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**IMPROVING THE QUALITY OF LIFE IN
URBAN AREAS –
INVESTMENTS IN AWARENESS RAISING
AND ENVIRONMENTAL TECHNOLOGIES**

Discussion Paper

Informal Meeting of the EU Environment Ministers

Austrian EU-Presidency

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1. Introduction

The Informal Meeting of Environment Ministers under the Austrian EU-Presidency will take place from 19 to 21 May 2006 in Eisenstadt and Rust. The meeting will focus on environmental technology and the Thematic Strategy on the Urban Environment. Technological solutions for urban problems create a win-win situation for the environment and the economic welfare of people and contribute significantly to the well-being of those that live and work in urban areas. At the Informal Environment Council we would therefore like to build a bridge between the given challenges for urban environment and possible solutions and good practice examples at local and regional level.

The first day of the Informal Meeting will concentrate on environmental technology, energy efficiency and mobility. We prepared a film showing good practice examples that will form the basis of our discussion under the motto: From success stories to broader implementation. Each minister will have an occasion to participate in the debate that will be moderated by Mr. Alfons Haider, a famous Austrian actor and TV-presenter. The meeting is open to a qualified public, such as mayors and NGOs. Questions to ministers will cover framework conditions and lessons learned from good practice examples. Ministers will have a chance to reflect their experiences without presenting speeches to the audience.

The second session on Saturday will be organized in a rather traditional setting. After short introductions from the Presidency and the Commission, Ministers from the Member States, Bulgaria, Romania, the Former Yugoslav Republic of Macedonia, Croatia and Turkey, MEP Mr. Florenz and very few special guests e.g. the European Environment Agency and the European Environment Bureau will discuss the Thematic Strategy on the Urban Environment.

We ask ministers to focus their interventions on the following questions:

- 1) The Thematic Strategy on the Urban Environment (TS) builds on the 6th Environment Action Programme and proposes various policies and measures to improve the quality of Europe's urban environment. Do you think that the policies and measures proposed are sufficient to address the environmental challenges in urban areas?
- 2) More specifically, the TS recognises that "the most successful local authorities use integrated approaches to manage the urban environment by adopting long-term strategic plans, in which links between different policies and obligations, including at different administrative levels, are analysed in detail". However, the TS also identifies a lack of such integrated management approaches. What is your viewpoint on such long-term plans?
- 3) What are the roles of the different policy levels (EU, national, local) in this respect? How could the public administration set a good example for action?

The Presidency will summarize the answers and distribute short conclusions on Saturday afternoon. Together with the answers received in the Environment Working Group of the Council we will present draft conclusions on the thematic strategy for the June Environment Council to delegations after the Informal Meeting.

2. What's on the agenda?

Due to efforts by individual towns and cities of all sizes, the quality of Europe's urban environment has improved in some areas over the last decade. Cities and towns have undertaken **numerous initiatives**, designed – for example - to improve air quality, reduce levels of ambient noise and to curb greenhouse gas emissions. The overall aim is the improvement of the quality of life for citizens which is closely connected with high environmental quality and social cohesion. Despite often very limited financial resources, the creativity and dedication of many European towns and cities made this progress possible. These success stories underline the importance of **responsibility and competence at the local level** as well as respect for the principle of **subsidiarity**. The European Union also has an important role in providing support for these activities.

Europe's urban environment still faces a lot of challenges:¹ Poor quality of air, high levels of traffic, congestion and urban noise and greenhouse gas emissions in cities and towns, pose significant threats to the environment and human health. Children and elderly people are particularly vulnerable. In addition, environmental degradation undermines the economies of cities and towns.

These challenges should not be seen in isolation from underlying circumstances. They must be kept in **context** of various interrelations between cities and surrounding regions, they must be addressed against the backdrop of limited financial resources of many cities and towns. They also have to be seen in relation to significant changes in urban lifestyles; and they must be put into the context of various European policies, such as the discussion on the financial perspective 2007-2013 and the envisaged support for road transport.

Against this background, there is wide agreement that the solution to these environmental problems will partly depend on **integrated approaches** in the management of urban systems, closer **co-operation between cities and surrounding regions** as well as a wider use of environmental technologies, including “cleaner production” concepts and for example renewable energy technologies. The uptake of advanced environmental technologies by local authorities in cities and towns will reduce the pressures on natural resources and improve the quality of life of European citizens. The two main policy instruments on the EU agenda – the **Thematic Strategy on the Urban Environment** on the one hand and the **Environmental Technology Action Plan** on the other – provide existing frameworks to further discuss sustainable solutions for the given challenges.

The **Thematic Strategy on the Urban Environment** (TS) can serve as an important tool to improve the coherence and efficiency of urban, national and EU policies, to push environment objectives and requirements on the same level as social and economic tasks, to promote synergy between environmental, economic and social aspects, to overcome counterproductive effects, to reduce costs by better management and planning and to stimulate the wider use of known and proven best practices and techniques.

The **Environmental Technologies Action Plan (ETAP)** aims at harnessing the full potential of environmental technologies, at reducing pressures on the natural resources, at improving

¹ Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM (2005) 718 final, p. 5

the quality of life of European citizens and at stimulating economic growth. The basic approach of the ETAP is to link environmental technologies and Sustainable Development.

In order to stimulate the wider use of known and proven best practices and techniques to improve Europe's urban environment the ETAP and the national ETAP-roadmaps should provide more awareness raising measures to support the uptake of environmental technologies from local authorities.

3. Urban Areas as Environmental Hot Spots

3.1 Introduction

Urban areas play an important role in delivering the objectives of the EU Sustainable Development Strategy. At the same time, urban areas show serious environmental problems which are **ubiquitous** in many respects. On the other hand the similarity of urban environmental problems enables cities to learn from each other, to avoid mistakes, to accelerate solutions and reduce costs. Obviously, given the differences between European cities, a uniform approach to address these problems is inadequate.

As many solutions already exist but are not sufficiently disseminated, also the **EU can play an important role** to improve the environment of Europe's cities and towns. As stated in the TS, the EU can promote Europe's best practices, facilitate their widespread use throughout Europe, and encourage effective networking and exchange of experiences between cities. Additionally, the EU can offer financial support.

