Boosting quality of life for children and youth

This information kit is designed to assist municipal authorities, non-governmental organizations and policy makers active in the field of environment and health. The fact sheets are available electronically in English and Russian at: www.unep.org/europe/the_children.pdf. More information is available on THE PEP website or from the project partners whose details can be found overleaf.

FOREWORD

We welcome the initiative of UNEP for this information kit on transport, health and environment, jointly undertaken with UNECE, WHO and UITP in the framework of the Pan-European Programme on Transport, Health and Environment (THE PEP). Austria is supporting THE PEP as a unique platform to build partnerships for action on environmentally-friendly, sustainable transport in all parts of Europe. THE PEP also stimulates endeavours on national level to implement environmentally sound mobility.

In Austria, we launched the national klima:active mobil programme for supporting cities, regions, companies as well as schools to implement climate-friendly mobility management. More than 1300 klima:active mobil partners are proving that every transport actor can contribute to reduce greenhouse gases. We also applied THE PEP Health Economic Assessment Tool to calculate the health benefits of cycling.

Investments in mobility management, renewable energy and electric mobility, cycling as well as innovative public transport help to protect climate and at the same time to stimulate our economy and to create green jobs.

To this end let us further develop co-operations and partnerships within THE PEP to get closer to a healthier and environmentally friendlier mobility in Europe.

Nikolaus Berlakovich
Austrian Federal Minister of Agriculture, Forestry, Environment and Water Management
September 2011
AUSTRIAN MINISTRY OF AGRICULTURE, FORESTRY, ENVIRONMENT AND WATER MANAGEMENT
The Ministry is the national authority in Austria for environmental policy, its implementation and further development. The major areas of competence and action are climate protection, air quality, environmental legislation, chemical policies, renewable energy and energy efficiency, nuclear protection, environmentally friendly mobility, fuel quality and renewable fuels, noise abatement, water protection, waste policy and environmental technologies.

Mobility issues focus on actions to reduce greenhouse gas and other emissions of vehicles, fuels and transport modes, the promotion of environmentally sustainable transport, fuel quality, biofuels and renewable energy, alternative vehicles and electro-mobility, as well as mobility management support for cycling. The Ministry has launched and coordinates the national klima:aktiv mobil programme, the Masterplan for Cycling and the Austrian Children’s Health and Environment Action Plan. Urban environment and sustainability as well as noise protection are further fields of action. www.lebensministerium.at

INTERNATIONAL ASSOCIATION OF PUBLIC TRANSPORT (UITP)
The UITP is the international network for public transport authorities, private and public operators, policy decision-makers, scientific institutes and the public transport supply and service industry. It is a platform for worldwide cooperation, business development and the sharing of know-how between its 3,400 members from 92 countries. UITP is the global advocate for public transport and sustainable mobility, and the promoter of innovations in the sector. www.uitp.org

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)
As the voice for the environment within the UN system, UNEP’s mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations. This includes playing a role in linking health to the environment, and promoting the integration of environmental considerations into transport-related decisions at all levels to bring about a shift to transport systems and approaches to mobility that are less disruptive to the environment. UNEP is hosting the Environmentally Sustainable Transport information exchange portal for Eastern Europe. www.unep.org/transport, www.unep.org/europe, esteast.unep.ch

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNEC)
The UNECE is one of five regional commissions of the UN and has 56 Member States. Its areas of expertise cover economic cooperation and integration, energy, environment, housing and land management, education for sustainable development, gender, population, statistics, timber, trade and transport. The UNECE brings together governments and stakeholders for dialogue and cooperation. It provides analysis, policy advice and assistance. It also sets out norms, standards and legally binding instruments to facilitate international cooperation within and outside the region. All interested UN Member States may participate in its work and over 70 international professional and non-governmental organizations also take part in UNECE activities.


WORLD HEALTH ORGANIZATION (WHO) REGIONAL OFFICE FOR EUROPE
The WHO is the directing and coordinating authority for health within the UN system. It is responsible for providing leadership on health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. In the 21st century, health is a shared responsibility, involving equitable access to essential care and collective defence against transnational threats. The WHO Regional Office for Europe works with governments and partners to improve the health of the 890 million people in the 53 countries of the WHO European Region. The Regional Office’s mission is to support Member States in developing and sustaining their own health policies, health systems and public health programmes, working to prevent and overcome threats to health, anticipating future challenges and advocating public health. www.euro.who.int

This fact sheet series is a joint project
Every year in the pan-European region more than 100,000 people are killed on our roads. Of these more than a third are young people under the age of 29, more than a quarter of whom were killed while either cycling or walking. Overall, amongst 5–24 year-olds, road traffic injuries are the leading cause of deaths.

The burden of road traffic injuries is not distributed equally between genders (see Fig. 1) or across countries, regions and neighbourhoods. In the poorer countries, mortality can be up to eight times higher than in richer ones, with the highest rates occurring in the Russian Federation, Lithuania, Latvia, Portugal and Greece. In Eastern Europe, Caucasus and Central Asia (EECCA), fatalities increased between 2000 and 2005 and, in some of these countries, accident rates are more than 15 times higher than in Western and Central Europe.

The same is true of socioeconomic groups: according to the World Health Organization (WHO), high-income earners are involved in fewer transport crashes and are affected by fewer injuries. Studies in the United Kingdom suggest that children in the lowest socioeconomic class are four times more likely to die from road traffic injuries and, as pedestrians, five times more likely.

