2005) “Intermodal freight transport” Elsevier, Oxford.

change (including the Kyoto Protocol commitments for example), and the fast-pace of globalisation are included in the common transport policy agenda.¹⁵

Meanwhile, in the context of measures taken at the local level, in 2000 the EC launched the CIVITAS Initiative, encouraging and making funding available to cities for the implementation of measures related to sustainable transport. Under different research framework programmes the EC has funded the initiative to stimulate research, innovation and transferability among participants from different EU Member States.

In 2007 the EC published the **Green Paper on Urban Mobility: 'Towards a new culture for urban mobility'**.¹⁶ It set the foundations for a new European agenda for sustainable mobility policy (in which, eg. legislative initiatives are developed in an integrated, and not fragmented, manner) and invited stakeholders to a debate on what support the EU should provide, and how best to provide it (eg. how to achieve optimal European added-value through the effective promotion of best practices).¹⁷ The results of the consultation and concrete measures were later compiled in the EC's 'Action Plan on Urban Mobility' (2009).¹⁸ Before describing the contents of the Action Plan, however, it is relevant to detail the subject matter of the Green Paper.

The Green Paper identified five challenges faced by cities that need to be overcome in order to move towards 'free-flowing towns and cities'¹⁹:

- Congestion, which creates negative economic, health, environmental and social impacts, and affects mobility not only at the local (city) level, but also long-distance transport routes which go through urban areas.

Possible solutions to this issue include a better and more efficient link between transport

On increasing bicycle use through a mix of policies

While factors such as landscape, climatic conditions and cultural aspects determine people's willingness to walk or cycle, a study published in 2010 suggests that policies are likely to be a more important factor. The study evaluates three countries where cycling has become a popular means of travel—Denmark, Germany and The Netherlands—and concludes that "the most important pro-cycling measure has been implementing extensive and coordinated cycle paths and lanes and short-cuts". Reducing maximum speeds in urban streets to 30 Km/h is, likewise, an important measure which enhances comfort and safety for cyclists and pedestrians.

Other relevant and successful policies are the construction of extensive bike-parking facilities, especially at or near major collective transport nodes, and cycling training to young school children. Last, but certainly not least, mixed land use is paramount to making cycling and walking trips short and easy. The cycle-friendly measures have been combined with car-unfriendly ones, such as limited transit zones, a range of taxes, and expensive parking in the centre of town.

Source:

<http://ec.europa.eu/environment/integration/research/newsalert/pdf/205na1.pdf>

¹⁵ http://ec.europa.eu/transport/strategies/2006_keep_europe_moving_en.htm

¹⁶ http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0551en01.pdf

¹⁷ The Transport, Health and Environment Pan-European Programme (THE PEP), founded in 2002, is an initiative of the UNECE and the WHO Regional Office for Europe which also recognises in its foundation the need to integrate policies among these three departments in order to achieve sustainable solutions. THE PEP offers a platform for countries with differing capacities to share information and know-how, and benefit from each other's experience. At THE PEP workshops, governments and stakeholders discuss experience on a wide range of subjects, such as the integration of policies and promotion of sustainable urban transport. Source: http://www.unece.org/thepep/en/flyers/small_ECE_AC_21_5_Flyer_e.pdf

¹⁸ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0490:FIN:EN:PDF>

¹⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0551:FIN:EN:PDF>

modes, the promotion of cycling and walking, adequate parking policies, telecommuting and teleshopping, and other measures such as car-sharing.

- Dependence on fossil fuels, with their related CO₂ and other polluting emissions, as well as noise. GHG and particulate matter emissions contribute to climate change and worsen air quality and human health. Noise also has negative impacts on the health of citizens. Possible ways to overcome this challenge include the development of cleaner combustion engines and the setting of minimum standards for vehicle performance; research and introduction of alternative fuels and support for the development of infrastructure for their supply in the urban areas; and finally restricting or banning traffic from designated urban areas.
- Increase in freight and passenger flows, combined with limited possibility to expand the transport infrastructure—both from a point of view of limited space and from a position of advocating sustainable development. Possible ways to overcome this challenge include making intelligent transport systems (ITS) more efficient, integrating the tariff structure of collective transport of all urban transport modes, and having good data to achieve better fleet management (both freight and collective transport).
- Accessibility to the urban mobility system. The existing systems, which include collective transport, walking and cycling paths, roads, etc, need to be of high quality. This means, depending on each case, that they need to be efficient, fast, frequent, comfortable, reliable, safe, flexible, affordable and accessible to the more vulnerable groups (elderly, young, citizens with disabilities, pregnant women). The urban sprawl phenomenon, in addition, makes this challenge more complicated. Possible ways to overcome this challenge include ensuring that collective transport options do meet the needs of citizens, building an appropriate legal framework (eg. by setting appropriate public procurement standards), developing fast and frequent bus service solutions, such as ‘bus rapid transit’, and, as an overarching measure, the development and implementation of a sustainable urban mobility plan.
- Safety is a crucial aspect of a high quality urban mobility system. It includes the safety of infrastructures and of the rolling-stock, as well as citizens’ safety in reaching the system (eg. walking from home to the bus stop). An unsafe system can discourage the use of collective transport and result in the isolation of citizens and an increased use of private vehicles. Possible ways to overcome this challenge include investments in safer infrastructures (eg. installation of lighting in walking and cycling paths), introduction of rolling-stock accessible to citizens with reduced mobility, and the implementation of education and information campaigns.

The Green Paper states that, in order “to be effective, urban mobility policies need to be based on an approach which is as integrated as possible, combining the most appropriate responses to each individual problem: technological innovation, the development of clean, safe and intelligent transport systems, economics incentives and amendments to legislation”.²⁰ In addition, it is

²⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0551:FIN:EN:PDF>

important to consider how to best influence citizens' behavioural changes toward a new culture of sustainable urban mobility.

A solid public transport service is a cornerstone of sustainable urban mobility. The book *'Transport for suburbia: beyond the automobile age'*, by Paul Mees (2010) suggests that 'advanced' and 'laggard' cities both use similar technologies; in fact technologies invented many decades ago (buses, electric trains and trams, bicycles, cars). While technological innovation is an important field of research, solutions for today are pressing. A successful and popular public transport service lies on minimising the inconveniences associated with it: among them the distance walked to reach a stop and the wait and transfer times.

Public transport also plays a relevant role in delivering social inclusion, especially for the low-income sectors of the population, the very young and old, those living in remote areas and those who do not own a car. To successfully connect people and prevent citizens from becoming socially excluded, a public transport system should be **available** (close to where people live, work, etc.), **accessible** (designed so that it can be used by the great majority), **affordable**, and **acceptable** (allowing people to feel safe and comfortable).

Source: Mees, P. (2010) and <http://www.pteg.net/NR/rdonlyres/570FF969-98D6-4C06-B9DB-9837A732E835/0/ptegTransportandSocialInclusionreportMay10.pdf>

In parallel to the publication of the Green Paper, the EC published a preparatory document called **'Sustainable Urban Transport Plans – Preparatory document in relation to the follow-up of the Thematic Strategy on the Urban Environment'**.^{21,22}

This publication underlines some points that are important to understand EU policy strategy and likewise relevant for local governments in their planning of sustainable urban mobility measures. They include the following:

- Technological progress alone is insufficient to solve the negative impacts created by transportation.
- The urban transport issue and planning for sustainable solutions should involve efforts at local, national and European levels.
- Within local governments, close collaboration between the urban transport management and the land use planning departments will be necessary to generate sustainable mobility synergies.
- Internalisation of external costs is suggested as a way to account for the full extent of societal costs involved in transportation. The EU, as part of the Action Plan on Urban Mobility, will commission a study on urban aspects of the internalisation of external costs in 2011.

As mentioned above, the result of the consultation process initiated through the Green Paper resulted in the adoption of the **Action Plan on Urban Mobility** by the EC in September 2009. This Action Plan is, today, the roadmap listing urban mobility actions to be implemented between 2009 and 2012 as the EU aims to put in practice the ideas developed and agreed in recent years on the subject.

²¹ http://ec.europa.eu/environment/urban/pdf/transport/2007_sutp_prepdoc.pdf

²² In 2006 the EU launched a new Thematic Strategy on the Urban Environment to help Member States and regional and local authorities improve the environmental performance of Europe's cities. Its goal is to facilitate better implementation of EU environmental policies and legislation at the local level through exchange of experience and good practice between Europe's local authorities. This is of high relevance considering that four out of five European citizens now live in towns and cities and their quality of life is directly influenced by the state of the urban environment. Source: <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/34&format=HTML&aged=0&language=EN&guiLanguage=en>

The Action Plan suggests—notwithstanding the principle of subsidiarity—that a framework at the EU level will improve the ability of local governments to take sustainable urban mobility measures and will also provide a platform to make the process more efficient and cost effective. Hence, the EU establishes (through wide consultation with stakeholders) a general vision on greening the urban mobility sector and on the structure and mechanisms for planning and implementing sustainable urban mobility policies and Sustainable Urban Mobility Plans (SUMPs), while recognising that every city is confronted with a unique reality and that tailor-made plans and measures are required for each case.

The Action Plan includes six themes—Promoting integrated policies, Focus on citizens, Greening urban transport, Strengthening funding, Sharing experience and knowledge, and Optimising urban mobility—which result in 20 measures or actions to be implemented by the EU between 2009 and 2012 as actions intended to support local governments in their implementation of sustainable measures and SUMPs.

