

Urban transport and its impact on health

Urban traffic is growing...

- More than 75% of the EU population lives in urban areas.
- One-fifth of all kilometres travelled are urban trips under 15 km
- Up to half of all EU road trips are 5 km or less.
- The total kilometres travelled in EU urban areas are expected to increase by 40% within a generation.

Transport is a health risk

Traffic accidents cause around 40,000 deaths and 1.7 million injuries in the EU every year. Yet urban transport development poses other serious health risks, which are not so easily quantifiable. In particular, the more exposed a person is to noise and pollution from vehicles the more likely s/he is to suffer from a range of health problems. This briefing looks in detail at these two issues, the impact they have on human health and how local and EU policies can help alleviate the problems they pose.

Traffic Noise

"Sound is a sensory perception and the complex pattern of sound waves is labelled noise, music, speech etc. Noise is thus defined as unwanted sound".¹

About 65% of the population of the European Union is exposed to unacceptably high sound levels - most of this stemming from urban traffic. Although noise affects different people in different ways, it causes both annoyance and health problems.²

Examples of the undesirable physical and psychological effects include a faster heart-beat (and therefore greater risk of cardio-vascular disease), higher hormone production, development of a mental disorder and increased stress.

Noise can also cause sleep disturbance (very common in cities), impair performance in cognitive tasks and reduce children's ability to understand and concentrate (young children who are learning to speak and read are particularly at risk). Even at fairly low levels it can greatly reduce quality of life by making speech unintelligible. At very high levels, around 85 db(A), noise can also damage hearing, but this is not common.

The WHO also says that noise is particularly bad for the more vulnerable in society, such as children at school or people recovering in hospital. People living near airports chronically exposed to aircraft noise under-perform in their learning, motivation and problem solving abilities.

Noise has increasingly become an area of concern for EU citizens it is no longer seen simply as the natural result of urbanisation and progress.³ Demands for action have resulted in landmark cases being brought before the European courts on issues such as the right to a good night's sleep under article 8 of the European Convention on Human Rights.⁴

Community action has focused primarily on reducing noise from individual sources. These efforts, and technological developments, have led to noise from individual private cars being cut by 85% since 1970. Yet, despite these



advances the noise problem remains, due to a large increase in car ownership and volume of traffic. An EU Directive on noise adopted in 2002 was a welcome step towards addressing the problem of growing noise levels.⁵ The final text of the Directive requires the European Commission to produce an interim report in 2004, setting out EU measures against noise, a move that will keep the noise issue on the EU agenda. Also, the Commission must produce legislative proposals on tackling noise by 18 July 2006. This effectively turns a proposal initially drafted simply to evaluate the scale of Europe's noise problem into a potential framework directive on noise reduction. Political will in 2006 shall determine whether this potential can be reached.

On the other hand, the Directive does not set any noise limits, though it does talk of the need to reduce noise from source rather than tackling the effects of noise, as the Commission had originally proposed.⁶ Civil society had wanted the Directive to include in its scope a definition of sensitive areas, such as hospitals and schools. In the end, the Directive talks only of 'quiet areas'. Another problem is the Directive's scope. It applies only to urban centres with more than 100,000 inhabitants, meaning that inhabitants from smaller towns cannot benefit from the information that the noise maps will provide their neighbours in larger cities. The same holds for airports: only large airports are affected, those with more than 50,000 take-offs and landings per year.⁷ Finally, the Directive foresees the last noise map being produced only in mid-2012, and the last action-plan a year later: a decade after entering into force.

EU legislation does not yet appear to provide sufficient protection against noise pollution.⁸ Policies are now needed to reduce the number of noise sources, such as by encouraging people to use public transport rather than private cars.⁹ EU noise legislation should provide ambient limits, as proposed by the WHO, and following the example of EU air quality legislation.¹⁰



Air Pollution

Transport-related emissions of air pollutants, such as particulate matter (PM), oxides of nitrogen (NO_x), sulphur dioxide (SO₂), hydrocarbons and carbon monoxide cause or exacerbate several health problems. Higher rates of cancer and heart disease, and an increased frequency and severity of respiratory problems, including asthma, are among the health impacts attributed to traffic related air pollution. Despite a fall in emissions of conventional pollutants, owing to a legacy of environmental legislation, our ever-improving knowledge of transport's air pollution effects gives us no cause to relax our efforts. For example, emerging research indicates that ultra-fine particles may be highly carcinogenic.

Motor vehicles, and cars in particular, are the primary source of air pollution in urban areas. Transport accounts for 63% of NO_x, 47% of non-methane volatile organic chemicals (NMVOCs) such as benzene, 10-25% of PM and 6.5% of SO₂ in rural areas – the figure being higher in urban areas.¹¹ The problem is made worse by the fact that transport emissions occur at street level, where we breathe. Like noise, air pollution affects individual EU citizens differently. Pregnant women and their children, the young, the elderly and those with existing respiratory diseases such as asthma are particularly at risk.

In 1996 the EU adopted a framework Directive on air quality management and assessment. This Directive led to individual 'daughter directives' that set limits for each pollutant. The first daughter Directive is already in force and sets down specific limit values for SO₂, PM, NO_x and lead. The second daughter Directive, on benzene and carbon monoxide, and the third daughter directive, on ozone, are also in force.¹² However, many cities are not reaching the targets specified in the Directives and seem unlikely to do so unless they take measures aimed at reducing traffic volumes. Such measures would also have the effect of reducing noise pollution, thereby reducing two sets of health problems at once. The full implementation of the daughter Directives should now be listed as a priority for individual city planners.