There are numerous factors involved. Less privileged neighbourhoods tend to have poorly developed transport infrastructure, including street lighting and pedestrian crossings, and often abut major urban arteries. Low-income earners tend to walk or rely on cheaper forms of transport like bicycles, mopeds and motorcycles. The cost of helmets, seat belts and child restraints can also be a barrier to their use.

It is hardly surprising then that fear of accidents or unsafe roads is a powerful deterrent against parents allowing their children to walk or cycle. For example, between 1985 and 2003, the average distance walked by 14-year-olds in the United Kingdom fell by 19% and the distance they cycled dropped by 58%, while they travelled 70% further by car.

The WHO estimates that for every transport fatality, 20 people require hospital admission and another 70 need outpatient treatment – the number of road traffic injuries among young people is likely to run into the millions. It is also estimated that the average economic value of a ‘life saved’ in the pan-European region is around €1 million, and that overall road traffic deaths and disability cost up to 3% of Europe’s Gross Domestic Product.

Causes of road accidents

Research indicates that the major contributing factors to transport fatalities and disabilities are alcohol and drug consumption; speeding; the state of infrastructure; seeing and being seen; lack of use of safety equipment including helmets and restraints; and the inexperience of new drivers.

Unaware of their vulnerability, children often lack the capacity to be seen on the roads, or to judge speed or distance in traffic. In the event of a traffic accident, because they are young, their vital body parts are fragile, making them more susceptible to major injuries or even death.

Adolescence is a time of testing limits and risk-taking, exacerbated by peer pressure. This can manifest itself in dangerous cycling and driving, ignoring the need to wear helmets or seat belts, and indifference to alcohol consumption, speeding and other risks.
BETTER ROADS, CALMING TRAFFIC
Building better roads requires investment and commitment from planners, transport authorities and the general public. Yet it works, proving effective in saving lives and money.

In Norway, every €1 spent on road improvements has been shown to save between €1.50 and €14 on medical costs, depending on the type of improvement. Combining traffic mitigation measures – such as road closures, better signage, improved pedestrian crossings and mini roundabouts or other speed reduction measures – can reduce deaths by up to 37% and result in an 11% drop in traffic injuries and 5% fewer crashes.

Road safety education through schools, parents and public service messages is known to be more effective when it is accompanied by road and traffic improvements. Used in isolation, such education initiatives quickly lose effectiveness.

REDUCING SPEEDS
Pedestrians and cyclists have almost double the chance of surviving a crash with a vehicle travelling at 30 kilometres per hour (km/h) than with a vehicle moving at 50 km/h. Setting and enforcing a maximum 30 km/h speed limit in busy pedestrian and cycling thoroughfares, combined with speed bumps, cycle lanes and improved walkways, can significantly improve road safety, particularly in low-income neighbourhoods.

IMPROVING VISIBILITY
Seeing and being seen by other road users is crucial to road safety. Reflective or bright clothing, light-coloured helmets, and cycle lamps as well as the use of headlights during the day on motorcycles and cars, can all help. According to the WHO, the use of car headlights during daylight hours can reduce the rate of incidents involving pedestrians by 15%, and with cyclists by 10%. Improving street lighting is also vital; every €1 spent results in societal savings of €11.

PROMOTING HELMETS
European Union studies show that by wearing a helmet, cyclists can reduce their risk of death or serious head injury by up to 39%, and motorcyclists by 72%. Although helmets are compulsory in most jurisdictions in Europe, education can assist law enforcement. In Italy, a law supported by an information campaign increased helmet usage by 15%, and with cyclists by 10%. Improving street lighting is also vital; every €1 spent results in societal savings of €11.

In Kromeriz, Czech Republic, a campaign encouraging the use of cycle paths and helmets by under 15-year-olds reduced head injury hospital admissions by 75%. Subsidizing the cost of children’s helmets for lower-income families has also proved cost-effective: every €1 spent on helmets can save €29 in medical costs.

USING BELTS AND CHILD RESTRAINTS
Seat belts and child restraints reduce injuries by 45–55% and 60–95% respectively according to the WHO. Legislation, enforcement and education help maximize their use, but cost and availability can be barriers.

Community and private initiatives, such as rental schemes, have been shown to increase the use of safety restraints and, importantly, address the variance in these items’ cost per household across Europe. Through Safe Kids Austria, maternity staff offered new parents a rental option. In Greece, a manufacturer donated baby chairs to a maternity hospital that, in turn, rented them out: 90% of the participants in the scheme used the chairs correctly, and many parents went on to buy second-stage seats.

REDUCING RISK FOR YOUNG DRIVERS
Austria, Norway, Sweden and Switzerland have all introduced graduated licensing for young drivers, with such features as lower legal blood alcohol limits, curfews, and restrictions on night driving and the number of teenage passengers. In Austria, more driver education was successfully introduced, including a requirement to drive up to 3,000 kilometres with a mentor.

REDUCING DRINK-DRIVING
Drunk drivers are more likely to speed and to put their lives and the lives of others at risk. Young drivers with even very low levels of alcohol in their blood are three times more likely to have an accident than drivers aged over 30. The addition of recreational drugs doubles their risk of an accident. Most countries have restrictions on blood-alcohol levels: 0.05 grams per decilitre (g/dl) in most of the European Union, but 0.08 g/dl in Ireland, Malta and the United Kingdom. Such laws are effective only if enforced with penalties that act as a deterrent. High-visibility random breath testing has proved highly effective, particularly when backed by major public awareness campaigns. The investment in reducing drink driving is worth it: each €1 spent saves society €36.