For instance, ‘Action 1 – Accelerating the take-up of sustainable urban mobility plans’ offers support through “provid[ing] guidance material, promot[ing] best practice exchange, identify[ing] benchmarks and support[ing] educational activities for urban mobility professionals.”²³

In terms of funding (Theme 4), as a final example of the themes and measures outlined in the Action Plan, the communication recognises that, although investments in urban mobility are normally covered mainly through local, regional or national funding, the recent financial crisis has had negative impacts on municipal budgets. Therefore, EU funding mechanisms, including the European Investment Bank, are expected to play a role in helping the actions materialise. The EC is also keen on seeing the development of innovative public-private partnership schemes at the local level.

Moreover, the Action Plan explicitly recognises the high relevance of the relationship between the EU and its neighbouring regions in addressing the issue of sustainable urban mobility, and commits—through the application of existing platforms and financial mechanisms—to facilitating dialogue, city-partnerships and exchange of information on the subject with these regions, **of which Moldova and Ukraine are part of**. As an initial action, the EU will open certain parts of the CIVITAS Initiative to cities from Eastern Europe and other areas of the world.²⁴

²³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0490:FIN:EN:PDF>

²⁴ The CIVITAS Initiative is briefly described in section 2, and also in section 4 below.

Urban transport and LG budgets

Public spending in car traffic has been and remains great. A shift of investment from private car related expenditures to more sustainable means of transportation is necessary in order for cities to develop an appropriate network of more sustainable mobility options.

A study conducted by ICLEI in a dozen of German cities reveals that an average of €145 per inhabitant is spent on car transportation infrastructures and services by LGs. Of those, less than one-third are recovered (eg. through parking fees and taxes). The study also concludes that public transport services are increasingly becoming less profitable, which underlines the need and importance of subsidies from LGs to maintain their operation.

What should be done with this present situation of large public expenditures in private transportation services and infrastructure, while policy direction at the European level moves toward more sustainable urban mobility solutions?

- i) Promote the polluter pays principle.
- ii) Transfer a portion of the budget spent on car transport to measures dedicated to improving public transport services, infrastructures for pedestrians and cyclists, and such sustainable modes of mobility.
- iii) Strive for appropriate city planning to make it easier and more pleasant for citizens to travel by sustainable modes than by car.

Source: ICLEI – Local Governments for Sustainability (2005). Erdmenger & Führ “Hidden subsidies for urban car transportation”.

In summary, the EU has dedicated efforts throughout the last few decades to try to create a common transport policy, and, in addition, in more recent years to try to reduce the strong negative impacts of the sector on the environment, human health and the economy. There is increasing agreement between experts and recognition within the EU that a mix of policies are necessary to achieve this, and that while GHG mitigation through technological solutions is important, reducing the need and use of motorised vehicles is even more so. A recent study for the case of London, for example, argues convincingly that policy changes involving behavioural and lifestyle changes, combined with infrastructure and land use changes would have a greater impact than policies focusing on technology or technology and carbon trading.²⁵ In line with this finding, another study suggests that the negative impacts of transport will continue to increase even if fuels become increasingly more efficient because of the expected rise in the total number of km travelled per vehicle.²⁶

Indeed, literature suggests that the most efficient way to achieve sustainability in the urban transport sector is to promote accessibility-enhancing strategies²⁷ instead of strategies focusing on improving the conditions and abating the obstacles of driving in the city. Land use has an overwhelming impact on transport needs, and likewise, transport modes increase land-use. Therefore, urban planning that encourages high urban density and mixed land use, with easy access to public transport and walking/cycling facilities is likely to have remarkable benefits in terms of reducing car use, GHG emissions and traffic congestion, while increasing transport efficiency.²⁸

There is a number of policy processes existing and evolving in parallel to the prevalent direction set by the EU, as described above. These are voluntary pledges by LGs to fast-track their transformation into sustainable cities and towns. One of them is the Aalborg Commitments; a set of shared commitments by signatory LGs across Europe—more than 600 at present, since their launch in 2004—envisioned to achieve sustainable future for the communities involved in the process. The sixth of the list of ten commitments is dedicated to “Better mobility, less traffic”, which recognises the interdependence of transport, health and environment and aims to decidedly promote sustainable mobility choices.²⁹ Another relevant policy process is the Covenant of Mayors, by which signatory towns and cities pledge to go beyond the



²⁵ Tyndall Centre (2010). “Engineering cities: How can cities grow whilst reducing emissions and vulnerability?”

²⁶ Chi, G. & Stone, B. (2005). “Sustainable transport planning: Estimating the ecological footprint of vehicle travel in future years”. *Journal of Urban Planning and Development*, vol. 131, no. 3.

²⁷ The term 'accessibility strategy' is used to refer to an authority's overall vision, objectives and broad approach for improving accessibility to the urban area. Source: UK Department for Transport, <http://www.dft.gov.uk/pgr/regional/ltp/accessibility/guidance/gap/accessibilityplanningguidanc3633?page=6>

²⁸ Inturri, G. (2010 – pending publication) “The role of transport in mitigation and adaptation to climate change impacts in urban areas”. *Proceedings from 1st World Congress on Cities and Adaptation to Climate Change*, Bonn. ICLEI

²⁹ <http://www.aalborgplus10.dk/default.aspx>

objectives of EU energy policy in terms of reduction in CO₂ emissions through enhanced energy efficiency and cleaner energy production and use³⁰ (ie. the 20/20/20 goal: 20% reduction in CO₂ emissions, 20% increase in the share of renewable energies, and 20% improvement in energy efficiency) by developing Sustainable Energy Action Plans. About 2000 cities have signed to the Covenant of Mayors by the time this report was written (October 2010). The Action Plan on Urban Mobility issued by the EU in September 2009 and discussed earlier in this section explicitly refers the plan to “introduce an urban mobility dimension in the Covenant of Mayors in order to promote an integrated approach linking energy and climate change with transport,”³¹ and incorporating transport actions into the programme of SEAP measures.

Finally, in the list of parallel policy process, the Reference Framework for Sustainable Cities is a high level European working group dedicated to developing a set of tools to assist LGs and stakeholders to make aligned decisions on their city strategy, policies and plans. These tools should help organise the assessment of sustainability and the monitoring of urban strategies. They would also identify good practice examples of policies. The final development of the prototype and its operability are planned for the end of 2011. Its wide dissemination and communication are scheduled for the first half of 2012.³²

With this overview of EU transport policies and suggestions on possible ways to make the sector more sustainable, the next section takes a look at the present situation of the sector in Europe and considers the forecasted trends.

³⁰ <http://www.eumayors.eu/>

³¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0490:FIN:EN:PDF>

³² <http://www.rfsustainablecities.eu/>

3. Present status and direction of the transport sector in the EU

This section aims to provide a glimpse of the present situation of the transport sector in the EU, describing its relevance in terms of environmental, economic and human health impacts. Forecasts of trends in the sector will be presented as a way to link the efforts conducted at different levels of governments (as described in section 2) with the realities 'on the street'.

Eurostat presents a clear and straightforward introduction to the subject: "The transport sector is the fastest growing consumer of energy and producer of [greenhouse gases](#) in the [European Union](#)." Namely, the transport sector is responsible for more than 25% of total final energy consumed in the EU (the other sectors being industry, households and services). Within the transport sector, the great majority of energy (83%) is consumed by road transport, whereas air transport comes second with 13% of total energy consumption in the sector.³³

The European Environmental Agency (EEA) publishes a Transport and Environment Reporting Mechanism report (TERM) annually. In its latest issue, the TERM 2009³⁴, the EEA reports on a European transition from an initial phase of looking for ways to integrate environmental concerns into transport policies during most of the first decade of this century, to the second—and present—phase of actually developing actions to mitigate GHG emissions. To reduce the negative impacts of transportation is indeed an important step if we consider that the transport sector accounts for between one-fifth and one-third of all GHG emissions in EEA member countries³⁵, depending on what is included in the calculations. While mitigation efforts grow, however, so does the size of the sector. Indeed, the positive effect of measures aimed at mitigating GHG emissions and other negative impacts of transport has been considerably offset by increased transport volumes.³⁶ Freight transport

Interesting facts about the mobility sector:

- Passenger cars are responsible for 75% of passenger km travelled
- Car ownership per household is increasing (+ 38% in average between 1990 and 2004 for the EU 25, and between +14% and +167% per country)
- 50% of car trips are less than 5km, 30% are less than 3km
- Less than 5% of passenger journeys are made by bicycle
- Less than 10% of passenger journeys are made by public transport
- Walking and cycling are decreasing
- Average car occupancy remains close to one.
- Urban freight is typically between 20% and 25% of road space use (space used x hours)
- Urban freight typically contributes to between 10% and 20% of urban road traffic (vehicle x kilometres)

But also...

- Most trips in European cities are shorter than 6 km, a distance that can easily be travelled by bike, often more quickly than by car.

...So there is much room and great potential for creating change toward sustainability in the sector.

Source:

http://ec.europa.eu/environment/urban/pdf/transport/2007_sut_p_prepdoc.pdf and <http://www.fietsberaad.nl>

³³ Eurostat (2006). Source:

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Transport_energy_consumption_and_emissions

³⁴ EEA Report N°2/2010 "Towards a resource-efficient transport system": <http://www.eea.europa.eu/publications/towards-a-resource-efficient-transport-system>

³⁵ European Environmental Agency member countries are all EU-27 Member States plus Iceland, Liechtenstein, Norway, Switzerland and Turkey.