3.2 Background

Over the last decades, the quality of Europe's **urban environment has improved in some aspects**. Many cities and towns have maintained and increased their green spaces, parks and forests. Some pollutants of urban air have decreased. Management of waste and waste water has improved in many cities and towns. Concerning energy efficiency of buildings, many cities have made significant progress. Some cities have launched promising pilot projects to increase the share of clean vehicles in their fleets.

In addition, more than 5000 Local Agenda 21 strategies have been developed in Europe. More than 2500 local authorities signed the Aalborg Charter and about 290 have signed the Aalborg Commitments.² An increasing number of local authorities are EMAS certified.³

² Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM (2005) 718 final, p. 8

³ Approximately 170 European local authorities are EMAS registered with nearly 60 using EMAS to manage at least one aspect of the urban environment such as air quality (Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM(2005) 718 final, p. 9)

Despite this progress, the **TS correctly identifies increasing concerns** about the state of Europe's urban environment with severe consequences for human health, the quality of life of urban citizens and the economic performance of the cities themselves:

- **Air quality:** According to the Commission's Impact Assessment, it is likely that 45% of Europe's total population live in cities where particulate matter (PM) concentrations exceed limit values.⁴ Up to 30% of Europe's urban population live in cities where ozone concentrations are above target levels for protecting human health. In 2003, in many urban areas, the limit value was exceeded more than 100 times per year and for a significant number, more than 200 times per year.⁵
- **Urban Mobility:** Recent data indicate that the number of kilometres travelled in urban areas by road transport is predicted to rise by 40% between 1995 and 2030. Road congestion is expected to increase significantly by 2010.⁶ At the same time, the market share of public transport has been decreasing in most of the urban areas within the European Union; in the new MS, this trend was even stronger over the last decade.⁷ The positive environmental and health effects of human powered mobility like walking and cycling are underestimated and their needs still widely neglected in infrastructure and urban design and planning, though nearly 25% of all car trips are shorter than 2km, and 50% are shorter than 5km⁸.
- **Noise:** The World Health Organisation (WHO) reported that exposure to continuous road traffic noise affected 160 million people in the EU-15 (40% of the population) at a level above 55 dB(A) (a level associated with significant annoyance). A further 80 million people (20% of the population) were exposed to continuous road traffic noise above 65 dB(A), which may be associated with cardiovascular effects. Continuous night-time road traffic noise affects 120 million people at levels above 55 dB(A), the threshold at which WHO considers sleep may be disturbed. The effects of noise emission legislation for road vehicles have already been undermined by the growth in the volume of traffic.
- **Urban sprawl:** There has been an 11% increase in built-up area for just a 2.5% increase in population over the last 20 years. This has led to various negative consequences on the environment, such as increase in individual traffic, soil sealing and pressure on biodiversity.⁹ Urban sprawl and disintegration of local shopping and social infrastructure, i.e. loss of small shops, restaurants etc., affect many cities with negative impacts on urban economy, the environment and the quality of life. Active urban renewal and re-development policies in many urban areas seem to be having some success in reversing the depopulation of urban population centres and the decay of central city districts.¹⁰

⁴ Thematic Strategy on air pollution, SEC(2005) 1132

⁵ Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM (2005) 718 final, p. 32

⁶ *ibid*, p. 34

⁷ Working Group on Sustainable Urban Transport, Final Report, January 2004

⁸ Transport Statistics in Austria

⁹ *ibid*, p. 36

¹⁰ Working Group on Sustainable Urban Transport, Final Report, January 2004

It is obvious that many of these environmental problems have also **economic and social implications**. Urban areas with significant environmental problems are less likely to attract highly qualified staff, posing a significant impediment to investment. Environmental degradation of certain parts of a given town or city tends to reduce prices for housing in the affected area and may lead to high concentrations of socially underprivileged groups in these areas. Environmental degradation thus has the potential to aggravate social exclusion.

Growing dependence on the private car and increasing resource use per capita are among the **key causes of these problems**. In addition, proposed solutions to these complex problems tend to be inward looking.¹¹ There is frequently a lack of integrated solutions, despite the numerous interrelations between environmental problems of cities and other policies. In this context, the **Working Group on Sustainable Urban Management prioritised problems** hindering urban management and preventing the implementation of plans and decisions in the following order:

1. limited co-operation beyond administrative borders,
2. limited horizontal co-operation (policies-integration),
3. lack of and/or under usage of data, tools and practices,
4. project-based development does not support coherent sustainability policies and
5. participation and involvement of the public is not adequately integrated into the decision-making process.¹²

3.3 Political Context: Synergies with other policies

The TS was based on extensive consultation with a wide range of stakeholders and builds explicitly on the **6th Environment Action Programme** (6th EAP). The 6th EAP called for the development of a Thematic Strategy on the Urban Environment with the objective of *'contributing to a better quality of life through an integrated approach concentrating on urban areas'* and to contribute *'to a high level of quality of life and social well-being for citizens by providing an environment where the level of pollution does not give rise to harmful effects on human health and the environment and by encouraging sustainable urban development'*.

Besides the 6th EAP the implementation of various **significant pieces of environmental legislation is of importance in this context**. It should be noted that this legislation already existed before the TS). For example, the implementation of EU legislation on climate change benefits from sustainable urban transport and sustainable construction. Other relevant legislation is highlighted below:

- A series of directives has been adopted to control levels of certain air pollutants and to monitor their concentrations, in particular the **Framework Directive 96/62/EC** on ambient

¹¹ First Consultation Report of Local Authorities, co-ordinated by CEMR and EUROCITIES

¹² Further aspects include: 6. Limited vertical co-operation between different governmental and administrative levels, 7. Lack of institutional capacity and willingness to learn, 8. Separation of planning and implementation/neglect of implementation, 9. Problems with public/private partnerships, 10. Insufficient resources for planning, 11. Lack of commitment to sustainability issues, Final Report, 16 February 2005

air quality assessment and management and the 4 respective daughter directives. These directives set limit or target values for certain pollutants and foresee integrated strategies to combat the effects of air pollution.