More information: www.euro.who.int/transport and www.unece.org/trans/welcome.html

Road transport has increased by 26% across the European Union since 1990, and further significant rises in passenger and freight road transport are forecast. Inevitably, health issues related to air and noise pollution are greatest in urban areas.

### Air pollution

Children and young people are known to be more susceptible than adults to even relatively low levels of air pollutants – particulate matter (PM10 and PM2.5) and gaseous pollutants including nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and ozone (O₃). Living along streets with heavy traffic can exacerbate asthma, chronic respiratory symptoms and allergic symptoms and reduce lung function. Indeed a study for the European Medicine Agency in 2008 across Austria, France and Switzerland attributed some 300,000 cases of bronchitis and 162,500 asthma attacks in children younger than 15 to road transport pollution. As low-income families tend to live in areas near busy roads and major city arteries, their children carry an increased health burden.

The banning of lead in petrol, a reduction in the sulphur content of fuels and improved emission standards of vehicles, all of which have been implemented since the 1990s, have helped, but these have been offset by increases in emissions of particulate matter as more vehicles are driven for longer distances and diesel engines are promoted. The forecast increases in road transport are likely to make health and environmental matters worse.

In Eastern Europe, Caucasus and Central Asia (EECCA) countries, air pollution from road transport remains a major problem, mostly due to the large number of old cars. Transport emissions are expected to remain higher in the EECCA region and South Eastern Europe than in Western and Central Europe.

But where concerted efforts are made, lives can be improved, as demonstrated by a 2004 Apheis study in 19 European cities that showed that a decrease in one ambient pollutant, PM10, could save more than 11,000 lives. Across Europe, cities are taking steps to restrict vehicles and promote sustainable transport: Rome has reduced traffic in two central areas by 25%; London’s ground-breaking urban charging has reduced car traffic by 30% and the city’s annual traffic-related carbon dioxide (CO₂) emissions by 20%, and Gdynia, Poland, has boosted the use of its trolley-bus system and improved its pedestrian and bicycle infrastructure.

### Climate change and health

Road transport already accounts for 20% of Europe’s greenhouse gas emissions according to the European Environment Agency. Climate change is already affecting health – the World Health Organization estimates that 150,000 deaths in Europe could be attributed to it in the year 2000. The potential effects of climate change include more extreme weather events – droughts, storms and floods – and an increase in diseases associated with heat waves and higher temperatures. Some vector-borne diseases have already extended their range into Southern Europe as have tick-related diseases, including Lyme disease. Water and food-borne illnesses, too, become more prevalent as temperatures rise. For example, a weekly ambient rise of 5 °C can increase incidents of salmonella by 10–15%.

Although these predictions are surrounded with a degree of uncertainty, reducing emissions of greenhouse gases is a priority. Austria’s klima:aktiv mobil initiative, which brings together cities, regions, companies, tourism, schools and youth organizations, has already saved more than 400,000 tonnes of CO₂ per year through a range of mobility-related projects.
NOISE AND EFFECTS ON HEALTH
Road, rail and air traffic are the main sources of community noise in the European Union. Around 80 million people in Europe are exposed to unacceptable noise levels, while a further 170 million are believed to find that noise seriously disrupts their daily lives.

Noise pollution can also have widespread health impacts, particularly among the young. For children and youth, high levels of background noise can affect their concentration and sleep, and cause psychological stress. Noise pollution can also contribute to uncooperative and aggressive behaviour. Psychological and social effects should therefore be seen as an integral part of transport planning.

As more and more data on the benefits of noise abatement become available, national and local initiatives are taking off. In the Netherlands, a recent study showed that every €1 spent reducing noise pollution could provide between €2 and €3 in benefits. In Berlin, where more than 270,000 people are affected by high noise levels and 340,000 residents suffer from noise-disturbed sleep, an integrated noise abatement and air-quality control programme is reaping rewards. Measures include limiting speeds to 30 kilometres per hour and introducing a low-emissions zone covering 10% of the city. Less than two years into the programme, noise has been reduced by 3 decibels and more than 10,000 local residents have benefited from significantly improved air quality.

PHYSICAL ACTIVITY AND HEALTH
The links between sedentary lifestyles and life expectancy, heart disease, strokes, Type 2 diabetes and obesity are all well known. Across Europe nearly a million people die each year from inactivity-related illnesses. Yet concerns about road safety for children and young people are clearly outweighing health warnings about a lack of physical exercise. The average distance children walk or cycle is falling, while the number of car journeys they take is rising. Parents are also restricting their children’s outdoor play time. According to an EU study from 2010, on average 24% of the 6–9 year-old children are overweight or obese and up to 31% of 13-year-old boys and girls are overweight.

SUSTAINABLE TRANSPORT AND WELL-BEING
Towns, cities and governments are encouraging more walking, cycling and skating. Making the links with public transport and the introduction of bike-sharing schemes is also helping to improve mobility. For example, Austria is promoting all-day cycling with the goal of doubling the mobility share of cycling to 10% by 2015. This is expected to save 824 lives per year as a result of increased physical activity. And in North-Rhine Westphalia, Germany, 50 cities are promoting cycling, walking, in-line skating and skateboarding. Their aim is to reduce the number of short car journeys, particularly trips under 5 kilometres. Early results are promising – Münster has already reported a 37% drop in short car journeys.