³⁶ EEA Report N°1/2008 "Climate for a transport change": http://www.eea.europa.eu/publications/eea_report_2008_1

is growing somewhat faster than the economy, whereas passenger transport presently grows slightly more slowly (due to the recent economic crisis, though the expectation is that it will grow faster than the economy once the economic crisis ends). Overall, “transport’s impact on the environment continues to be closely linked to economic growth”, which should encourage policy-makers to address and challenge not only the issue of more sustainable modes of transport, but also the reasons why people choose/need to travel.³⁷

The tendency, in any case, is such that the least sustainable modes of transport—road and air transport—will increasingly be the preferred options, while those having a lesser negative impact—ship and rail transport—will lose their share in popularity, as shown in figure 2 below. This implies a rise in negative impacts related to environmental, health and economic aspects for at least the coming two decades, despite the efforts conducted throughout Europe to green the sector.

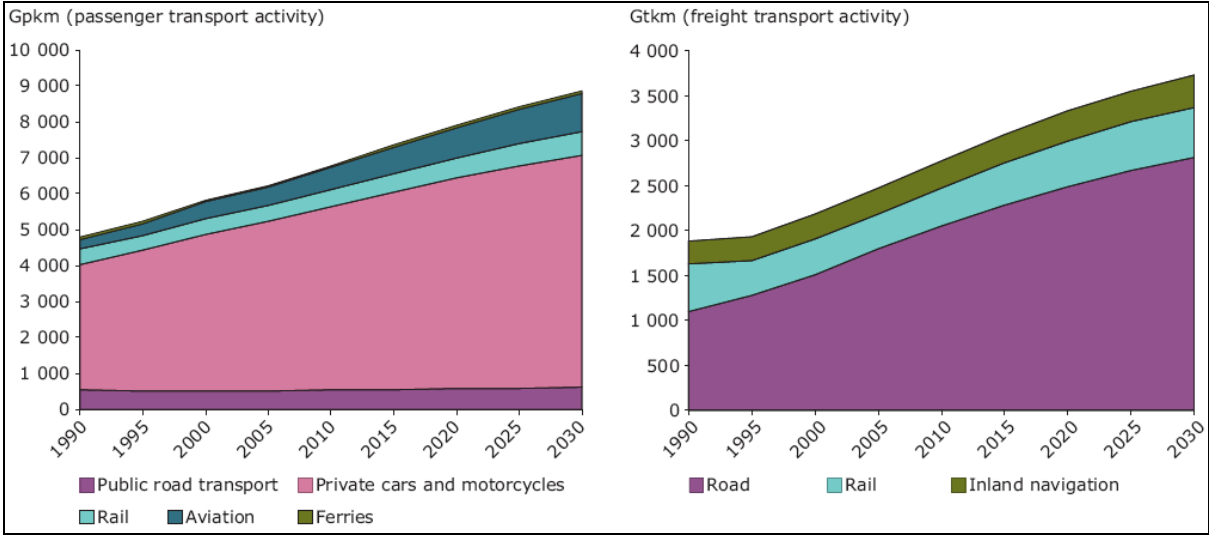


Figure 2: Passenger and freight demand projections for the EU-25
Source: TERM 2009

Emissions of regulated pollutants have decreased overall in Europe, but present targets for other (non-regulated) GHG emissions such as NO_x, NO₂ and CO₂ will most likely not be met. This is the result of a negative net-effect of increased fuel efficiency and cleaner fuels together with, in parallel, increased transport volumes.

European society is strongly dependent on private car transportation. Figure 3 shows the modal split in the 32 EEA countries, which clearly suggest a strong relation between per capita income and transportation by car, as it is mostly higher-income countries with the highest modal split for car (left part of the table), and lower-income countries that rely further on collective transport (right hand side of the table). In other words, it appears that the decision to own a car is based on economic terms, rather than on environmental ones, and that the convenience of travelling by car—whether it relates to speed, directness, comfort, travel schedules, or other criteria—outweighs that of doing so by public transport means.

³⁷ EEA, 2010. Source: <http://www.eea.europa.eu/pressroom/newsreleases/is-europe2019s-transport-getting-greener-partly>

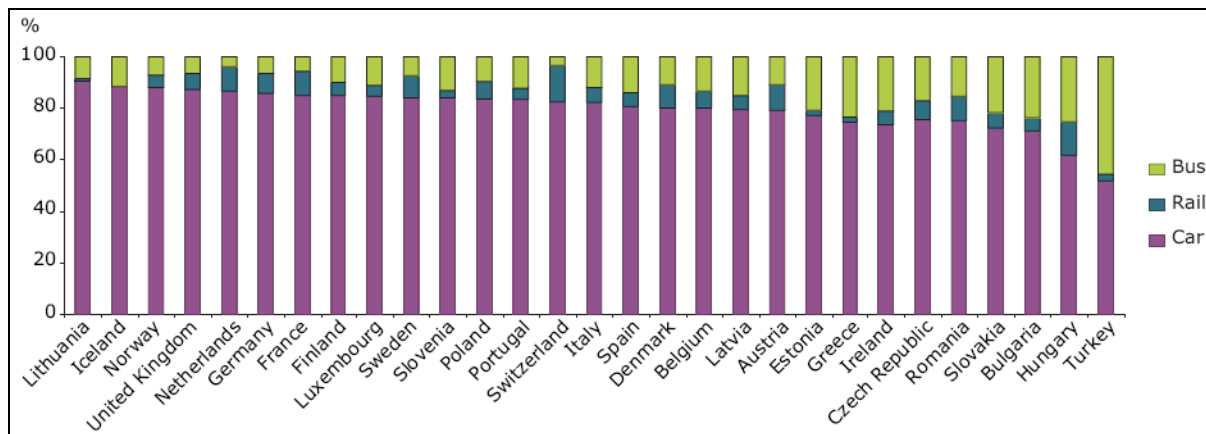


Figure 3: Passenger transport modal split (without sea and aviation) 2007

Source: TERM 2009

Passenger use of rail has reached a maturity level in old EU Member States and public demand for it now remains rather constant. In new Member States, however, transport by rail has experienced a sharp decline (except Estonia, Hungary and Slovenia). The case of France highlights the importance of delivering efficient and fast public transport solutions to encourage passengers to refrain from using the car. Between 1990 and 2004, the number of passengers-km travelled in France by TGV (France’s high-speed train) has constantly increased, while the figure for all non-TGV routes has constantly declined.³⁸

The trend of new Member States to increasingly use less sustainable modes of transport is also evident when it comes to freight transport. Figure 4 shows how new Member States, ie. mostly Eastern European countries, are rapidly moving away from an even share of freight transport between road and rail to a ratio which is vastly dominated by road transport. This is to a large extent due to an increased trade volume between these countries and the EU, and the lacking rail infrastructure to conduct commercial activities between these regions. At the same time, the construction of new roads is frequently a high-priority issue in new Member States. Both at local and national levels newly built roads carry an implicit connotation of ‘progress’, as new highways are considered to be needed to achieve economic development. When a country, a region or a municipality is faced with the question of investing in rail or road, the latter is usually preferred from a political point of view due to its ability to show results in a shorter term. This phenomenon, additionally, favours car related mobility to the detriment of collective transport.

Figure 4, concluding, also shows that freight transport in Western Europe is very stable in terms of modal shares, and also that it is hugely dominated by road transport.

³⁸ Gilbert, R. and Perl, A. (2010). “Transport revolutions – moving people and freight without oil”. Pg 52. Earthscan.

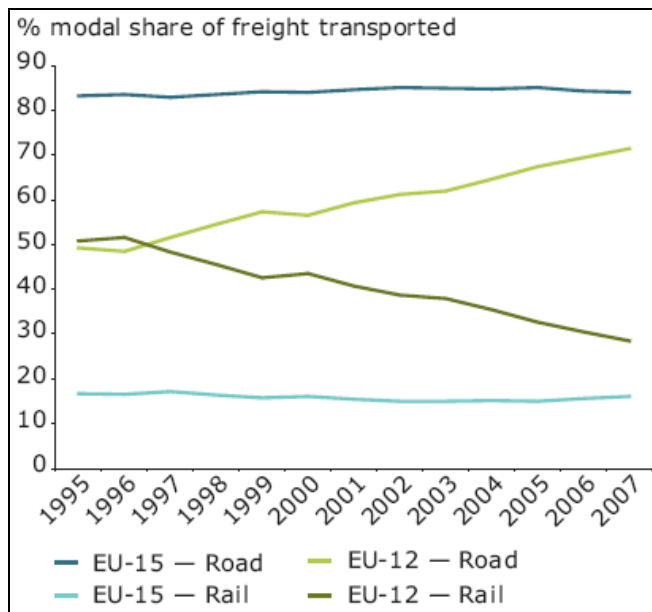


Figure 4: Modal share of freight transported in old and new EU Member States

Source: TERM 2009

In terms of air passenger transport, which is one of the least sustainable forms of mobility, the passenger-km travel distance has increased by an overwhelming 70% in just 12 years—between 1995 and 2007³⁹. The proliferation of low-budget airlines has contributed to the surge in the sector. This trend is unlikely to subside if we consider the present situation of the market being populated with budget airlines, and the fact that on average low-budget airlines have weathered the recent economic crisis better than traditional airlines.⁴⁰ Looking into the future, the Sustainable Urban Transport Plan published by the EU in 2007⁴¹ foresees that in 2030, under a business as usual scenario, transport CO₂ emissions will grow by 27% against 2010 levels. The transport sector will be responsible for 29% of total emissions within the EU and urban road traffic will contribute at least 40% of transport related CO₂ emissions and approximately 10% of overall emissions in the EU. Even today, and without the expected surges in transport-related impacts, the transport situation has considerable negative effects on citizens' quality of life, for example through worsened air quality (high levels of PM₁₀, PM_{2.5}, NO_x, PAH), high noise and congestion levels, and reduced safety for pedestrians and cyclists. This suggests, as it has already been identified by the EEA and the EU (and as this paper concludes in section 2 after an overview of sectoral policies), that proposed solutions to mainstream sustainability in the transport sector will require not only improvements in technologies, but also, importantly, demand-side approaches and behavioural changes in the population which reduce the need to travel. Not least, part of the solution will need to come from the political dimension through commitment to longer-term and rejection of quick-fixes, more sustainable decisions and a revised understanding of growth. After describing recent movements in the policy arena and framing the present and expected future situation of the sector, the next section will present a more pragmatic and hands-on approach to the question: how can a (my) city start becoming more sustainable in terms of mobility?