FOOTNOTES

¹ WHO guidelines for community noise (2000), p. vii.

² Description follows the WHO guidelines for community noise (2000), available at www.who.int/peh/noise/noiseindex.html

³ Noise is the only environmental impact for which the public's complaints have increased since 1992

⁴ For example the Hatton case relating to UK citizens residing near Heathrow airport. They lost the case on appeal – the court being satisfied that the UK government had made adequate consideration for local citizens when authorising night flight over the years. The economic consequences of a ban on night flights were certainly a swaying factor for the ECJ in its ruling but the case does make clear that the views of local citizens must be considered at planning stages in the future.

⁵ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. It entered into force on 18th July 2002.

⁶ The EU already has a range of product-specific noise limits in place.

⁷ No later than 30 June 2005, and thereafter every five years, Member States must inform the Commission of the major roads which have more than six million vehicle passages a year, railways which have more than 60 000 train passages per year, major airports and the agglomerations with more than 250 000 inhabitants within their territories. By 30 June 2007 at the latest, strategic noise maps showing the situation during the preceding year in the vicinity of the infrastructures and in the agglomerations referred to must have been made and, where relevant, approved.

⁸ It is unfortunate that earlier stronger versions of the Directive were weakened by the final draft.

⁹ Please refer to www.t-e.eu for details of publications that outline solutions to this problem, including "A breath of fresh air." (2002)

Ways Forward

The correlation between rising levels of urban travel and further health risks is not unchangeable. No single policy, on its own, can solve the problem, so an integrated approach is needed to mitigate the harmful effects of both emissions and noise.

Cities can adopt transport management strategies that promote alternatives to car use – reducing the number of private cars on the roads will dramatically cut pollution and noise levels. This sort of strategy should be supported by specifying good environmental standards in public transport tendering processes.¹³ EU policies need to support these strategies – both in law and in investment.¹⁴

Pricing is key to influencing transport decisions. Based on the polluter pays principle, transport users should be held financially responsible for the costs of their travel, including the damage their actions cause to the natural and built environments, society and the economy. Infrastructure pricing, environmental levies or congestion charges would go a long way to alleviating the harm to human health caused by transport. The London congestion charge is proof that it is politically possible to implement a charging system.¹⁵

Studies suggest that more environmentally sensitive transport policies would not only improve city-dwellers' health and quality of life; they may also lead to higher overall employment. In Germany alone, a net gain of 207,000 additional jobs has been forecast if a switch occurred to more environmentally sustainable mobility.¹⁶

Simple strategies can help reduce the harm transport causes to human health: even enforcing speed limits and parking regulations would, in many cities, reduce emissions, make cities less dangerous and increase demand for public transport.¹⁷ That said, bolder and more coherent policies are still needed to vastly improve health and quality of life in urban areas; support at EU level is needed to ensure progressive policies such as the congestion charge in London become the norm.

¹⁰ Please refer to an NGO briefing on the noise Directive, available at <http://www.t-e.eu/docs/factsheets/%20responses,%20etc/9-00%20Briefing%20on%20noise.htm>

¹¹ Please refer to the factsheet "The air over Europe – The health effects of traffic" available at www.t-e.eu

¹² The fourth Daughter Directive on arsenic, cadmium, nickel, mercury and polycyclic aromatic hydrocarbons is not yet in force.

¹³ See <http://www.icle.org/europe/ecoprocura/siptram/> for a description of this process and its potential benefits.

¹⁴ This is both positive – in the sense of actively seeking out better ways to invest in transport – and negative – in the sense of avoiding investment in unsustainable transport plans or policies.

¹⁵ The £5 (€7.50) charge has led to 60,000 fewer car movements per day in the charging Zone, 50% to 60% of this representing a switch to bus and 15 to 25% switching to car share, motorcycle or pedal cycle. This charge is expected to raise £68 million (~100m) this year, money that will be used for transport improvements. Please see the T&E publication "A breath of fresh air" (2002) for a detailed list of the range of measures available to counter air pollution from transport. Available at www.t-e.eu

¹⁶ Hauptgewinn Zukunft – Neue Arbeitsplätze durch umweltverträglichen Verkehr. (1998) Editor: Jörn Ehlers. Öko-Institut e.V. and VCD. The study predicts 337,000 new jobs would be created and 130,000 existing jobs lost. The net increase in employment results from an increase in train drivers, increased information centres, increase in planners for future, increase in rail manufacturing and engineering and also an increase in bicycle industry employment, such as in repair shops. Costs are also lower due to reduced accidents and related health costs, including a reduced need for insurance claims.

¹⁷ A general speed limit of 30 km/h in urban areas would reduce the number of accidents by 20 percent and noise emission would decrease by three decibel on average, representing a halving of noise intensity. Source: Verkehrsclub Deutschland.

T&E is Europe's primary NGO campaigning on a Europe wide level for an environmentally responsible approach to transport.

Contact: stephanos.anastasiadis@t-e.eu

European Federation for Transport and Environment | Boulevard de Waterloo, 34 - 1000 Brussels | Tel: +32(0)2-502 99 09 | Fax: +32(0)2-502 99 08 | www.t-e.eu