Switzerland combines the promotion of cycling and walking, using schemes like the walking bus, under which an adult pedestrian ‘chauffeur’ accompanies children along a route with set stops, with projects to encourage sports and healthy eating.

Lasi, Romania, has raised the acceptance of cycling by involving celebrities in its promotion through TV shows, local press, demonstrations, competitions and cycloball games and by encouraging city employees and even dignitaries to cycle. That, together with 10 kilometres more cycleways, is planned to increase cycling by 50% while minimizing road accidents.

Venice, Italy, is introducing Pensioner Bicycle Officers – senior-citizen cyclists who accompany children riding to school along safe routes and then guard school bicycle parking areas.

In the UK, private bus operator Arriva brought partners together in the ‘Healthy school bus’ project for Liverpool City Council. Arriva donated a bus fitted with computer learning technology to the council, which will visit all primary schools in the city, enabling around 8,000 children to learn about the benefits of healthy eating and an active lifestyle through play. The local university, a partner in the project, developed the learning content while the private sector provided the technology.

Austria’s klima:aktiv mobil programme, which promotes climate-friendly and healthier mobility, focuses on investment and improvements for cycling, particularly on enhancing walking and cycling for schools – 175 schools are already actively involved, saving more than 350,000 car trips per year.
The benefits of regular exercise are well known. According to the World Health Organization (WHO), at least 30 minutes of regular, moderate-intensity physical activity on most days reduces the risk of cardiovascular disease and diabetes, colon cancer and breast cancer. However, levels of inactivity are alarmingly high, and physical inactivity is a major public health problem. Walking and cycling are of great benefit to adults and children alike, who find it difficult to fit other, often more time-consuming or costly, forms of exercise into their lives.

Joined-up thinking
Public perceptions of road safety are contributing to increased inactivity among young people. Up to 90% of parents worry about traffic hazards on their child’s journey to school, citing such issues as ‘too many cars on the road’, ‘traffic travels too fast’ and ‘inconsiderate driving’ as reasons for avoiding walking and cycling. Parents’ concerns are justified by the risks for pedestrians and cyclists. Even in countries with better road safety records in Europe, such as the United Kingdom and Sweden, the risk of death or injury for cyclists is 10–13 times higher per vehicle-kilometre travelled than in cars or buses.

But things are beginning to change. Joined-up thinking is linking concerns about inactivity and obesity with road safety, ensuring that cycling, walking and other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads. These principles are reflected in plans and strategies such as the Netherlands’ Bicycle Master Plan, Austria’s Master Plan for Cycling and the United Kingdom’s National Cycling Strategy. Some of the measures include:

- reallocating road space to support physically active modes of transport, for example by widening pavements and introducing cycle lanes;
- restricting motor vehicle access, for example by closing or narrowing roads to reduce capacity; and
- introducing road-user charging schemes for motor vehicles.

London’s urban charging scheme has seen a 20% rise in bicycle journeys, 7% fewer vehicle accidents and 6% fewer crashes involving pedestrians. If Austria achieves its governmental aim of doubling cycling’s share by 2015, the saving in health costs is expected to exceed €811 million a year.

Involving all stakeholders
Young people’s views on their transport needs are rarely sought. Yet they have very definite ideas on what they need and, when asked, their ideas are surprisingly consistent. Even young children can clearly express their wishes if given the opportunity.

Streets Ahead on Safety is a project in Birmingham, United Kingdom, which encourages the highway authority, engineers and safety officers to work with children from five schools in an area with a poor traffic accident record. The children carry out environmental audits around their schools and receive training in road safety. The engineers discuss their ideas with the children. Then the young road users vote for the plan they think would be best for their area. The children are thus encouraged to become stakeholders in their own safety and participate in the development of engineering solutions for their community.
INFRASTRUCTURE AND SPATIAL PLANNING

Safety is a primary concern of most people. For parents, road safety is also a major worry for their children. Effective networks of wider walkways, pedestrian-only areas and cycle lanes are the basic building blocks for promoting walking and cycling. In Denmark, segregated cycle lanes along roadsides, for example, have reduced cycling deaths by 35%.

The benefits of lowering and enforcing lower speed limits for cars to 30 kilometres per hour in residential areas, traffic calming measures and restricting access for motor vehicles around schools, kindergartens and playgrounds are all crucial ways of encouraging people out of their cars. So too is making footpaths and cycle paths more appealing, for example by planting trees and flowers, as it encourages walking and cycling. Urban charging, combined with improved cycling infrastructure, has proved successful in London – and similar schemes are in place in Milan and Stockholm.

Spatial planning, including building cycle paths and walkways, is vital to promoting healthy lifestyles. The proximity of housing areas to schools, doctors’ surgeries, hospitals, shops, supermarkets, parks, cinemas, theatres and clubs is crucial to encouraging fewer car journeys.

IMPROVING VISIBILITY

Visibility is a personal concern for pedestrians and cyclists, and for other road users. This means ensuring sufficient lighting and security in pedestrian areas and along cycle paths. Upgrading street lighting to improve visibility for road users has been shown to provide societal savings of €11 for every €1 spent.

Encouraging the use of reflective and/or bright clothing, light-coloured helmets and the use of bicycle lamps, even in daytime, also helps. Indeed the enforcement of the use of cycle lights in the Netherlands reduced cycle crashes by 30%.