³⁹ EEA Report N°2/2010 "Towards a resource-efficient transport system": <http://www.eea.europa.eu/publications/towards-a-resource-efficient-transport-system>

⁴⁰ <http://www.flightglobal.com/articles/2010/04/20/340853/special-report-low-cost-carriers-coming-of-age.html>

⁴¹ http://ec.europa.eu/environment/urban/pdf/transport/2007_sutp_prepdoc.pdf

4. How to start getting involved

This section aims to offer practical guidance to cities on how to start implementing sustainable urban mobility. It is meant as a first step for cities to: i) explore the areas and options which may be most relevant to address, depending on the city's characteristics and needs; ii) collect relevant information on potential funding and knowledge and support sources; and, finally, iii) provide a policy and management framework on how to approach and manage the whole process. This section, nevertheless, is not intended to give LGs tailor-made recommendations nor an exact roadmap about the policies they should implement.

4.1 *Areas and activities to consider for affecting sustainable urban mobility*

Transport policy and its subsequent measures implemented at the local level have a great potential to re-shape car-dominated cities and transform them into cities that provide efficient and sustainable mobility solutions.

However, while cities are dynamic bodies in constant movement, they are also static in terms of the existing built infrastructure and, in some cases, land availability. Cities encompass a set of very complex systems in constant interaction—buildings, roads, energy, water and sewage systems, etc.—which makes infrastructural changes a difficult step. Moreover, it is urban form that often shapes the urban transport landscape, and thus determines citizens' availability (or lack thereof) to move within it and beyond.

Transport policies are the instrument to deliver sustainable mobility solutions within the urban region, and they should be used to accomplish this end. Integrated policies and measures aimed at shifting mobility needs to ones that impact the environment less, such as promoting walking and cycling, combined with an effective, affordable and convenient public transport network can effectively present a serious alternative to the private car.⁴² In addition, it is important to stress the value and potential for LGs to engage in networking opportunities with other cities and regions and to participate in EU processes (such as, for instance, the Aalborg Commitments or the Covenant of Mayors mentioned in section 2). These experiences can bring benefits in terms of extended knowledge and educational opportunities for learning cities from more advanced peers by offering direct contact with best practices. They also give the opportunity to learning cities to discuss in expert forums their specific problems and needs, and obtain valuable advice.

Policies can mainly address either technical aspects (eg. energy efficiency and energy saving, with their subsequent effects on air quality and climate change, or policies to promote the use of cleaner vehicles and fuels) or social aspects (eg. awareness-raising, or making public transport safer and accessible to citizens with limited mobility). Notwithstanding this, policies affecting technical aspects will almost invariably have an effect on social issues, and vice versa. In addition, integrated cross-departmental policies are an effective way to create synergies, enhance consistency and increase understanding among LG staff, as well as reducing potential duplication of efforts originating from different LG departments.⁴³

⁴² Mees, P. (2009) "Transport for suburbia: beyond the automobile age". Earthscan.

⁴³ Schwedler, H-U. (2007) "Supportive institutional conditions for policy integration of transport, environment and health". European Academy of the Urban Environment, Berlin.

Given this premise, this section presents a selection of seven policy areas which have been identified by the authors as most relevant for LGs to bring about change in the urban mobility sector. The seven areas to focus on are walking and cycling, efficient collective transport systems, demand management, lifestyle and behavioural change, integrated ticketing schemes, technology advances, and freight transport logistics. They should be addressed by LGs in a combined manner (multi-policy approach) in order to generate synergies and to avoid duplicating efforts. Case studies are presented for each area to illustrate how policies have been put into practice in countries across Europe. The seven policy areas are further described below:

- Walking and cycling – Refers to policies and measures that promote a mobility shift from motorised means of transport to walking and cycling: the most sustainable modes of transport. LGs are likely to realize important improvements in the traffic situation and in the air quality of their cities by implementing successful policies that promote a shift from motorized driving to cycling and walking. Better air quality and more active lifestyles will, additionally, translate into improved health of citizens. In fact, the majority of trips in cities in Europe are short enough that this distance is more efficiently covered by bicycle or walking than by car.⁴⁴ Encouraging people to walk and cycle by developing appropriate infrastructure and policies, and educating motorists to act with respect and caution toward pedestrians and cyclists will also likely spontaneously bring people to using these means of transport.

“Bicing” scheme in Barcelona (Spain)

<http://www.bicing.cat>

Barcelona implemented the Bicing scheme in March 2007. High acceptance and demand led to a continuous expansion of the service and in spring 2008 about 6,000 bicycles, 400 stations and 118,000 registered users was the result. The Bicing program counts an average of 15 rentals per bike/day pointing out that the system has been positively accepted and used by customers. On a practical level, one of the main problems has been thefts of bikes. The funding issue constitutes another barrier, while the biking promotion on a national level (IDAE Action plan to promote the public bicycle) had a decisive role for the Bicing program. The LG was able to make this scheme successful thanks to a close stakeholder cooperation for the development of a long-term strategic plan. The feasibility of bike sharing systems in urban areas, depends on different factors, for example how flat the city landscape is, the annual levels of precipitation, the existence of safe bike lanes and other related infrastructures, the availability of appropriate mobility strategies, and funding.



- Efficient collective transport system – Refers to policies and measures to make collective (public) transport systems more attractive. Attractiveness can be increased by providing transport systems that are reliable, frequent, comfortable, safe, direct, fast, affordable, accessible, and that reach a high proportion of the urban area. Public transport has long represented an essential and important service for citizens, as

⁴⁴ www.bicyclecouncil.org

many citizens do not have a private car, cannot afford one, or are unable or unwilling to operate one. Even so, car ownership in Europe is very popular: 46% of residents in the EU-27 have a car, and in several countries the percentage is well above 50%.⁴⁵ Minimising the inconveniences of passengers choosing public transport—walking distance from departure point to the public transport station, waiting and transfer times between connecting modes of transport (frequency)—will to a large extent determine the popularity of the transport network. Success in this area is attainable, partly, by integrating a package of measures and policies in planning the networks and functioning of a city or region’s public transport.^{46 47}

Public transport and systems thinking in the city of Freiburg (Germany)

Source: Local strategies for sustainable Development, Local Governments Climate Partnership Workshop. Nagoya, Japan. March 2008

The most important objective of Freiburg’s traffic and transportation policy is traffic avoidance. As the ad reads “Smarter trains against high gasoline prices”. Compared with other major cities in Germany today, Freiburg has the lowest motor vehicle density, with 423 motor vehicles per 1,000 people. Pedestrian, traffic, cycling, and local public transport have all benefited from the extension of the corresponding infrastructure over the last three decades. So have bicycles and bike-taxis, often used by tourists. The majority of citizens have a bicycle, which they can ride through the 500 km-long network of bike lanes. Currently there are about 9,000 bicycle parking spots in the city and links to the local public transport network (“Bike and Ride”). Large parts of the city centre are designated as pedestrian zones. Ninety percent of the city residents live in areas where the speed limit is 30 km/h. Traveling within the region by collective transport is made easy thanks to the Breisgau-S-Bahn, which was designed in cooperation with the adjoining counties and which allows good and fast rail transport. All of the city’s rail system is powered by renewable energies.



P&R strategy in Rotterdam (The Netherlands)

http://www.civitas-initiative.org/measure_sheet.phtml?language=en&id=108

A pilot system aimed to encourage the use of public transport means and to assure availability of parking spaces for public transport users began in May 2004 in the Rotterdam-Alexander parking site. The Rotterdam-Alexander site is close to a metro/intercity train station and has 535 parking places. The core of the measure is to guarantee the availability of parking spaces by requiring users to combine the P&R facility use with the use of public transport, and in this way to discourage the use of parking spaces by drivers who park in the

⁴⁵ DG TREN pocketbook 08-09.

⁴⁶ Mees, P. (2009) “Transport for suburbia: beyond the automobile age”. Earthscan.

⁴⁷ Transport Research Knowledge Center (2009). „Transport and the environment“. Source: http://www.transport-research.info/Upload/Documents/200908/20090818_124030_53136_TRKC_Transport_and_the_Environment.pdf

facility without then using public transport (eg. to go shopping nearby). Users with a valid public transport ticket will get a free parking ticket. People without valid ticket will pay a parking tariff.

- Demand management – Refers to policies and measures which decrease the need to travel and allow for more sustainable options when travel is necessary. Some examples are: restriction or banning of access of private vehicles to certain zones (esp. in the city centre); a congestion charge—it consists of charging a fee to vehicles that enter selected areas of a city, as has been implemented in Stockholm, London and Milan, among others; parking charges; car-sharing, which intends to reduce the need for people to own a car as well as the need for LGs to provide parking spaces, while recognising that many citizens need to have access to a private motorised vehicles on certain occasions; and carpooling, which refers to two or more persons commuting in the same car, thus decreasing economic and environmental costs of motorised vehicle use.