- **Directive 2002/49 on Environmental Noise** obliges Member States to produce strategic noise maps, to inform the public about noise exposure and its effects, and to draw up action plans to address noise issues, all aiming to reduce the number of people affected by noise in the longer term. Various other directives relate to the sources of noise.
- **Directives 2004/17 and 2004/18 on Public Procurement** offer various possibilities to public purchasers to integrate environmental considerations into public procurement procedures.
- **Directive 2001/42 on Strategic Environmental Assessment** ensures that environmental consequences of certain plans and programmes are identified during their preparation and before their adoption. The **Directive 85/337 on Environmental Impact Assessment** requires that environmental consequences of projects are assessed before authorisation is given.

Furthermore, the TS touches on various **other European policies**, namely:

- The renewed **EU Strategy for Sustainable Development** should aim at encouraging local initiatives to tackle the problems faced by urban areas; and to produce recommendations for integrated development strategies for urban and environmentally-sensitive areas.
- The **White Paper on European Transport Policy for 2010** stresses the need for integration of transport in sustainable development policies, and the need for a comprehensive strategy that goes beyond European transport policy. The White Paper states that transport in Europe must, as a matter of priority, be compatible with environmental protection. To this end, the Commission calls to take **consistent measures** at national and local levels in other policies areas, such as
 - **urban and land-use planning policy** to avoid unnecessary increases in the need for mobility caused by unbalanced distances between home and work,
 - **urban transport policies** in major conurbations to strike a balance between the modernisation of public services and more rational use of personal cars,
 - **social and education policies** for better organisation of working patterns and school hours to avoid overcrowding of roads
- in the light of the importance of environmental technologies for improving Europe's urban environment, the Environmental Technology Action Plan (ETAP), the national ETAP-roadmaps, the Biomass Action Plan and the Green Paper on Energy Efficiency all contribute to an efficient use of natural resources, to reduce the negative environmental impacts, and to improve the quality of life of European citizens.

A link of the TS should also be seen to other international fora and their initiatives to contribute to the improvement of urban environment, such as the joint UNECE WHO Transport, Health Environment – Pan European Programme and particularly the WHO Children Environment and Health Action Plan (CEHAPE) adopted at the WHO Ministerial Conference on Environment and Health Budapest 2004.

The Regional Priority Goal 2 of the CEHAPE for instance, has an explicit urban reference, as it calls not only for reducing accidents and injuries and improve physical activity but in particular for promoting safe, secure and supportive human settlements for children. But also the other Goals such as to reduce mortality and morbidity of children due to environmental burdens and health hazards like indoor and outdoor air pollution, unsafe water, chemicals and physical agents are of special priority in urban areas.

- Awareness raising and the involvement of citizens by public participation are recognised as key factors of success in terms of the implementation of strategies, plans and measures. The **Local Agenda 21** and the **Aalborg Commitments**¹³ are efficient instruments in improving the environment of Europe's urban areas.

4. The Thematic Strategy on the Urban Environment

4.1 The objectives of the Thematic Strategy

In light of the principle of subsidiarity and the recognised need for prime responsibility of local authorities, the objectives of the TS are to:

- improve the quality of the urban environment, thus making cities more attractive and healthier places in which to live in, work and invest;
- reduce the adverse environmental impact of cities on the wider environment;
- improve the implementation of existing EC policies and legislation at the local and urban levels;
- address the lack of integrated approaches to the management of the urban environment.

More specifically, the TS aims at contributing to the local implementation of existing environmental legislation, notably through facilitating the development and dissemination of good practices. Furthermore, the TS attempts to address the lack of an integrated approach to the management of the urban environment.

4.2 Integrated Environmental Management in Urban Areas

According to the TS, an integrated approach to environmental management at the local level and to transport in particular, is key to the successful implementation of environmental legislation and to achieve long lasting improvements in environmental quality and performance. The TS strongly **recommends local authorities to make greater use of integrated management** and encourages all authorities to support this process. The

¹³ The Aalborg Commitments have been currently signed by about 290 local governments with an increasing tendency. More Information about the Aalborg Commitments you can find on the Website <http://www.aalborgplus10.dk/>.

Commission expects the largest benefits of environmental management plans to be where cities have more direct control, e.g. better administrative functioning and improved recycling, green purchasing, improvements to green space and nature conservation. Areas such as air quality and noise exposure are less likely to benefit from integrated environmental management.¹⁴

In this context, the Commission will provide **technical guidance in 2006** on integrated environmental management, drawing on experiences and giving good practice examples. While the TS already refers to some important elements of this technical guidance, the **technical aspects** of the elements below should receive particular attention:

- **Full and effective participation** is crucial for the success of integrated environmental management.
- Integrated environmental management should contain a **balanced mixture of specific targets and a long-term vision**. It should be accompanied by a detailed schedule for achieving the specific targets.¹⁵
- It must be ensured that the proposed Environmental Management Plan – though voluntary in nature – **complements existing urban planning**.
- To serve its strategic purpose, integrated environmental management should cover a **long period of time** and should envisage a regular review scheme with agreed criteria. The working group on urban environmental management plans and systems proposes a period of 15-20 years, with review every 4-5 years
- As different administrative levels and institutions often function in isolation from each other, increased **cross departmental and sectoral co-operation**, should be considered.
- An urban environmental management plan should tackle a number of issues relevant for the local diversity of each urban area, but should not neglect the **impact on the surrounding region**.
- **EMAS and ISO 14001** provide for an elaborated measurement and management system. The adoption of a formal, possibly certified set of procedures for the establishment of the urban environmental management plan could be considered.¹⁶

4.3 Sustainable Urban Transport

It is generally recognised that **transport in Europe is not sustainable**. To address this shortcoming, sustainable urban transport plans are an important instrument that was already proposed in the 2001 White Paper.

¹⁴ Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM (2005) 718 final, p. 23

¹⁵ Idid, refer also to the First Consultation Report of Local Authorities, co-ordinated by CEMR and EUROCITY

¹⁶ Idid.

