| CLIMATE |

A GUIDE TO REDUCING THE IMPACT OF URBAN TRANSPORT ON THE CLIMATE

Umwelt Bundes Amt
Für Mensch und Umwelt

Imprint

Publisher: Umweltbundesamt
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July 2010

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HIGH TIME FOR CLIMATE PROTECTION STRATEGIES IN URBAN TRANSPORT

There is no doubt that climate gas emissions must be drastically reduced and this applies to traffic in urban areas as well. The good news is that it could also provide an opportunity to enhance quality of life in towns and cities. The result could be a lively town, a pleasant atmosphere, fewer traffic jams, less noise and more space for cyclists and pedestrians.

An important element in climate protection is technology: for instance, energy-efficient vehicles and new types of propulsion, such as electric motors or biofuels. However, the climate problem cannot be solved by technology alone. Even renewable energies are not limitless in their availability.

This means that, regardless of technological developments, significant changes in mobility for daily life will be necessary. Demand will increase once again for shorter journeys to work, shopping and leisure destinations. Ecomobility (the combination of non-motorised transport and public transport) will become much more important. Urban transport planning must set the right course for these things to happen.

Sooner or later towns and cities will have to take action. Those who do so in good time will have more chance of shaping the outcomes themselves. Financial support for the development and implementation of climate strategies for urban transport is currently available from the German Federal Ministry for the Environment, through the German Climate Initiative. This guide is aimed at towns and cities which are taking advantage of this opportunity and wish to develop and implement a workable sustainable urban mobility concept.

Berlin: Linienstraße

THE POTENTIAL FOR CLIMATE PROTECTION IN URBAN TRANSPORT

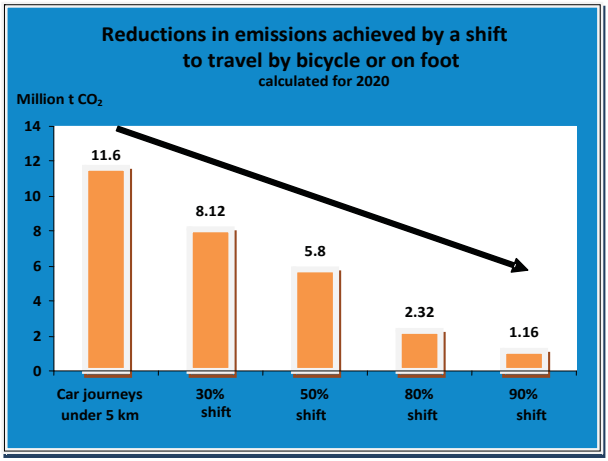
Urban traffic accounts for a quarter of CO_2 emissions from the entire transport sector. However, the potential influence of urban transport planning is greater than this. A very large proportion of traffic is local in nature: 85 per cent of all journeys made by passenger transport are less than 20 kilometres. This includes many journeys made by commuters travelling for work between suburban areas and the city or shopping and leisure trips from the towns into the surrounding area.

Climate protection potential of shorter journeys

In recent decades the journeys made on a daily basis in Germany (for work, shopping or leisure purposes) have become increasingly longer. If this trend could be reversed, so that by 2020 these journeys were just ten per cent shorter, it would represent a CO_2 reduction of 10 million tonnes.

Climate protection potential of non-motorised transport

A third of all journeys in Germany are already made by bicycle or on foot. However, there is considerable potential to increase this proportion. Around half of all car journeys are less than five kilometres and in 2005 these journeys accounted for 14 million tonnes of CO_2. In 2020, despite more energy-efficient cars, this figure will still be over 11 million tonnes. If half the car journeys in Germany which are shorter than five kilometres could be made by bicycle or on foot by 2020, this would represent a CO_2 reduction of 5.8 million tonnes.



Climate protection potential of public transport

A shift from cars to public transport, resulting in a doubling of the number of journeys made by public transport in Germany by 2020, would lead to a CO_2 reduction of 2.5 million tonnes.

FIVE STEPS TOWARDS A CLIMATE PROTECTION STRATEGY

1. ENSURE INITIATIVES ARE EMBEDDED IN MUNICIPAL POLICY

Good planning is essential in designing a climate protection project for transport in a town or city. In order for the project to work and to provide it with the necessary support, there must be a clear division of responsibilities. It is useful to set up a steering group comprising members of the municipal administration and ideally chaired by the mayor. There should be representatives from the urban development and transport departments at least and possibly also the finance department. The steering group establishes who has overall responsibility for the project, who will produce the strategy, who will provide what information to whom and who is responsible for coordinating cooperation with local strategic partners. It also prepares decisions to be taken by the municipal council.

In addition, it is helpful to establish an advisory panel with representatives from politics, business, colleges and universities and the voluntary sector. The advisory panel follows the whole process and ensures that any problems or opposition are raised for discussion at an early stage. Furthermore, we also would recommend bringing external experts on to the panel who will work on the development of the strategy in coordination with the municipal administration.