Central London Congestion Charge (UK)

<http://www.cityoflondon.gov.uk>

http://en.wikipedia.org/wiki/London_congestion_charge#Traffic_changes

Congestion Charging was introduced in central London in February 2003, aiming to reduce congestion and raise investment funds for the city transport system. Four years later the original congestion charging zone was extended westwards. It has resulted in improved air quality and reduced GHG emissions and the number of cars travelling in the zone has significantly dropped. This measure required long-term efforts both in terms of congestion monitoring and of economic investments. It is, therefore, more often implemented in big metropolises than in small cities. One of the barriers to overcome is that of social resistance in shifting from the private to the public transport modality.



Carpooling at the University Hospital in Odense (Denmark)

<http://www.managenergy.net/products/R1297.htm>

Odense has developed an electronic carpooling database at Odense University Hospital, which has over 8,000 employees. Following a baseline questionnaire to staff and focus group discussions, they have established a ride share database and an intranet home page for employees. They have carried out follow up direct marketing, created a common identity for members and created reserved parking spaces for members. Transport sharing at the University Hospital is very affordable. Users identified financial savings, parking and commuter travelling time as being important motivators to join the scheme, although dependency on other people and compatibility have been found to be the main barriers. Once final users groups are identified (i.e. hospitals and high density workers spot) the system can be easily implemented, at least on a basic stage.

- Lifestyle and behavioural change (including those of decision-makers) – Refers to policies and measures that raise awareness among the population on the negative impacts of certain

modes of transport and the new more sustainable options available. These policies can also aim to question the very need to travel. LGs need to understand that lifestyle and behavioural change promotion needs to necessarily be accompanied by a range of options available to citizens to engage in more sustainable transport habits. Successful implementation requires a high level of acceptance, interest, awareness, understanding of responsibilities and recognition of expected benefits among the different target groups.

Comprehensive mobility dialogue in Zagreb (Croatia)

http://www.civitas.eu/measure_sheet.phtml?language=en&id=695

The city of Zagreb is an active participant in the European Mobility Week. As part of the city's participation in the event, stakeholders—public transport operators, cyclists, car owners and pedestrians—were identified as target groups to spark dialogue. Roundtables and conferences were organized, and events and new activities disseminated – e-ticketing, congestion charging, biodiesel, priority of public transports, publicly available bicycles. During the November 2009 edition of the European Mobility Week, the CIVITAS ELAN FORUM was launched. It represents the first mobility shop in the city, where citizens will find all information about transports and innovative services, and which is expected to achieve better visibility and citizens' engagement. For the occasion, trams were refurbished, redecorated and placed in the middle of the CIVITAS ELAN demonstration corridor. Within the CIVITAS ELAN FORUM frame, one of the most successful measures was the so called "Wednesdays in tram", where more than 100 participants and lecturers attended workshops, public hearings, consultations and lectures. The hardest barrier to overcome is to boost the public involvement in the events. Making events and activities more attractive was surely a positive kick-off to achieve this objective. Citizens' involvement is a must to implement complex and long-term strategies, and should be encouraged in all cities and towns. This measure also corresponds to the 'efficient collective transport system' category.



Stockholm Transports (Sweden)

<http://international.stockholm.se/Stockholm-by-theme/A-sustainable-city/>

Stockholm Transport operates Stockholm's subway, local trains, buses and trams. Both capacity and quality has been increased, passenger information has been improved and frequent opinion polls are conducted. This has increased by 60,000 the number of new passengers per year. An essential part in the improvement of passenger information has been the real-time platform, used by all transport systems. For buses, new on-board computers have been installed in 1.900 vehicles. A GPS signal every 30 seconds tells both the traffic control centre and waiting passengers where a particular bus is and when it will arrive. During the trip, updates are available from screens, mobile phones and loudspeakers. The system also has the ability to communicate



with traffic lights to give buses priority. Furthermore passengers are guaranteed to get a compensation for taxi trips if public transport service is delayed 20 minutes or more. This guarantee is a big success factor. Part of the success of the public transport system is that the city is implementing complementary measures - bike sharing, congestion charge - that are making the use of private car less convenient. These ambitious objectives have been gained through a constant long term sustainability policy. Continuity in political commitments should be ensured.

This measure also corresponds to the 'efficient collective transport system' category.

- Integrated ticketing schemes – Refers to measures and actions that simplify and unify the tariff schemes of different transport means within an urban area or region, thus aiming to increase the interoperability of different networks, and in doing so encourage the total number of users of the system. One example is to integrate the fare for buses, trams, subway, and even bike- or car-sharing in one single ticket or card.

Mobility Policy in La Rochelle (France)

<http://www.yelo-larochelle.fr/>



In La Rochelle the entire transport system is accessible through a single electronic ticket — the “Yélo” card – which allows its users to ride buses and the ferry, to rent bicycles, taxis and electric vehicles (the „Liselec” system), to pay for the park & ride, and all other services available as part of the collective transport system. Customers can

top-up the credit in their cards on the website, which also offers a very wide array of information. Most services can be either paid on a subscription or pay-per-use basis. Moreover, subscribers benefit from a vast range of savings on all included transport modes. An integrated transport strategy for linking car sharing with mass transportation was the idea which led to a concrete success of the program. LGs which plan to develop a similar program would be well advised to undertake a long-term strategy including partnerships with several operators, infrastructure development and funding.

Parking policies and integrated ticketing in Winchester (UK)

http://www.civitas-initiative.org/measure_sheet.phtml?lan=en&id=48

Winchester City Council operated almost 3,000 city centre parking spaces, plus a 760-space Park and Ride (P+R) facility on the outskirts of the city. Winchester’s parking policy encouraged commuter traffic to use the P+R sites, allowing tourists and shoppers access to city centre parking. In 2004 Winchester carried out a parking review (in the context of the MIRACLES project), which resulted in the decision to support and encourage the take-up of environmentally friendly vehicles in the city centre, while high emission vehicles would be encouraged to use P+R, to avoid their presence in the city centre. A “push and pull” strategy was designed. In order to encourage greater use of P+R the number of city centre long-stay spaces was reduced and prices increased. At the same time, prices at the P+R facility remained low. This provided the ‘push’ element of the strategy, while still allowing parkers who were price-sensitive, access to the city centre via P+R. The ‘pull’ element of the strategy was implemented through graduated price discounts, based on the CO2 emissions of a vehicle. This measure also corresponds to the ‘demand management’ category.

- **Technology** – Refers to measures and actions that promote the introduction of new technologies to reduce the negative impacts of motorised transport, including cleaner fuels and vehicles.

Besides the reduction of the number of vehicles on the streets, the use of less polluting and more efficient fuels for both private and public fleets should be targeted in order to improve air quality and reduce the negative impact of transport on the environment. Research and development on technological solutions are today making much progress and a wide range of green fuels and technologies are available, as for example bio-fuels, electric-, hydrogen- and hybrid cars. Strategies on this issue will, naturally, differ from city to city, depending on the type of fuel available, the income levels of the population, etc. Likewise, when considering introducing alternative fuels and vehicles, a LG invariably needs to plan for the infrastructure necessary to make that resource available to a wide number of potential users (eg. e-vehicle recharging stations). If the infrastructure is lacking, the penetration of the new technology is likely to not have a relevant impact. Additionally, in the case of electric vehicles, a thorough assessment of energy supply sources needs to be conducted, as that will determine whether or not e-cars have a lesser negative impact on the air quality than diesel or gasoline vehicles.⁴⁸

Green public transport in the Basque Country (Spain)

<http://www.best-europe.org/Pages/ContentPage.aspx?id=136>

The Basque Government is promoting the use of new energy sources in transport. A number of successful schemes have been carried out involving the use of natural gas and biodiesel in transport. In order to reduce CO2 emissions, fuel savings need to be achieved and petroleum fuels replaced by other fuels derived from vegetable matter. In the Basque Country by the end of 2009 ten new E85 pumps were installed, while 25 biodiesel pumps were already in operation. Bioethanol buses are reliable and appreciated by drivers and passengers. On the other hand, some financial problems, such as higher costs to purchase and operate bioethanol buses in comparison to diesel buses and more scheduled maintenances, may delay the implementation of the program. Similarly, taxing fuel by volume instead of energy content penalises bioethanol buses. This measure also corresponds to the ‘efficient collective transport system’ category.



Natural Gas Vehicles - Erdgasfahrzeug- in Bremen (Germany)

<http://www.bremer-erdgasfahrzeug.info/>

Bremen’s long term objective is to achieve a market breakthrough for compressed natural gas (CNG) vehicles by increasing the demand and improving fuel supply. So far, Bremen has not targeted the mass market primarily, but has worked with selected target groups, such as vehicles with



⁴⁸ For instance, a study conducted by the Wuppertal Institute on the city of Bremen determined that, with the existing mix of energy sources, the promotion of electric vehicles in that city (in comparison to using similar diesel-propelled vehicles) would not be advisable, as the negative effects of driving e-cars would be larger than driving diesel-fuelled vehicles. Source: Schallaböck, K.-O. “Transport in Bremen 2020” Presentation to CARE-North project partners on 19 March 2010 in Leeuwarden, NL.

high inner-city mileage like taxis and delivery companies and “heavy smokers” – buses and lorries that cause a relatively high share of the pollution. There are now about 350 CNG vehicles running in Bremen. The present focus is on public awareness-raising, aimed both at public opinion as a driver to facilitate the change to clean vehicles, and at citizens as the future buyers of clean vehicles. Collaboration with local car dealers, improving fuelling infrastructures, and effective public information are key points for the implementation of natural gas use in all cities and towns.