BOOSTING CYCLE USE

There is a correlation between cycle use and safety: more cyclists make biking safer. There are several reasons for this. Higher bike use changes behaviour as cyclists are a more dominant presence on the roads and cycleways. Increased cycle use often goes together with lower car use, decreasing chances of conflict with motor vehicles. Finally, from a policy perspective, where there is high cycle use there is more public support for pro-cycling policies, and consequently greater investment in safer, greener cycle infrastructure.

In Kyrgyzstan, people’s access to cycle transport was promoted through the purchase and distribution of cycles to several hiring locations. Besides providing access to cycle transport, this has resulted in enhanced public awareness of global environmental problems, a reduction of greenhouse gas emissions and the creation of new work opportunities.

WORKING WITH COMMUNITIES

Children are never too young to start learning about the benefits of walking and cycling, or about safety. Establishing healthy, safe habits and reassuring parents can begin at kindergartens. Involving teachers and pupils, and reaching out to parents’ organizations, community groups and the local media encourage longer-term results. Even though Amsterdam has one of the highest rates of bike use in Europe, the city understands that persistence with road safety education is needed, together with continuing efforts to improve facilities. The city regularly carries out research to better understand cyclists’ needs, motivation and satisfaction.

KEEPING BIKES SAFE

Bikes can be expensive, so improving storage facilities to reduce cycle thefts is important. Cities including Krakow, Amsterdam, Copenhagen, Freiburg, Venice and Vienna are building more secure storage facilities. Low in cost, these have proved to be essential in encouraging cycling.

TAKING AN INTEGRATED APPROACH

Finland is integrating safer conditions for walking and cycling into its sustainable road safety management plan. Measures being introduced include lowering speed limits to 30 kilometres per hour in pedestrian areas and along cycleways; creating more pedestrian-friendly areas; improving cycle and pedestrian routes; integrating land-use planning to reconcile busy urban areas and heavy traffic networks; developing educational campaigns; and encouraging cooperation between local authorities and the national road administration. The Austrian Ministry of Environment has established klima.aktiv mobil to financially support regions, cities and companies to invest in cycling infrastructure. A broad awareness campaign, led by the Environment Minister and important stakeholders, advocates cycling as health promoting, environmentally friendly and economically beneficial. Another programme is promoting electric bikes to extend the target groups for cycling as well as making cycling in hilly areas feasible.
Increased mobility is just one way in which European lifestyles have improved markedly for many people over the past 40 years. But this has come at a cost—increasing air and noise pollution and greenhouse gas emissions, greater congestion and more road traffic injuries and fatalities. Promoting healthy and sustainable transport alternatives prevents the negative effects of transport patterns on human health, lifestyles and the environment.

An urban continent

According to the European Environment Agency, 75% of Europeans now live in towns and cities, and this is likely to rise to 80% in the coming years. This concentration of population has coincided with a rapid increase in car ownership, now running in some places at one car for every two Europeans, and rising. But our urban areas cannot cope with current traffic levels comfortably. Congested urban roads can separate or fragment communities, which has a social cost.

The increased volumes of traffic have more than negated the improvements in pollution control, endangering health, particularly of young people. Moreover the threat of climate change brought on as a result of greenhouse gas emissions is becoming more evident. The challenge of sustainability looms large: how can we, and our children, continue to enjoy and improve mobility, standards of living and health while significantly reducing our carbon footprint and reliance on fossil fuels.

Across Europe in 2008, some 60 billion passenger journeys were made by public transport—that’s around 120 journeys per person. But matters are not distributed evenly. In medium and larger cities, the average number of journeys rises to 300. And it is increasing: over the past 10 years public transport use grew by 11% in Spain and the United Kingdom. But there is still room for improvement: in a 2007 EuroLIFE survey, people across the European Union rated the quality of their public transport as 6 out of 10.

Investments in public transport contribute to economies. From a UITP study in 13 European cities, every €1 spent on public transport investments contributed between €2 and €2.5 to local and regional economies, while in Switzerland, the economy as a whole benefits by €4.6 for every €1 spent on public transport.

Building blocks

Across Europe, governments and local authorities are working to reduce our reliance on cars, particularly for journeys of less than 5 kilometres. Like many problems, if the whole picture is broken down into segments, and each then examined to see where improvements can be made, positive outcomes are possible. As Figure 1 shows, persuading people to walk, cycle or use public transport can reduce energy consumption by up to 80%. Then there is the additional benefit of encouraging physical activity.

Planning infrastructure

The interconnectivity of transport systems is important, particularly for those who have no option but to travel on buses, trams and trains. There is little point in moving people swiftly into city centres on rapid transport systems, only then to leave them waiting considerable times for onward means of transport. Linking transport options enables people to plan and use ‘walk-bus-train’ or ‘bus-train-walk’ journeys. Switzerland excels in this regard, with a well-established national system of bus and train timetable coordination.

Some regard cycling as a slow option. But bicycle hire schemes—collect it here, leave it there—are also useful in achieving interconnectivity. More and more European cities have schemes involving up to 10,000 bicycles, including Barcelona, Copenhagen, Ghent, Lyon, Rome, Stockholm, Vienna and Zaragoza. In Germany, Deutsche Bahn allows train travellers to book a cycle in advance and collect it at their destination station.
**SUSTAINABLE CITIES**

Pécs, Hungary, a World Heritage site, is a small, medieval walled city with just 170,000 residents. Pécs wanted to improve living and working conditions for its residents and turn the city centre into a car-free zone by the time it became the European Capital of Culture in 2010. So it established additional spaces in a green parking zone, built a new cycle road and extended the pedestrian area while carefully grading streets – closing some to all vehicles and allowing limited access for vans and lorries in others. Speed limits in some areas were reduced to 30 kilometres per hour (km/h). Pécs used the municipality’s legal powers to bring all this about, but only after including stakeholders and citizens in the planning and decision making.