A **sustainable urban transport plan** has to deal with the environmental and health objectives and requirements at least at the same level as with social and economic aspects of transport. The Commission strongly recommends local authorities to develop and implement sustainable urban transport plans. Demand Management of transport, safety and promoting of public transport are among the areas expected to benefit the most.¹⁷ To this end, the Commission will provide **technical guidance in 2006** on the main aspects of transport plans based on the recommendations of the 2004 Expert Working Group and give best practice examples.¹⁸

When producing this guidance, the following items should be taken into account:

- The potential of sustainable transport to **improve quality of urban life by reducing environmental and health risks and burdens, to save costs, maintain mobility in urban areas** and to **promote local economic growth** should be a driving theme.
- A sustainable urban transport plan has to develop and implement a catalogue of measures of urban mobility management including environmentally friendly infrastructure and transport technologies, promotion of public transport, walking and cycling as well as car sharing, transport demand management and intermodal city freight logistics, fair and efficient pricing including internalization of external costs and awareness raising for sustainable mobility behaviour and for driving in a sound and fuel-efficient way
- To promote **greater use of public transport**, easy accessibility, integrated services and fare systems, good service and rolling stock quality, reliability and user friendliness of infrastructure, vehicles and services need to be addressed thoroughly including innovative demand oriented and flexible systems and enhanced travel-information and logistics.
- Although there are a number of initiatives giving more relevance to human-powered transport at the EU level, these transport modes play a rather insignificant role in EU policies. EU actions and initiatives at the urban level should, therefore, give **cycling and walking a much more prominent role**.¹⁹
- **Intelligent logistics and traffic systems (e.g. section controlled roads)** can help make transport more efficient, reduce emissions, improve road safety, avoiding congestion and make best use of infrastructure capacity.
- Examples have shown that **pricing of infrastructure use and/or parking** can be an effective instrument to reduce the use of cars. Restrictions on road use and parking, such as car-free zones or times, should also be considered in certain circumstances.
- For long-term progress towards more sustainable urban transport, **information, education and awareness raising campaigns** are important.
- Sustainable transport policies should also focus on the needs of the most vulnerable citizens in particular children as well as **disabled persons and the elderly**.

¹⁷ Communication from the Commission to the Council and the European Parliament on Thematic Strategy on the Urban Environment, Impact Assessment, COM (2005) 718 final, p. 23

¹⁸ idid., p. 18

¹⁹ idid.

- **Transport demand management, city freight logistics and traffic** avoidance are other important elements of sustainable urban transport policies. Measures designed to avoid traffic do not necessarily entail an impediment to economic growth, as the instruments of car-sharing, tele-working, company travel plans, speed limits, parking restriction and charges, door-to-door services demonstrate.
- Sustainable urban transport plans have to include the relations between the cities and their hinterland focussing on commuting transport as well as tourism and leisure traffic between the cities and their recreation areas and their tourism destinations. National and cross border coordination and cooperation between cities and their hinterland are essential as well as coordinated measures for improving environmentally sustainable travel connections by rail and public transport.
 - **TEN and other networks** are of great importance for local traffic, therefore the TEN should also take into account transport infrastructure needs for public transport as well as cycling and walking in urban areas. (e.g. as TEN Urban). Cities and regions must be adequately involved in the planning of EU wide infrastructure for long distance transport.
- Public participation and **involvement of all relevant stakeholders** including environment and health experts, NGOs, citizens and the vulnerable groups - not only privileged groups with decisive influence on decision-makers – are essential.²⁰

4.4 Support for EU wide exchange of experiences: Promoting Good and Best Practice

Various institutions have compiled extensive collections of best practice examples. However, these case studies are generally known to insiders only, not to the wider public. Given the dissemination capacities of the EU, action at this level can help close this gap. The TS has consequently taken up the issue of wider exchange of best practice. The TS envisages:

- **Networking and Demonstration Projects** further supported through the new European Regional Development Fund and the new LIFE+ Regulation. The Cohesion Policy and the Research Framework Programme will offer similar opportunities as well as demonstration projects on a range of urban environment issues.
- **A Network of National Focal Points on Urban Issues** to provide structured and evaluated information on sustainable urban development
- **Commission Internet Portal for Local Authorities** for accessible information
- and **training** for local and regional authorities.

While this is already an ambitious work programme, there is clearly a need to **disseminate existing best practice examples**. In order to do so, existing best practice should send out the clear message what factors contributed to success, what factors posed an obstacle and how they were addressed. Best practice examples should also convey to what extent they were adapted to different conditions. Information dissemination of best practice examples should also focus on the daily work of local authorities and other relevant stakeholders, providing

²⁰ Working Group on Sustainable Urban Transport, Final Report, January 2004

practical and feasible advice. Besides these elements of best practice dissemination, the following aspects should be stressed in future discussions:

- economic benefits and funding opportunities of best practice,
- institutionalised best practice exchange,
- dissemination of best practice by a credible messenger, such as local authorities.

4.5 Sustainable Construction (and Operation of Buildings)

Sustainable urban construction is crucial in terms of energy consumption, reduction of greenhouse gas emissions, waste generation, and human health. It aims at reducing the energy consumption in buildings, by using renewable raw materials and alternative sources of energy such as solar energy while not increasing construction costs compared to traditional building designs. Furthermore sustainable construction could support passive house and low energy solar building technologies (the two being the most important current concepts of solar and energy efficient building in urban areas).

Under the TS, the Commission strongly encourages Member States, regional and local authorities to develop programmes promoting sustainable construction.

Future discussions, preferably as technical guidance from the Commission, should note, among others, the following issues:

- Recent research has shown that **diffuse emissions from surfaces** of buildings contribute to the pollution of urban soils, sewage sludge and water bodies with organic and inorganic substances. Especially heavy metal emissions accumulate in urban soils. Consequently, future research should elaborate on developing and deploying methods to reduce these emissions. Such methods could include the choice of materials, future building and planning activities. Research and development on technologies for sustainable construction and solutions foster new opportunities for an eco-efficient economy, create jobs in this advanced sector and lead to more efficient use of natural resources.

The benefits of clean and local building materials to improve the quality of life and the urban environment should be spelled out clearly and disseminated widely. Similarly, the TS should strive to **raise awareness**, in particular among investors, architects and construction companies, on the potential of sustainable construction e.g. to improve indoor air quality and energy efficiency.