In Bremen, a popular and successful car-sharing scheme is also in operation.

- **Freight transport logistics in the urban area** – Refers to measures and actions that seek to optimise the efficiency of freight delivery into the city and reduce the related negative impacts to the environment and to human health. Freight transport is generally handled by private-sector organisations, which plan and implement deliveries based on customer demand. LGs have an important role in developing systems that enable efficient and timely distribution of goods to cities, while minimizing the economic and environmental impacts that this activity generates. Promoting the use of smaller and cleaner vehicles for city deliveries (through fees and controls), while creating regional distribution centres outside the metropolitan area can have considerable positive effects, including reducing noise and traffic in the city and encouraging freight companies to increase loading capacities per trip.⁴⁹

Green city logistics in Graz (Austria)

<http://www.trendsetter-europe.org/index.php>

A business and marketing plan was established in the city of Graz in order to concentrate the number of freight vehicles and to reduce the numbers of trips and stops in the city center. Consolidating retail goods to shops in central Graz halved the number of vehicle kilometers, emissions and energy use. Besides reducing congestion within the city center, another reason was to help small shops in the center in competing with large shopping centres in the suburban areas. Logistics company ‘Styrialogistics’ was founded within the EU-funded Trendsetter program (a CIVITAS I collaborative project). Value-added services like stock management, home transport service, deposit service and return of packages contributed to the success of the program.



Pedestrian area enforcement and freight transport logistics in Gent (Belgium)

http://www.civitas-initiative.org/measure_sheet.phtml?language=en&id=573

The City of Gent aims to reduce the number of vehicles driving through the city centre areas dedicated to pedestrians, and in this way to enhance pedestrian well-being. This actions attempts to control the time, speed and type of vehicle that travels through the pedestrian area, using a system of cameras to ensure enforcement. Deliveries are limited to certain

⁴⁹ Our Cities Ourselves. ITDP, Gehl Architects.

hours of the day. Private vehicles, taxis, and even cyclists also have limited access to the area.

As a common theme to all the policy areas listed above, LGs have to consider the long-term impact of land use in respect to infrastructural decisions, and the implications of these decisions as regards negative impacts to the environment, biodiversity and humans. What is built today will create impacts for many decades to come. For example, a highway will normally have a useful life of 20 to 50 years; a bridge of 30 to 75 years; housing or a railway will have a useful life of between 50 to 150 years. Infrastructural decisions influence the means of transport that will be promoted and used in the future, and in general the mobility culture that will be formed. Indeed, “the lifespan of infrastructure put in place today to a large extent determines resource consumption for decades to come, and can lock humanity into this ecologically (and economically) risky scenario.”⁵⁰ Taking this perspective into consideration, recent research has developed models to introduce quality of life and environmental impact criteria into the decision-making process of infrastructural investments.⁵¹ This can be a useful tool in taking better informed decisions, especially as they will have a long-term impact on cities and citizens. It then follows that the introduction of different kinds of incentives at the local level, such as the examples described in this section, is important to attract interest from citizens and other stakeholders, and in this way mainstream alternative and sustainable means of transport. Incentives need long-term commitment from LGs, at least until the market for sustainable mobility is considered to be on-track and ready to further develop by itself. Policies, as we have seen, can go a long way and their role should not be underestimated. Several projects at European level aim to advance research and implementation activities and contribute to the faster adoption of best practices. One example, tackling several areas within one action, is the CARE-North project.⁵²

Communication and coordination with regional and national (as well as with European) levels of government is highly advisable in order to align policies, as well as to activate the bottom-up approach toward sustainability. These linkages also have the advantage of potentially facilitating the availability of funding for projects at the local level.

4.2 Funding opportunities and knowledge/support sources

There are several instruments in the EU engineered to make funding available to LGs interested in implementing sustainable mobility measures⁵³. Those considered to be of high relevance are listed below:

- *LIFE+*⁵⁴ is the acronym for the Financial Instrument for the Environment, the environment-related funding instrument of the EU. Its goal is to contribute to the implementation, updating and development of EU environmental policy and legislation by co-financing pilot or demonstration projects with European added value. Depending on the project, third

⁵⁰ Wackernagel, M. “Ecological Footprint: So bauen wir unsere Zukunft”. Presentation offered to ICLEI European Secretariat staff on 28 July 2009 in Freiburg, Germany.

⁵¹ Amekudzi, A.; Jotin Khisty, C.; Khayesi, M. (2009) “Using the sustainability footprint model to assess development impacts of transportation systems”. *Transportation Research, Part A*, 43 (339-348).

⁵² <http://www.care-north.eu>

⁵³ Several of these instruments, however, do not offer funding to countries that are not EU Member States.

⁵⁴ <http://ec.europa.eu/environment/life/funding/lifeplus.htm>

countries are also eligible for funding. In May 2010 the fourth call for proposal was announced, with a sum of up to €243 million for projects within the field of nature and biodiversity, information and communication and environmental policy and governance. The latter includes funding for measures in sustainable urban transport.

- *Intelligent Energy- Europe (IEE)*⁵⁵: The Intelligent Energy - Europe programme is the EU's tool for funding actions to save energy, encourage the use of renewable energy sources and create the necessary transition towards a more energy intelligent continent. The programme is open to Member States and countries of the European Economic Area, plus Candidate Countries on basis of agreements. Iceland, Norway, Liechtenstein are can run for STEER and ALTENER projects as members of the European Economic Area. Its original budget was intended to cover the period 2003-2006, and it has been extended to at least 2013 with a budget of €730 million. IEE concentrates on the promotion of best practices, institutional capacity building, accelerating learning curves, information dissemination, education and training of market actors. Funding for mobility actions are included under STEER projects - energy efficiency and use of new and renewable energy resources in transports – and under ALTENER - new and renewable energy resources.
- *European Investment Bank (EIB)*⁵⁶: The EIB is the long-term lending bank of the European Union. The task of the Bank is to contribute towards the integration, balanced development and economic and social cohesion of the EU Member States. It aims to fund projects which further EU policy objectives. During the period 2000 – 2004, up to €10.7 billion were allocated to financing the urban transport sector, with 92% for public transport projects and 8% for other urban transport infrastructures. About 90% of lending from the EIB is assigned to EU Member States. External cooperation is provided in support of the development of EU Candidate Countries, potential candidate countries and other areas worldwide, aiming to mainstream development and cooperation policies. This includes the area of southern and eastern Europe, the Mediterranean area, Russia, Africa, the Caribbean and Pacific, South Asia, Asia and Latin America.⁵⁷
- *ELENA*⁵⁸: To facilitate the mobilisation of funds for investments in sustainable energy at local level, the European Commission and the EIB have established the ELENA technical assistance facility (European Local ENERGY Assistance), financed through the Intelligent Energy-Europe programme. Besides EU Members States, eligible countries are Norway, Iceland, Liechtenstein and Croatia. ELENA support covers a share of the cost for technical support that is necessary to prepare, implement and finance the investment programme, such as feasibility and market studies, structuring of programmes, business plans, energy audits, preparation for tendering procedures - in short, everything necessary to make cities' and regions' sustainable energy projects ready for EIB funding.

⁵⁵ http://ec.europa.eu/energy/intelligent/index_en.html

⁵⁶ <http://www.eib.org/>

⁵⁷ <http://www.eib.org/projects/regions/index.htm>

⁵⁸ http://www.eib.org/products/technical_assistance/elena/index.htm?lang=en

- *European Bank for Reconstruction and Development (EBRD)*⁵⁹ was established in 1991 in response to major changes in the political and economic climate in Central and Eastern Europe. It works in 29 countries⁶⁰ from Central Europe to Central Asia financing projects, primarily in the private sector, that serve the transition to market economies. In its capacity as a development bank, the EBRD seeks to finance operations that are both commercially viable and assist development, including in the environmental field. Direct investments generally range from €5 million to €230 million. Typically the EBRD funds up to 35% of the total project cost. The bank invests only in projects that could not otherwise attract financing on similar terms. Projects financed are aimed, among other priorities, to build efficient, reliable and secure transport systems and address urban transport and economically viable infrastructure initiatives.
- *7th Framework Programme (FP7)*⁶¹: FP7 is the short name for the Seventh Framework Programme for Research and Technological Development. This is the EU's main instrument for funding research in Europe and it runs from 2007 to 2013 (some calls are eligible for cooperation beyond the EU). FP7 is also designed to respond to Europe's employment needs, competitiveness and quality of life. The Transport Theme under FP7 is aimed to develop safer, greener and smarter transport systems for Europe in order to increase the quality of life of citizens, develop a mobility system which respects the environment and increase the global competitiveness of European industry. The budget foreseen within the FP7 for this theme amounts to over €4 billion for the period 2007-2013, which addresses sustainable urban mobility, among others.
CIVITAS, for instance, is an initiative that has been financed under the 5th (CIVITAS I), the 6th (CIVITAS II) and the 7th (CIVITAS Plus, the current phase) Framework Programmes. Successful cities which applied for each phase receive EU contribution (ca. 50%) to implement measures related to sustainable transport. An important part of the initiative is research, innovation and transferability, as cities should implement innovative measures that can then serve as examples to other European cities.
- *The Cohesion Fund*⁶²: It is a structural instrument that helps EU Member States to reduce economic and social disparities and to stabilise their economies since 1994. Support to countries from neighbouring region—Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and the Slovak Republic—is provided under special conditions. The Cohesion Fund finances up to 85 % of eligible expenditure of major projects involving the environment and transport infrastructure. This strengthens cohesion and solidarity within the EU. Eligible are the least prosperous member states of the EU whose gross national product per capita is below 90% of the EU-average
The three main objectives under which projects will benefit from these funds are convergence, competitiveness and cooperation. An amount of €308 billion have been made

⁵⁹ <http://www.ebrd.com>

⁶⁰ Including Moldova and Ukraine.