**SAFETY**

Crucial, however, to persuading people out of their cars and on to their feet or bikes is safety. This can be addressed by:

- slowing the remaining car traffic, ideally to 30 km/h in residential areas and near schools and playgrounds;
- the use of speed humps or other traffic calming devices;
- ensuring that signage is clear and visible to all;
- providing safe, dedicated cycle paths and walkways; and
- providing sufficient, convenient and secure cycle parks.

Then measures need to be put in place to ensure cyclists are visible to other road users. Using lamps, even in daylight, and wearing reflective clothing both reduce road traffic accidents. But recent studies confirm that the greatest influence on cycling safety is the number of people who cycle.

Walking buses are walks for children, supervised by an adult to specific destinations, such as schools, along set routes, with ‘bus stops’ where children can join. They have proved popular in both Austria and Switzerland, encouraging children to walk to school. In Venice, a cycle version of the scheme operates, supervised by senior-citizen cyclists.

**NATIONAL STRATEGIES**

These elements should be part of national mobility plans. One such plan in the United Kingdom recognized the environmental and health values of walking or cycling to school, and published a national action plan providing schools with guidance for changing the mobility culture. So far, such policies are integrated into the national strategies of just one third of European countries.

**REDUCING CAR JOURNEYS**

Not only has the number of cars increased in Europe, but so has the number of journeys in them, particularly those of less than 5 kilometres. And the number of passengers per car journey is falling. It is currently estimated that primary energy consumption per passenger-kilometre on public transport, along with greenhouse gas emissions, is a third of that of cars.

Road charging can help change mobility habits. Pioneered in London, the reduction in traffic was mirrored by an improvement in journey times on public transport as well as an increase in the use of less-polluting vehicles – bikes, motor-cycles, and even electric and hybrid vehicles, all of which are currently exempt from charges. Ten more cities in the United Kingdom are now studying the introduction of similar schemes. Park-and-ride schemes that connect out-of-town parking to city centres with buses also show results, as does limiting the number of city parking spaces.

But all the options for changing mobility patterns require the public transport experience to be seen as satisfactory and economically competitive. Green lanes and dedicated and guided busways help, as these tend to increase the reliability of services while shortening travel times. That implies, too, expanding the public transport fleet. Modern technologies can allow for this while restricting emissions – Nantes, France, is converting its fleet to run on compressed natural gas (CNG), Vienna runs its buses on LPG, while in Linz and Salzburg, with the financial support of the Ministry of Environment under the klima:aktiv mobil initiative, buses now run on a mixture of CNG and biogas.

**SUSTAINABLE TRANSPORT**

A European Union co-funded initiative, CIVITAS-MIMOSA, is working with citizens and municipal authorities in five cities to introduce more sustainable mobility: Bologna, Italy, expects a 50% reduction in carbon dioxide (CO2) and an 80% drop in particulate emissions, plus 60% fewer road traffic accidents. Funchal, Portugal, is targeting a 30% increase in public transport satisfaction thanks to new green traffic lanes. Gdansk, Poland, projects a 15% shift from private to public transport and a 20% increase in citizens’ feeling of security. In Tallin, Estonia, the municipality expects a 40% reduction in CO2 emissions from new clean vehicles, and a 70% reduction in the illegal use of bus lanes following the introduction of video surveillance; while Utrecht, in the Netherlands, is increasing its park-and-ride facilities by 20%.


Across Europe’s towns and cities up to 82% of all journeys are made by car, causing congestion and parking problems while polluting the air. This is hardly surprising as cars per passenger use four times the space of bicycles, and up to 30 times the space of buses. It’s expensive, too: the cost of traffic congestion, pollution and accidents in the European Union well exceeds €500 billion each year.

For towns and cities to thrive and benefit their citizens, young people, commuters and visitors, roads should be shared, with parks and other green spaces too. Ensuring that public transport systems are efficient, affordable and convenient – and promoting their use – is part of the solution. This green option, and encouraging cycling and walking, can lead to real economic benefits.

What Europeans want

According to Euromonitor, the majority of Europeans are calling for the promotion of transport systems that do not harm their environment. They are aware that the technical advances in emissions have been overtaken by the increase in cars and car use. Indeed, more people express concern about air quality in urban areas today than they did at the beginning of the 1990s, and blame the increase in traffic as the main environmental concern where they live.

In 2008, 80% of those European citizens surveyed considered that the state of the environment greatly influenced their quality of life, second only in importance to the economic situation. And around 50% identified traffic congestion and over-reliance on the car as the major issues where they live. When citizens were asked to rate solutions to environmental problems linked to traffic in towns, improving the public transport, improving the environment for pedestrians and reducing the dominance of the car came top of the list.

### Figure 1: The effects of increasing urban traffic and congestion

- **ENERGY CONSUMPTION**
  - Transport uses 4% more energy every year, a doubling of energy used every 20 years.

- **ECONOMIC EFFICIENCY**
  - Traffic congestion, pollution and accidents result in significant direct and indirect costs. The total bill for the European Union has been estimated at €502 billion per year.