4.6 Sustainable Urban Design

Sustainable urban design attempts to strike a balance between preserving existing built form and building more sustainable forms. It involves an integrated approach towards knitting the urban fabric together, relating urban to rural surroundings, and considering urban areas as ecological and social systems. The White Paper on Transport argues that the construction of

new housing and shopping centres on city outskirts needs to involve a change in routes and means of transport.²¹

Despite the relevance of urban design, **the TS does not provide additional guidance on these them.** With full respect to the principle of subsidiarity, further discussion on the TS should address the technical aspects of sustainable urban design. Some areas warrant particular attention:

- public transport modes located close to destination of high public interest,
- preferred use of brownfield sites over expansion into greenfield,
- rehabilitation of existing public spaces,
- incentives for investors to invest in re-design and retrofitting,
- innovative technical solutions, in particular technologies for cleaning up brownfields.

4.7 Resume and Challenges

Many firm commitments exist in various EU documents aiming at improving the urban environment. The **TS reinforces these commitments.** The TS also helps to assess the effectiveness of action on the urban environment. Such assessments are the “fuel” for policy learning and the diffusion of good and best practice among the Member States.

The TS focuses mainly on the provision of support for best practice exchange and technical guidance by the European Commission on integrated environmental management and sustainable urban transport.²²

The TS supports achieving the objectives of the 6th EAP, notably the promotion of Local Agenda 21.

Big challenges on the way to high quality urban environment have to be faced and institutional, technical and mental barriers have to be overcome.

To this end, specific and action-orientated measures for implementing the TS by all stakeholders are now needed.

In view of a proper and efficient implementation of the TS the following major issues and challenges have been identified where adequate answers and clear guidance are needed: The relation between cities and their hinterland is also crucial to tackle environmental problems. The hinterland is the place of living for the commuters, and it is very often also the sensitive tourism and leisure destination providing recreational functions for the citizens: Both facts are sources for increasing commuting transport as well as tourism and leisure traffic between the urban areas and their hinterland.

²¹ White Paper: European Transport Policy for 2010: Time to Decide, p. 80

²² In this context we would like to highlight the so called "Fano Guidelines for Governing Sustainable Cities", which seem to be a good approach in this direction. <http://www.governingsustainablecities.org/>

5. The Promise of Environmental Technologies

5.1 Technologies for Improving the Urban Environment

Given the dimension of environmental problems in urban areas, such as air and water pollution, it becomes evident that technologies are key to address these challenges. For their part, agglomerations offer an area of concerted actions. Whether it comes to the provision of infrastructure for water procurement and waste-water disposal (building of sewage treatment or waste-water purification plants, the remediation of outdated or the establishment of new water pipe systems, etc.), to technologies for waste-water treatment, the purification and decontamination of surface and groundwater, or waste management (establishment of modern, EU-conforming landfills, construction of incineration plants, introduction of separate collection- and recycling systems, etc.) are such environmental technologies needed in particular for communal applications .

Beside such end-of-pipe technologies integrated technologies like clean energy technologies will gain more and more significance. Technologies which make better use of renewable energy should come to the forefront in European cities and towns. They should be considered as an option when it comes to the modernisation of plants or the establishment of new plants in local areas. Furthermore the passive house standard and low energy solar building technologies should be used for planning new buildings or renovation either single-family or multi-unit homes, and either residential or commercial buildings as well as for assessing existing buildings in European cities and towns

Consequently, the promotion of environmental technologies is a key aspect to improve Europe's urban environment. In this context, the implementation of the Environmental Technology Action Plan (ETAP) plays an important role. Improved market up-take of environmental technologies will lead to greater market share of these technologies, as envisaged by ETAP, would lower prices and would be a critical contribution to an improved urban environment.

Local authorities could use the instrument of public procurement to enhance the use of environmental technologies (ETAP action 19).

5.2 Raising Awareness of Environmental Technologies

Stakeholder consultations have shown that environmental technologies are not sufficiently used, partly due to the lack of clear information. There is a lack of accurate and easily accessible information on the potential of environmental technologies, preventing users from making informed decisions regarding investment in environmental technologies. Additionally, stakeholders have identified a lack of education and training in the area of environmental technologies.

There is general agreement that further action on awareness raising on environmental technologies is required. In this context, the **TS is an important tool to promote the wider use of environmental technologies** in urban areas. Future discussions around the TS should consequently take into account the following aspects when addressing the need to raise awareness of the benefits of technologies for Europe's urban environment:

- **Economic incentives** for the use of environmental technologies must be (made) clearly visible. Awareness raising is most effective when underpinned by (environmentally correct and efficient) price signals or other economic incentives.
- The information provided must be credible. **Credibility** is best achieved through active involvement of business, pilot projects and information provided by neutral state agencies.
- **Endurance** and repetition of the key messages are significant contributors to success. Consequently, institutionalised and well funded activities have been particularly useful.
- **Information** on environmental technologies must be well presented, repeated regularly and easily accessible, meaningful information must be well structured and tailored to the specific needs of the target group.
- Technology choices are often **embedded in investment**, and technologies are "locked in" to the technical and economic lifetime of investments. Awareness raising should be directed, *inter alia*, at those deciding on investments, such as board members, financial and procurement departments.

6. Successful & Interesting Practice – Examples

Throughout the European Union, there is a great number of best practice examples of cities and towns to support the application of environmental technologies and to enhance sustainable development of urban areas. These best practice examples consist of a great variety of measures, such as local initiatives of networking to support green procurement of environmental technologies, innovative forms of public participation car free zones and times, incentives for the increased use of clean vehicles, speed limits, and road and parking charges.

The best practice examples underline the environmental, health as well as **economic benefits of an improved urban environment**. By improving their attractiveness, liveable cities attract greater employment and investment. Best practice examples also prove the **cost saving effects of improved urban environment through better planning**.

Best practice examples show that **sustainable urban development is a permanent task**, requiring objectives to be reviewed continuously. Best practice examples also underline that **public participation** and local networking initiatives are important tools for success. Early planning, allowing the full involvement of all relevant stakeholders is another important success factor. Best practice also demonstrates the benefits of the clear allocation of responsibilities and endurance.

Essentially, **success depends largely on its framework conditions**.

The case studies in the annex cover towns and cities of different sizes, in different demographic, economic, regional and social circumstances. They show the way from good practice to success and hopefully pave the way for broader implementation in other regions of Europe.