⁶¹ http://cordis.europa.eu/fp7/home_en.html

⁶² http://ec.europa.eu/regional_policy/funds/procf/cf_en.htm and
http://ec.europa.eu/regional_policy/sources/docoffic/2007/osc/index_en.htm

available for national and regional aid programmes under the EU's strategic guidelines on Cohesion 2007 – 2013.

- *The World Bank*⁶³ consists of 187 member countries. It resulted from the collaboration between the International Bank for Reconstruction and Development (IBRD), and the International Development Association (IDA). The group promotes low interest loans, interest-free credits and grants in order to foster investments in middle-income and poor countries. It focuses on the areas of health, public administration, infrastructure, business, agriculture, environmental and natural resource management. Urban transport projects are deemed to be essential for promoting a sound urban development and since the 1970s some 70 projects have been funded and other dozen are being prepared. In order to be accepted, proposed projects should bring together local development goals and the World Bank's global strategy. A typical funded urban transport project includes the following key points: objectives drawn from a region-specific context, an action program for policy change and one for institutional change, an investment program partially funded by a bank loan, by the country/city and possibly by other partners. The Bank will evaluate the project under three main aspects: economic and financial viability, consistency with the Country Assistance Strategy (CAS) – the document which provides directives for the project implementation-- and correspondence between the proposed project and the Bank's global strategy.

With respect to knowledge and support sources, there are likewise a few that can provide useful advice:

- One of them is the searchable measures database within the CIVITAS website.⁶⁴ It describes sustainable transport measures implemented by cities throughout Europe, as well as contact persons for each measure. They are divided in ten different categories. CIVITAS also publishes quarterly newsletters. The website's Download Center offers general information, presentations and training material, videos from case study cities and results documents from previous CIVITAS programmes. Of particular interest, CIVITAS has recently published its latest Policy Advice Notes. They present twelve Policy Advice Notes, which are the result of the planning, implementation and operation phases of the activities of the 17 demonstration cities within the CIVITAS II programme (2005 - 2009), giving an idea on how to cope with urban transport problems which cities will have to face in the near future.⁶⁵
- Another search-engine for knowledge and best practices is ELTIS⁶⁶, the European Local transport Information Service (also funded by the EU). It was created with the aim of facilitating exchange of information among practitioners. It is a web portal with input based on volunteer contributions: cities can actively submit their case studies, comment on other cities' case studies, and vote for their favourite cases. It also informs about relevant news

⁶³ <http://www.worldbank.org/>

⁶⁴ http://www.civitas-initiative.org/measure_fields.phtml?lan=en

⁶⁵ http://www.civitas-initiative.org/news.phtml?id=825&lan=en&read_more=1

⁶⁶ <http://www.eltis.org/Vorlage.phtml?sprache=en>

and events. ELTIS also provides users with forum spaces where they can develop peer discussions.

- The JASPERS⁶⁷ programme (Joint Assistance to Support Projects in European Regions) is a joint initiative by the EIB, the European Commission, the EBRD and the KfW Bankengruppe to provide technical support for project preparation in the case of large infrastructure schemes which receive finance from the Structural and Cohesion Funds. It is offered to the 10 Member States which joined the EU in 2004 as well as Romania and Bulgaria which joined in 2007.

The aim is to increase the quantity and quality of projects to be sent for approval to the services of the Commission. JASPERS' assistance, which is provided free of charge, is geared towards accelerating the absorption of the available funds.⁶⁸

- WWF's One Planet Mobility⁶⁹ programme aims to identify and inspire the changes needed to transform personal mobility – a sector which focuses on transport used by people in their everyday life (e.g. cars, aviation and public transport). So far the programme's European Cities Initiative is working closely with the cities of Barcelona (Spain), Freiburg (Germany) and Malmö (Sweden).
- The European Cycling Lexicon⁷⁰ is an illustrated passport-sized booklet, containing key terms for cycling, different types of bikes for different mobility needs, and good cycling infrastructure in 27 languages, including all 23 official EU languages. It also contains information on EU-funding sources for cycling and cycling infrastructure, and statistics on cycling in Europe and economic, health and environmental aspects of cycling.
- Finally, in this certainly non-restrictive list of knowledge sources, THE PEP toolbox is a web-based tool designed to help policymakers and local professionals solve transport problems that affect health and the environment. In addition to tools and promising practices, it contains policy briefs on selected topics and provides access to information from relevant sources. It provides guidance on transport-related health impacts and sustainable solutions with a focus on issues such as road-traffic injuries, air pollution, noise, climate change and physical activity.⁷¹

Whereas this section has aimed to explore a number of the tools made available to LGs to fund sustainable mobility projects, and assistance accessible to identify and develop high quality proposals, the next section delves in more detail on the areas and activities that LGs focus on to deliver actual improvements to local transport and to the quality of life of its citizens.

⁶⁷ http://www.eib.org/products/technical_assistance/jaspers/index.htm

⁶⁸ <http://www.jaspers-europa-info.org/>

⁶⁹ http://www.wwf.org.uk/what_we_do/changing_the_way_we_live/transport/one_planet_mobility___european_cities_initiative.cfm

⁷⁰ <http://www.eesc.europa.eu/?i=portal.en.publications.120>

⁷¹ <http://www.healthytransport.com/>

4.3 Planning and implementing a sustainable urban mobility plan

As indicated in section 2 above, the EU is committed to supporting LGs in developing **sustainable urban mobility plans (SUMPs)** by providing a framework and supporting related policies and through the introduction of processes and tools to be developed and introduced between 2009 and 2012.

Literature widely recognises that a mixture of policies is necessary in order to create a relevant impact in the field of sustainable mobility. It is also broadly acknowledged, and it has been a common outcome of several EU-funded projects⁷², that successful outcomes which include a considerable reduction of GHG emissions and increased quality of life of citizens will require a combination of technological improvements and measures to affect behavioural change. Indeed, while considerable efforts have been dedicated to achieving improved technological solutions with regard to infrastructures, fuels and vehicles—and while this remains a pillar for creating a sustainable urban mobility environment—many argue, convincingly, that soft measures aimed at changing behaviour are more cost-effective in the long-run than technological solutions. Technical innovations, in addition, may unwittingly produce the undesired effect of increasing demand for long-distance travel.⁷³ Furthermore, research conducted by the Tyndall Centre for Climate Change Research concluded that a policy package aimed at considerable modal shift to sustainable modes (walking and cycling) combined with related infrastructure modification delivers considerably higher reductions in emissions, both in the medium- and long-run than policy packages focused on technology or on technology and carbon trading.⁷⁴ To be effective, behavioural change needs to include a set of measures that facilitate citizens' lifestyles. For instance, the network of collective transport must be efficient, quick, affordable, safe, reliable and comfortable; the infrastructure available for walking and cycling has to, equally, contain elements of comfort, directness and safety; land-use planning must thoroughly incorporate sustainability criteria and avoid urban sprawl while making medium- and high-density housing attractive to citizens; and, finally, change in attitude should also provide opportunities for reducing the need to travel, such as telecommuting. Behavioural change efforts also face the persistent challenge of private cars being considered a symbol of status or freedom. In addition to envisioning a set of policies and measures that address both technology and demand management, it is crucial to integrate them with other measures being planned or implemented, both horizontally (by other departments of the LG) and vertically (in line with regional, national and EU-level policies) in order to enable a holistic and efficient treatment of the process and, consequently, delivering a successful SUMP. This, in turn will bring benefits in terms of: realising synergies, avoiding/reducing duplication between different measures, giving LG staff a broader understanding of the operations of the city as a system, and enhancing consistency and—hence—efficiency.⁷⁵ Furthermore, as described in section 4.1, a vital consideration when preparing and implementing a SUMP or any long-term sustainable mobility programme is the long-term impact of infrastructure decisions.⁷⁶ Running scenarios to estimate potential impacts of increasing

⁷² Such as the projects TRENDSETTER, PROPOLIS, SPRITE, FORESIGHT for TRANSPORT, PROSPECTS, SCATTER and TRANSPLUS. Source: http://www.transport-research.info/Upload/Documents/200908/20090818_124030_53136_TRKC_Transport_and_the_Environment.pdf

⁷³ Ibid.

⁷⁴ Tyndall Centre (2009) "Engineering cities: How can cities grow whilst reducing emissions and vulnerability?"

⁷⁵ See, for example: <http://www.eaue.de/Publikation/THEPEP-brochure-content-final-B16.pdf>

⁷⁶ Wackernagel, M. "Ecological Footprint: So bauen wir unsere Zukunft". Presentation offered to ICLEI European Secretariat staff on 28 July 2009 in Freiburg, Germany.

transportation demands prior to the development of new or existing neighbourhoods/areas will inform urban and transport planners to search for sustainable solutions, make better use of and protect natural resources, reducing future negative impacts.⁷⁷

Moving from theory to the practical preparation and implementation of a SUMP, a 5-step cyclical integrated management system—developed by ICLEI, also referred to as the **Sustainability Cycle**—is proposed as an effective tool.⁷⁸ The philosophy behind this approach is that sustainability is not a project that starts and ends, but rather a continual and cyclical process. To illustrate, just as the local budget is set up and controlled every year, mobility-related targets for the environmental, social and economic development of the city have to be monitored and adjusted in a cyclical manner. The Sustainability Cycle leads LGs through its five steps which, repeated periodically, help cities to gradually advance their level of sustainability—whether in the field of mobility or in the entirety of its operations—while at the same time making sure sustainability stays on the local agenda.