- **AIR POLLUTION**
  - Has multiple effects including global warming, health problems and building decay. The United Kingdom Government estimates the health costs of particulates in urban areas at up to €500 million per year.

- **NOISE AND VIBRATION**
  - Transport is one of the main sources of urban noise pollution.

- **VISUAL INTRUSION**
  - Diminished quality of the urban environment caused by parked cars and other infrastructure.

- **ACCIDENTS**
  - More than 40,000 deaths happen on Europe’s roads each year. Of these, four times more fatalities occur in urban areas.

- **LOSS OF URBAN ‘LIVING SPACE’**
  - Roads and car parking take up highly valuable city-centre land and threaten open spaces.

### Figure 2: Citizens’ views on the most effective way to solve environmental problems linked to traffic in towns.

- Improve public transport
- More pedestrian areas
- Greatly reduce car traffic
- More cycle lanes
- Greatly reduce parking in town centres
- Car toll to enter towns
- Increase price of fuel

Source: DG Environment/EU
GENERATING GREEN REVENUES

In 2010, the European Environment Agency found that passenger fares on trains and buses are rising faster than the cost of private car use. In London, urban charging has been shown to improve the speed and reliability of its public transport systems. And there have been clear drops in energy consumption (−20%), greenhouse gas emissions (−19%) and other air pollutants (−16%). The Agency suggests that income from road-charging measures, such as those in force in London, Milan and Stockholm, should be used to improve public transport, encourage car sharing, cycling and walking, and even, in the long term, to reduce commuting distances due to relocation.

GREEN AND ECONOMIC

Investments in public transport contribute to Europe’s competitiveness and economic well-being. A 2007 study by the European Union across 13 cities showed that every €1 invested in public transport provided €2–2.5 in benefits. In Switzerland, which has one of the most integrated transport systems on the continent, the ratio is even higher: the economy as a whole benefits from added value of €4.6 for every €1 spent on public transport. And in Austria, government encouragement of cycling has contributed €900 million to the economy and 18,000 jobs. That’s quite apart from the saving of more than 800 lives a year.

SUSTAINABILITY AND WELL-BEING

Psychological and social effects should be seen as an integral part of transport planning. According to a study by the World Health Organization, the physical and psychological benefits, particularly in young people, have been demonstrated to include less aggression and hostility; less depression and fewer psychosomatic symptoms.

FEELING SAFE

Whatever their other concerns, safety is of primary concern to citizens in relation to traffic, and it is the main reason that parents give when discussing why they prefer to drive their children rather than encouraging them to walk or cycle. There are many approaches to address this issue – in Paris, for example, cycle organizations and RATP bus drivers negotiated a good conduct charter for the city’s 160 kilometres of shared bus and cycle lanes. In the Czech Republic, a study in the city of Pilsen demonstrated that if the infrastructure was improved, a further 2% of people would cycle regularly – providing annual savings of almost €1 million. On a larger scale, Scotland has a target of reducing car journeys of less than 8 kilometres and increasing cycling by up to 27% from a 1% base. This, it is estimated, could make annual savings of up to €4 billion. And CCTV coverage both inside vehicles, especially at night, and at bus, tram and train stops, help build a feeling of safety.

PASSENGER INFORMATION AND RELIABILITY

It is not just journey times that matter. Reliability is a crucial factor in encouraging people out of their cars and on to public transport. Dedicated busways, cycle paths and footpaths help speed up journey times, but modern technology can help, too. The installation of systems that inform passengers of waiting times, and upcoming arrivals and departures have proved successful.

INVOLVING STAKEHOLDERS

Achieving change should involve the stakeholders. Transport users are often knowledgeable, sensible and realistic about their needs and how these could be met. For example, in Switzerland, research in 2008 into female mobility in the city of Bern revealed that especially women have a higher subjective feeling of insecurity, with as many as 41% of female passengers changing how they travelled for night trips. As a result, the regional transport operator is working to improve women’s subjective and objective feelings of security.

INTERCHANGEABLE SYSTEMS

The interconnectivity of transport systems is important, particularly for those who have little option but to rely on buses, trams and trains. Intercity transport services need to be integrated with in-city systems so that people experience a convenient, efficient and pleasant alternative to their cars. Switzerland excels in this regard with a well-established national system of bus and train timetable coordination. And city-wide cycle hire systems, as used in Paris, can be useful in helping to achieve this interconnectivity.
Achieving sustainable mobility is a challenge. It is about increasing quality of life, reducing greenhouse gas emissions and air pollution, and improving mobility and health for all. Investment in greening mobility stimulates the economy, provides new business opportunities, and creates greener jobs.

klima:activ mobil – Austria

klima:activ mobil is the federal Austrian programme to promote climate-friendly mobility launched by the Austrian Federal Ministry of Agriculture and Forestry, Environment and Water Management supported by the Austrian Chamber of Commerce, the Austrian Association of Cities and Towns, the Austrian Association of Municipalities and various companies and cities. It motivates and financially supports cities, municipalities and regions, companies, tourism and leisure operations, schools and youth groups to develop and implement ways of reducing carbon dioxide (CO2) emissions from transport.

Measures implemented to date include fleet changes to alternative-fuel vehicles, the promotion of mobility management, public transport, car sharing, and improving facilities for cycling and walking. It is focused on increasing energy efficiency, introducing climate-friendly and healthier mobility while providing new opportunities for businesses and creating green jobs, as well as improving quality of life.