6.1 Lessons learned from the best practice examples

Best practice examples demonstrate that projects were most successful if they applied a mixture of measures. The following **general lessons** can be drawn:

- Good practise often depends on **clear allocation of responsibilities and dedication** of specific actors, as well as the **endurance** of actors involved. It depends on favourable economic, social, and political **framework conditions**. An adequate legal and institutional frame is crucial.
- **Effective and genuine involvement of citizens** is at the core of success. Effective and genuine involvement depends on early and comprehensive consultations of all relevant stakeholders; it avoids dominating influence of particular interest groups on decision-making. The use of local knowledge produces a sense of ownership among citizens and local business. To be effective, public participation must not create cumbersome bureaucratic procedures and **but allow for swift decision-making**.
- Projects, which **combine economic, social and environmental benefits**, were particularly successful. Consequently, best practice often reduces costs, e.g. overhead costs of public buildings or traffic lights. These projects generally benefited from an Integrated Environmental Management as well as Sustainable Urban Transport (and Mobility) Plans. In essence, successful projects also strengthened the local and regional economies.
- Successful projects often depend on close **co-operation of cities with their surrounding regions**. Co-operation across administrative boundaries (and even international frontiers) is often crucial for success.
- **Local procurement** often helped to increase the market share of environmental goods and contributed to raise awareness for possible ways to address environmental problems of urban areas.
- **Project management** is another key success factor. Best practice examples benefited from clear definition of objectives and a comprehensive monitoring scheme.
- Best practice examples sometimes applied rather **innovative measures**, such as the closure of sections of towns for individual traffic or applying charges. These projects produced imminent results and demonstrated that innovative measures improving the urban environment to need to result in economic slow down. Besides environmental benefits, road and parking charges have the additional advantage of generating revenues that may be used to improve public transport.

Annex: Success Stories

Transport and Mobility

- **Graz (Austria) – transport initiatives**

The 240,000 inhabitant city of Graz is Austria's second largest town. It is the capital of the province of Styria and its cultural and economic centre. Graz is currently facing problems with an increase in car use of commuters to combat this, several initiatives under the European project Trendsetter which started in 2002 have been set up.²³

The most progressive of these is the transposition of the entire bus fleet to the use of bio-diesel, an action which is unique in Europe. In 2005, 60% of the cars used by the taxi fleet had also converted to bio-diesel. The diesel is composed mainly of used cooking fat collected from households and businesses. Apart from this, new public transport services to the suburbs have been established; a bike quality plan has been introduced (increasing cycle lanes, public information and maps etc.); transport awareness campaigns have been launched (e.g. car free day); traffic flow measures have been introduced to reduce congestion; urban freight transportation and the punctuality of public transport has been improved.

It is predicted that these measures will reduce fuel consumption by 4700t per year and CO₂ emissions by 24.700t per year. Emissions of hydrocarbons, nitrous oxides and particulate matter should also be reduced (HC 103t/y, NO_x 69t/y, and P.M. 8t/y). In addition, the project intends to reduce traffic accidents by 3% and improve compliance with speed regulations by 20%. It is aimed to break the trend of decreasing public transport use and to, increase bike use and the use of public transport by handicapped people by 20%. Job-creation is another objective of the project. Apart from the individuals running the project, there should also be more opportunities for vehicle service personnel, biogas production staff and waste collectors (for cooking oil collection). In total it is expected that the project will create at least 25-30 new jobs as well as temporary opportunities for various experts in setting up the biogas refinery and transport system.

- **Bologna (Italy) – car traffic restrictions**

The initiative "Vivi Bologna"²⁴ closed the city centre for individual traffic at weekends from 9.30 to 12.30 and 15.30 to 18.30. Only public and emergency vehicles were permitted; taxis and cars transporting disabled persons had to comply with a speed limit.

Closure of the city centre was flanked by improved parking at interchange points (bus and railway) and the provision of public transport with new environmentally friendly buses and trains. For its public transport fleet, Bologna purchased small and environmentally friendly vehicles.

²³ <http://www.trendsetter-europe.org/index.php?ID=482>, <http://trendsetter-graz.fgm.at/videoclip.phtml?seite=17>, <http://213.131.156.10/xpo/bilagor/20030509035101.pdf>

²⁴ Project web address: www.liberiamolara.it

To raise awareness and increase public support for these measures, the city launched media campaigns and organised social and culture events at weekends (e.g. free entrance to museums and entertainment events around the initiative). The citizens of Bologna were continuously informed about these measures. Vivi Bologna is part of the city's mobility plan as well as the Emilia-Romagna regions programme for a sustainable mobility. Vivi Bologna was developed in co-operation with the surrounding regions and the central government. As a result, the use of public transport increased; while congestion and greenhouse gas emission decreased.

- **Stockholm (Sweden) – bus transport and incentives for clean vehicle**

The City of Stockholm promotes the use of clean vehicles.²⁵ To create a bigger market for these vehicles, this initiative focused initially on an increased use of clean vehicles in the municipal fleet. The city of Stockholm out-sourced the procurement and administration of its vehicle fleet and required contractors to successively change to renewable fuels so that by 2006, 25 % of transport services would operate with these fuels. In addition, Stockholm launched an information campaign promoting clean vehicles and fuels aimed at private companies. Stockholm also provided clean test vehicles in close co-operation with Stockholm car dealers and made subsidies available covering the extra costs for private companies. The major part of the respective city budget line (1070 000 €) has been used for these subsidies.

Other incentives are offered to increase the use of clean vehicles, such as free residential parking and cost-free driving in the Congestion Charging Zone. In January 2006, Stockholm introduced a congestion charge.

Partly as a result, the city's fleet of 500 vehicles comprises of about 250 clean vehicles; the share of clean private vehicles has increased by 199 % between January 2005 and January 2006, totalling to a share of 12.4 %. These initiatives have also resulted in increased awareness among companies and the general public. Private companies with more than 250 employees and an environmental manager have knowledge about clean vehicles. 15 % of Stockholm's population believes that they will buy a clean vehicle in the near future and 53% are aware of clean vehicles.