The 5-step Sustainability Cycle

Different from planning processes, cyclical sustainability management enables local governments to respond to changing framework conditions such as technology or societal consensus by simply updating the targets and action plans once the next management cycle starts.

The five steps of the Sustainability Cycle are briefly described below.

- **Step 1: Baseline review**
The LG assesses the local situation, both by gathering relevant data and by evaluating if the existing organisational conditions allow an efficient and effective management of the local sustainability process. The results are compiled and published in a **Mobility Sustainability Report** (or Mobility Baseline Review).
- **Step 2: Target setting**
Together with relevant local stakeholders, the LG sets measurable targets with timeframes for their achievement. These participatory targets are compiled and published as the **Mobility Sustainability Targets** of the city.
This step bridges the gap between a city's vision and its future reality, by linking visions to targets to measures. In other words, it is not only important to move towards sustainability by implementing a number of actions (eg. build cycle paths, or extend bus routes); it is necessary to quantify these measures (eg. build 20 new km of cycle paths in the eastern part of the city within 36 months, or create 3 new bus routes connecting the main train station to neighbourhoods A and B by March 2014) so that they can be correctly budgeted, assigned and later evaluated—as we will see in the further steps of the cycle. What gets measured gets managed!

⁷⁷ Chi, G. & Stone, B. (2005). "Sustainable transport planning: Estimating the ecological footprint of vehicle travel in future years". Journal of Urban Planning and Development, vol. 131, no. 3.

⁷⁸ <http://www.localsustainability.eu/>

- **Step 3: Political commitment**
In order to make the Mobility Sustainability Targets the leading guideline of local policy-making for the next years with regards to the transport question, the local council adopts them in a political decision.
The **Council Approval of the targets** is the mandate for the local government to work towards their achievement.
- **Step 4: Implementation and monitoring**
This step refers to the implementation and monitoring of activities supporting the achievement of the Mobility Sustainability Targets. These activities will be coordinated by the LG, though it may also include projects implemented by other stakeholders.
All activities planned to be implemented within one Sustainability Cycle are compiled and published in the **Mobility Sustainability Programme**.
- **Step 5: Evaluating and reporting**
At this last step of the cycle, the level of achievement of all Mobility Sustainability Targets is measured, the implementation of the Mobility Sustainability Programme is assessed, and shortcomings are analysed. This evaluation contributes to the preparation of the next Mobility Baseline Review, and with it, the start of the new cycle.
The results of the evaluation of both programme implementation and target achievement are published in the **Mobility Evaluation Report**. This report will serve as a base to discuss, agree and set the new targets.

The five steps of the Sustainability Cycle are fully repeated in 3-5 year cycles, while some of the steps run on a rather continuous basis (eg. implementation and monitoring). However, there is no strict rule for this process, as the time taken for each of the steps varies according to local circumstances.⁷⁹ A long-term commitment from LGs give investors, such as vehicle and fuel companies or new mobility-solution entrepreneurs, the necessary security for developing new technologies and infrastructures, while it gives citizens (transport users) the indication that sustainability in transport is not a passing fancy, but rather a new conceptualisation that will guide the development and operations of the city. LGs should be capable of supporting this change, for which a team within the administration should be formed. It may consist, for example, of a consultancy team where experts from different departments develop a vision and a strategy for the city, a management team for planning and implementing projects, and a monitoring and evaluation team for a systematic and periodical check of key achievements and correspondence with expected results. Depending on key expertise of staff and size of LGs, some persons may be members of more than one of the teams. The philosophy behind the Sustainability Cycle is well aligned with the understanding that the city is composed of a number of systems operating and interacting with one another. In an interactive system, measures taken to have an impact in the mobility sector will also affect other segments. Therefore, it is important to keep in mind that the measures included in the SUMP and developed through the Sustainability Cycle should reflect a holistic approach to the mobility question in your city and the process for developing it should involve other departments of the LG as well as all relevant stakeholders in order to fully grasp the full scale of potential impacts and synergies.

⁷⁹ http://www.localsustainability.eu/fileadmin/template/projects/localsustainability_eu/files/ACTOR-Guide_english.pdf

5 Conclusions

The transport sector is a main consumer of energy and is responsible for a major fraction of GHG emissions and other pollutants. Unlike other sectors, improvements in terms of their negative impacts are not happening nor are they foreseen. This is so because the growth in the sector (eg. total number of cars) is faster than the related efficiency gains (in fuels and vehicles). The trend, furthermore, is for an increased use of least sustainable forms of transport and a reduction in the use of more sustainable means, such as rail and collective transport.

On the positive side, however, the potential of the sector to reduce its negative effects on the environment, health and the economy is great, and there are increasingly more good practices available worldwide to show how to green the transport sector. Cities are in the centre stage and are a crucial actor in shaping the future of the sector. By the end of this decade four of every five Europeans will be living in cities. The demand for transport and its supporting systems available for this group will



make or break the switch toward a sustainable transport future. LGs, then, have a key responsibility in redirecting the way that mobility and accessibility to the urban area are conceptualised. Successful strategies are likely to include the following objectives: decreased dependence on fossil fuels; combination of high-density and mixed land use in the urban area; increased understanding and awareness among the population on the importance of their mobility choices; and the promotion of sustainable means of transport by offering an efficient, fast, comfortable, safe and well-connected network and infrastructure, whilst deterring that of passenger cars by advancing the concept of the polluter-pays-principle.

Particularly cities that are facing considerable growth, including in the transport sector, need to very carefully consider the direction in which they will focus this growth in order to avoid long-term infrastructural decisions that will generate negative impacts also during a long-term period. The two cities participating in the project for which this report has been written, ie. Chişinău and Sevastopol, face these problems: an increasing number of cars, worsening traffic jams, deteriorating air quality and likely human health, as well as other effects that have been identified in this paper. The fact that between 2007 and 2008 the number of cars imported to Moldova grew by 80 percent⁸⁰ shows the magnitude of the problem and the need to tackle it promptly. It is crucial to face the already existing situation with the vision to develop policies that will shift mobility demands away from motorised vehicle use and towards sustainable modes, in addition to policies that reduce the need to travel. It would be unwise from health, environment, economic and social standpoints to try to find ways to adapt the urban landscape to larger private vehicle volumes. Thousands of European cities have realised precisely this; that the way to move forward in terms of urban mobility is to strive for measures to develop an integrated, sustainable transport system.

Moving from the vision to the preparation and implementation of a holistic and functional sustainable urban mobility plan requires a strong structural framework. The five-step sustainability

⁸⁰ "Increasing energy efficiency of Chişinău and Sevastopol municipalities based on existing positive experience" project proposal.

cycle proposed in this report will enable the distribution of different objectives into focused, narrower measures and targets that can be quantified and managed to determine how close or how far the city is from its vision. Political commitment is an important step of this cycle as it sends a 'green light' to the different departments and staff, stating that management is determined to make changes. It is also the step where budgets are approved, paving the way for the implementation of the actions. Monitoring, evaluating and reporting the results in a systematic and regular way will, finally, allow a thorough evaluation of the process and the start of a new cycle with increased knowledge about the local situation and progress.

While actions and the 'nitty-gritty' part of the strategy is performed at the local level, collaboration of LGs with other municipalities, regional, national and EU levels of government is necessary in order to align policies and visions and take advantage of processes that may already be underway at these higher levels. This interaction will also lead to the spreading of sustainable practices beyond the city limits and determine the potential transformation of the sector at national and European levels. Timing is right in this sense, as the EU has committed itself to further engaging with cities in making urban transport more sustainable through the publication in September 2009 of the Action Plan on Urban Mobility.

This report has stressed the importance of the transport sector and its major impacts on the environment, health and the economy. It has also highlighted a large number of initiatives and actions at various levels to making the sector more sustainable. Even so, the present situation and the trends for the next 20 years show no 'greening' of the sector. In fact, expectations are for the sector to become, on the other hand, increasingly less sustainable. This may suggest that the momentum created by cities, countries, and citizens engaged in sustainable transport practices is greatly outweighed by the business-as-usual force moving the sector in its traditional direction.

But change is a slow process and requires fore-runners to lead the way. In other words, "change is hard because people overestimate the value of what they have—and underestimate the value of what they may gain by giving that up."⁸¹ Because of their proximity to citizens, LGs have the potential to motivate changes of attitude toward sustainable mobility. Because of the concentration of population in cities, LGs have the potential to impact an immense proportion of European residents and improve their quality of life. Because many cities have started to move in this direction, it is becoming easier for others to join the movement of sustainable urban transportation, and in doing so lead the way to sustainable transportation.

⁸¹ Belasco, J. & Stayer, R. (1994) „Flight of the buffalo“. Grand Central Publishing.

Annex

EU legislation relevant to mobility and transport in urban areas

Please find below the link to a working document prepared by the services of the European Commission describing the EU legislation relevant to mobility and transport in urban areas.

http://civitas-initiative.org/docs1/EU_Legislation_Mobility_Overview.pdf