At the end of 2010 klima:activ mobil achieved more than 1,000 joint projects with companies, regions and cities, and municipalities have received financial support totalling €34 million, attracted €209 million in additional funding and created 2,400 green jobs. Along the way, awareness and information campaigns have promoted the benefits of climate-friendly mobility options including eco-driving – all post-bus drivers have been trained and saved 2 million litres of diesel annually; alternative and electric vehicles; public transport; and cycling. In all, klima:activ mobil partners have saved 400,000 tonnes of CO2 each year.

Infrastructure development and cycle promotion in Gdansk, Poland

A cyclist on a flat road typically travels four times faster than a pedestrian without expending any more energy, producing neither pollution nor noise, and using no more land. Back in 1999, the far-sighted Mayor of Gdansk set up a task force to see how cycling could be encouraged in his city, and in its sister cities of Sopot and Gdynia.

As a result of the task force’s work and a growing determination by the international community to support climate change mitigation efforts, the mayor was able to mobilize the support of the Global Environment Facility (GEF) and its constituent agencies, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). In record time, a proposal to build 30 kilometres of dedicated cycling facilities and calm traffic over 70 kilometres of existing streets, backed by awareness raising and public participation campaigns, was in place with a budget of just over US$2.5 million, of which US$1 million was to come from the GEF.

Over four years, 17 kilometres of cycle ways have been built, in spite of a serious decline in the value of the US dollar against the Polish zloty – cutting the purchasing value of the budget by 25% – and an increase in the Value Added Tax rate for building. There have also been the design and construction issues that so many infrastructure projects have to face. Yet, despite all the obstacles, Gdansk’s target for dedicated cycle facilities now exceeds 100 kilometres and the city has carried through Poland’s first complex development that is both user and quality oriented.
**IMPROVING PERCEPTIONS**

Over the last three years the City of Tallinn, Estonia, has run a campaign promoting walking, cycling and public transport, targeting decision makers and the general public. It has helped overcome negative perceptions and increased the use of public transport. Some elements were implemented as part of CIVITAS Smile and/or were financed by the European Union.

As in many East European cities, the number of cars in Poznan, Poland, has increased dramatically – it doubled between 1990 and 2007 – and the use of public transport has declined. The city authorities are trying to turn this around and have developed policies to reorganize traffic and create zones for pedestrians, cyclists and public transport. The central square is now only accessible on foot or bike, tramways have been upgraded and the first trials with a hybrid diesel electric bus are underway.

**EDUCATION IS KEY**

UITP has created a charter on sustainable development that collects examples of how sustainable principles, including health aspects, have been implemented in public transport. One of these is Letzgogreen.org, a website for young people and teachers launched by the public transport operator Centro in the West Midlands, United Kingdom. Letzgogreen includes interactive stories and games for primary pupils to use in the classroom, while for older children there are photos, videos and data on travel that link with other subjects such as geography, science and citizenship.

In Munich, Germany, the public transport operator runs an annual rally for 10–13 year-olds designed to familiarize them with using the city’s rail, bus, tramway and metro services. Each of the rally’s two or three days has a different theme such as health, noise and the environment. It encourages the interactive involvement of children, their parents and teachers through quizzes and observational activities and is supported by educational tools for teachers.

STIB/MIVB, the operator in Brussels, Belgium, has developed a fun carbon calculator with youth in mind – http://www.stib.be/irj/go/km/docs/STIB-MIVB/INTERNET/WEB_RESOURCES/co2calculator/index.htm. They have also developed a web-based character to help children find out about sustainable mobility habits. This is introduced to schools and teachers as part of STIB/MIVB’s outreach programme.

**IMPROVING MOBILITY AND HEALTH – SWITZERLAND AND THE UK**

The links between parental concern for their children’s safety, sedentary lifestyles, childhood obesity and future ill health are well established. Switzerland has introduced various safety measures, including introducing 30 km/h zones and 20 km/h pedestrian-priority zones for roads in residential and commercial areas while tightening legislation on the use of restraints in cars for children.

These measures have reduced injuries to under 14-year-olds from road accidents by more than 30%, and reduced the number of children seriously injured or killed by 20%. And this is a country where 50% of children walk to school.

In the United Kingdom, the number of children travelling to school by car has almost doubled over the past 20 years. Although many would like to cycle, they are worried about safety and a lack of secure cycle storage when they get to school. The Government has developed an integrated action plan to reduce car journeys, encouraging – and helping financially where necessary – schools, pupils, parents’ groups and local authorities to work together.

Pupils at one small rural primary school in Telford and Wrekin carried out their own surveys of safe routes to school and then worked with parents, the local community and the police to mark and improve them. As a result, the number of car journeys to schools has fallen by 35%. At Kesgrave High School, 57% of pupils cycle up to 20 kilometres to school using a network of off-road cycle routes. The school has encouraged this by improving locker and cycle storage facilities and changing its timetables to reduce the number of books and equipment pupils need on any one school day.

These are two small examples of cooperative action in the United Kingdom that have encouraged 10,000 schools, and rising, to get pupils out of cars.

**REDUCING NOISE – DÜSSELDORF, GERMANY**

Düsseldorf’s city centre has noise levels up to twice the recommended levels – with traffic as a major contributor. The city is tackling this through a programme of improving buildings’ sound insulation including windows; building sound-absorbing walls; introducing low-noise alternatives on road surfaces and rail tracks; speed limits; and restricting through traffic in residential areas. The city hopes its programme will not just work locally, but also prove replicable in other towns and cities.