Climate Protection through Local Action

- **Heidelberg (Germany) – urban action programme for climate protection**

Through the city development plan of 2010, the city of Heidelberg binds itself to sustainability. Therefore, the city developed a mandatory procedure to review municipal council proposals for sustainability. Since January 2005, 96% of the evaluated proposals were reviewed according to the sustainability rules.²⁶

²⁵ www.trendsetter-europe.org

²⁶ Communication of the mayor of the City of Heidelberg Beate Weber dating from 14.02.2006

In addition, the city of Heidelberg adopted different measures to meet the objectives laid down in the city's development plan. To decrease CO₂ emissions, Heidelberg aimed to reduce car journeys below 15 km by shifting to public transport and bicycle, and encouraged a further shift to public transport for car journeys between 15 and 25 km.

Heidelberg implemented, among others, the following measures:

- high-speed bus routes in peak time
- separate bus lanes and tram tracks on main roads in the city centre
- new public transport stops near research centres, hospitals, and shopping centres
- shorter time frequency between tram and bus
- funding of job tickets for municipal employees
- university term tickets
- green procurement of municipal vehicles and conversion of waste disposal vehicles fitted with soot filters
- new bicycle tracks and additional bicycle stands.

Concerning energy supply of new buildings, the City of Heidelberg introduced a target of 70 kWh per square metre per year as the new standard. This standard, compared to the previous thermal insulation standard, should decrease energy demand by 30%. The same standard also applies to the energy consumption target of new municipal buildings. In addition, Heidelberg runs a hydro-electric power plant with a capacity of 83,600 kW and an annual electricity generation of 500 million kWh.

• **Oslo (Norway) – Strategy for sustainable development**

Oslo's Strategy for sustainable development consists of various initiatives for the period 2003 – 2014, to be revised every 4 years.²⁷ The strategy on climate and energy – in line with Norway's commitment under the Kyoto Protocol – determines that the region's greenhouse gas emissions should not increase more than 1 per cent above the 1991 level by 2010. The climate and energy strategy as well as an accompanying action plan have been drafted jointly with the surrounding regions, underlining the importance of regional co-operation.

Oslo established an energy efficiency fund to promote energy efficiency and eco-efficiency measures in the private and public sectors. Profits earned by the city's energy utility feed this fund. Under this fund, house owners can apply for grants to cover 20-30 per cent of the costs of energy efficiency measures. Oslo has also given grants for a bio-fuel plant and a large geothermal heat pump. Furthermore, the city built a district heating system supplying about 15 % of the city's heating. A new bio-fuel plant meets peak demand in winter.

In addition, more than 60% of Oslo's public transport is powered by (hydropower-based) electricity. Oslo plans a new metro ring to increase the share of environmentally friendly vehicles to 50% by 2008. 20% of the revenues from this toll ring around the city centre are

²⁷ <http://ucp.ewindows.eu.org/reports/oslo-en/default.htm>

earmarked for public transport improvements. Lastly, the city has further expanded cycle and pedestrian path networks.

As a result of these various measures, Oslo is one of Europe's cities with the lowest per capita greenhouse gas emissions, due to the particularly large share of hydropower electricity on the city's energy demand (about 66 %). The toll ring and reorganisation of main roads has reduced air pollution. The energy efficiency fund has resulted in substantial energy savings. Oslo's energy consumption, however, is rising, and creates a need for further measures to improve energy efficiency.

- **Krnov (Czech Republic) – “A Better Environment for our Town”**

The City of Krnov set up a Town Development Department, containing an Environmental Section and a separate Building Section Department which oversees and directs a wide range of environmental measures.²⁸ It collaborates with public interest groups and citizens on education and local initiatives, and has established an environmental information data base. It is financed by the municipal and government subsidies as well as grants.

With support of this department, a number of environmental improvements were realised:

- energy efficient systems were installed in 30% of the municipal buildings,
- expansion of the cultivated green areas by 8%,
- construction of pedestrian zones and a community recycling depots,
- closure and re-cultivation of the municipal waste dump, and the opening of a new dump in Holasovice financed by neighbouring municipalities and the City of Krnov,
- reconstruction of the sewage water treatment plant,
- the reduction of the pollution caused by the heating power station and
- the creation of cycle paths and interpretative nature trails in the Krnov area.

Energy Efficiency

- **Grenoble (France) – Reduction of running costs in social housing through energy and water saving, introducing a rail tramway system**

Social housing from the early eighties - located in L'Isle d'Abeau - faced high running costs due to significant expenses for electric heating and hot water.²⁹ A high turnover of tenants and a high vacancy rate were partly caused by this level of maintenance costs. The retrofit programme aimed to reduce maintenance costs in council housing with renewable energies, energy saving and water saving. The project consequently has a social as well as an environmental dimension by aiming at affordable costs.

²⁸ <http://www.eaue.de/winuwd/151.htm>

²⁹ http://www.europeangreencities.com/demoprojects/france_grenobleL'isle/france_grenobleL'isle.asp

Pursuing these objectives, electric heating was replaced by natural gas with two optimised combustion central boilers regulated according to heat demand. The boilers were supplemented by 165 m² solar water collection panels and by high performance heat exchangers. 48 m² of photovoltaic modules for ventilation and low energy lighting in common areas were integrated in the roof of the buildings. Because of the high impact of user behaviour on energy consumption, education and awareness raising about energy saving was key.

A preliminary monitoring of the project from October to December 2003 found a decrease of gas consumption by 13.5% and of domestic hot water by 25%. The project reduced total operational costs by approx. 61%. For the year 2005, costs for heating amounted to 2.58€/m² (110 kWh/m²), for DHW to 3.63€/m³ (25m³/dwelling).

Costs of the project are 1 460 000 € (including 190.000 € for solar DHW, 140.000 € for photovoltaic panels, 540.000 € for the collective heating system). The project received grants from various institutions, e.g. the local, regional and national authorities, the EU, GDF (gas provider). OPAC38, the housing agency, paid the remaining 635.000 €, both through self founding and loans, leading to an increase in rent from 290€/month to 315€/month, i.e. an increase of 8 % (for an average apartment of 70m²).

In 1987, as part of an overall revitalisation of the town centre, 8.8 km of a new ground-level, light rail tramway system was opened.³⁰ The establishment of the tram system had an immediate effect on the use of public transport. A drop in 2000 car trips a day was observed by 1989, two years after the trams started running. Every day 120,000 people travel by tram and it actually carries 45% of the city's urban public transport passengers. Level access from platform to train was an important design factor to cater for the handicapped population of Grenoble. This has paid off, with surveys showing that wheelchair users travel by public transport twice as often as before.

The tram system is widely regarded as a successful example of the introduction of modern technology into a historic city. The success of the initial project has led to an expansion of the tracks so that by the start of 2006, three new tracks will be operating with a total length of around 35 km. To facilitate transferability to other cities, Grenoble has hosted training for drivers from Strasbourg and St Etienne and senior executives have moved on to work on these and other light rail systems in their early stages across the country. The system is used as model across Europe, for example in the proposal to establish a tram network in Edinburgh town centre.

- **Rajec (Slovakia) – energy efficiency**

Partly to improve energy efficiency, Rajec, a town of about 6.000 inhabitants, adopted an Energy Action Plan. This plan contains measures to improve energy efficiency and a review scheme. The Energy Action Plan was prepared with grants from the Slovak Ministry of the Environment and support from the Danish Technological Institute.

In this context, a wide set of measures were taken in Rajec, which were funded, among others, by the municipality, the Slovak National Government and the European Commission.

³⁰ <http://www.railway-technology.com/projects/grenoble/>

The heat delivery systems of various buildings were modernised, and resulted in an average of 30% energy savings. A Phare demonstration project helped to renovate individual houses, generating more than 40% energy savings. Where possible, wood waste boilers were installed with the intention to provide approximately 10% of the town's energy. The European Union funded a project with partner municipalities in Denmark and Germany to exchange experiences and knowledge on integrating environmental concerns into daily administration routines.

These and other projects resulted in:

- energy savings of up to 50%,
- reduction of heat loss by 20% (through the improved district heating system),
- decrease of harmful emissions by about 49% (through the conversion of the heating system from coal to natural gas),
- decline of brown coal consumption by 12% and coke by 2% (while the demand for natural gas has increased by 8% and for wood waste by 4%),
- drop of solid emissions by 35%, SO₂ by 63%, NO by 42 % and CO by 54% and
- the economic return of 326,666 ECU in 1996 and 2,713,333 ECU by 2015.

Renewable Energies

• Güssing (Austria) –s elf-sufficient energy town

The 4,400 inhabitant town of Güssing was one of the poorest and infrastructure weak regions in Austria. The city suffered from high unemployment and out-migration. In 1989, the decision was taken to successively cut down the use of fossil fuels and convert to 100% regionally produced biomass fuels (mainly wood).³¹ This change was intended to simultaneously supply the town with exclusively regionally produced renewable energy, protect the environment and at the same time, revitalise the town economically through regional added-value and increased job security. As a complementary element, synergies between the areas of tourism, education and further education, research and development as well as regional co-operation are strengthened.

In addition, further development and optimisation of technologies is another essential element of Güssing's way to a self-sufficient energy town. The lead project in this context is a combined heat and power plant, which uses innovative techniques, known as the Güssing process. This pilot project has been operational since 2001. This plant, consisting of a "fluidised-steam-engine" and a "gas-motor" for heat and power production, is now being further developed. Using the Fischer-Tropsch-Method, it should also be able to run on biogenic fuel.

This model has had environmental and economic benefits. In Güssing today, 475 new job positions have been created in 42 businesses. Predictions made for the reduction in

³¹ <http://www.eee-info.net/index2.php?bereich=modell>

emissions from the town also look good. There should have been a drop in CO₂ from 36.995,06 t/a in 1995 (100%) to 24.020,29 t/a in 2005 (61%) and a reduction to 2.782,08 t/a (8%) should occur in 2006. Furthermore, the project has helped to establish additional research capacity in the town. The European Centre for Renewable Energy, Güssing, was established in 2002. The “Solar School” and the newly grounded International Research Institute are additional proof of the vital activities of the town of Güssing and give and support the sustainable economic development of the region.

- **Kisielice (Poland) – Development of a Wind Energy Investment Project**

The project started out with assessing the available wind resources and wind power generation capacity in the Municipality of Kisielice. The project developed wind energy investment guidelines, which provided an overview of Polish policies and incentives for wind energy development. These guidelines provided an important source of information on developing wind energy in the specific circumstances of Poland.

The project was awarded a non-repayable grant by the Polish EcoFund for Environmental Protection, covering 30% of the investment costs. Additional grant funds of 20-30% of the investment and preferential loans from other institutions are possible.

The implementation of the project had environmental and economic benefits. Compared to coal combustion, Poland’s principal source of energy, the project curbs emissions of 1213.3 tons of CO₂; 210 tons of CO; 4.6 tons of NO_x; 280.8 tons of SO₂, and 3.9 tons of ash per year. The profits from selling wind-powered energy could add up to \$187,500 per year. This project confirmed that even small communities in Poland can implement wind energy projects.

- **Barcelona (Spain) – Solar Thermal Ordinance**

Using its 2800 hours of sunshine per year, the City of Barcelona adopted the Solar Thermal Ordinance to promote the use of solar thermal energy. The ordinance entered into force in August 2000.³² According to this regulation, all new buildings and buildings undergoing major refurbishment must produce 60% of the energy for running hot water with solar thermal energy.

Since this ordinance came into force, the use of solar thermal energy multiplied more than tenfold, moving from 1,1 m²/1000 inhabitants to 13 m²/1000 inhabitants (as of December 2004). The overall distribution of solar collector surfaces divides into 65% residential, 12 % hotels, 11% sporting, 3% health facilities and 9% other. The equivalent energy savings constitute 19,625 MWh/year and CO₂-emission savings of 3,451 tones per year. More than 10 other Spanish cities adopted similar solar ordinances, using Barcelona’s experiences as a model.³³

The Solar Thermal Ordinance is part of the Barcelona Energy Plan, which is managed by the Barcelona Energy Agency under an agreement with the Barcelona City Council since May

³² <http://www.barcelonaenergia.com/eng/operations/ost.htm>

³³ as of April 2004, www.energie-cites.org/documents/martigny/pujol_gt2.pdf

2003. The Barcelona Energy Agency is preparing amendments to the Ordinance with the aim to make it applicable to almost all the city's new and rehabilitated buildings. Local stakeholders involved in solar energy are represented in the Barcelona Solar Energy Bureau.