Another option is to establish a round table including individuals with academic and practical expertise to discuss the administration's proposals. The town of Tübingen chose to use a combination of these methods. The strategy was developed by a team from the University of Kaiserslautern and then several workshops were held to allow additional experts to contribute their particular specialist knowledge in the fields of innovative technology, public transport, cycling and urban quality.

The first task for the steering group, supported by the advisory panel, is to draw up a vision or model outlining mobility in a particular target year in the future, for example 2030. Both groups should also consult on the concrete targets which the town or city wants to achieve by that date and beyond and prepare the policy decisions relevant for those targets.

2. SET TARGETS – NOT JUST FOR CLIMATE PROTECTION

Defining clear and binding targets is very important for the success of a climate protection strategy. They are made binding by means of a council decision. The decision should contain details of what the town or city wishes to achieve and by what date. A clear statement of the targets simplifies the process of implementing the measures contained in the strategy. Clear targets also make it easier to assess whether the right measures have been selected.

As well as the climate protection targets, it is worth defining additional targets relating to quality of life in the town or city. This ensures that the climate protection measures serve to enhance the living conditions of the population rather than having a negative impact on them. Thus, for example, targets aiming to ensure the accessibility of facilities in the town or city or to safeguard the supply of goods and facilitate business traffic are of importance. Other significant factors for quality of life are noise and pollution reduction, improving traffic safety and street life quality, as well as the creative integration of traffic into the urban fabric.

The climate protection target should be based on the reduction rates for climate gases which the United Nations Intergovernmental Panel on Climate Change (IPCC) considers essential to avert irreversible changes to the climate.

Examples of additional quality targets in the environment and health protection are listed in the box below. In each case the targets mark the point at which traffic no longer presents risks for humans and the environment (Box 1).

Target dimension	Target	Target year	Reason	Recommended by...[1)]
Climate	-40% CO_2 compared to 1990	2020	Prevention of irreversible climate change	German Federal Government
	- 80% to -95% CO_2 compared to 1990	2050	Prevention of irreversible climate change	UBA based on IPCC
Air pollution	Compliance with the EU limits for particulate matter, oxides of nitrogen and ozone	Immediately	Health protection, protection of vegetation, street life quality in urban areas	EU Air Quality Directive
Noise	L_{den} <= 65 dB(A) L_{night} <= 55 dB(A)	Shortterm	Health protection	UBA / WHO
	L_{den} <= 60 dB(A) L_{night} <= 50 dB(A)	Mediumterm	Protection from significant disturbance	
	L_{den} <= 55 dB(A) L_{night} <= 40 dB(A)	Longterm	Prevention of significant disturbance	
Land consumption	Minimise use of additional land for settlements and transport	Immediately	Protection of landscape and natural environment, maintaining biodiversity	BMU

1) IPCC: Intergovernmental Panel on Climate Change; EU Air Quality Directive: Directive 2008/50/EC; UBA: Umweltbundesamt (German Environment Agency); WHO: World Health Organization, Night Noise Guidelines for Europe; BMU: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety): National Strategy on Biological Diversity

Source: Author

Box 1: Quality targets for the environment and health protection

Target area 3: Safeguarding and promoting cycling	
Quality target	3.2 Ensure that destinations in the town or city can be reached by bicycle
How important is the target?	For cyclists, good accessibility includes good, secure and preferably weatherproof parking facilities for bicycles at destinations. Cycle parks should therefore be created at all the main destinations for cyclists, especially at stations and stops for regional rail transport, express bus stops, at the points of acess to town-centre pedestrain zones, in city sub-centres and at secondary schools, leisure facilities and civic establishments open to the public.
Indicators	Measurable or calculable indicator: • Proportion of cycle parks built in relation to the total number of planned cycle parks in the urban area [%] Target: 100%; application levels: whole town/city, town/city centre, significant individual measures Additional descriptive indicator: • Establishment of a cycle parking facility at the railway station with additional services for cyclists
Source: German Federal Environment Agency (2005), Quality targets and indicators for sustainable mobility, Berlin.	

Box 2: Example: cycling – defining a target and indicators

These general quality targets can be used to derive targets which relate directly to urban and transport development. The extent to which a target has been met can then be calculated with the aid of indicators (Box 2).

3. DESCRIBE THE BASELINE SITUATION AND DEVELOP FUTURE SCENARIOS

Once the targets are defined, action is only required if the targets will not be met anyway in the course of the current trend. Thus it is necessary to establish, "Where are we today?" and "What happens if nothing happens?" This means in the first instance gathering data. How many people live in the town or city? How many jobs are there? How great is the town's economic power? Where are the residential areas, jobs and services, such as shops, post offices and banks, located? How high are traffic volumes and how much congestion is there? What are the traffic flows like between different parts of the town or city? What proportions of overall traffic are represented by the individual modes of transport? What are the transport links between the town or city and the region like? How high are pollution levels due to traffic?

Even if not all these data are available, an attempt should still be made to produce as detailed a picture as possible of the current situation. The data analysis will also show whether the issues have been identified correctly. In Tübingen, for example, it was only once the data had all been put together that it became clear that the traffic-related impact on the climate was to a great extent due to commuter traffic to the two largest employers.

The data compiled form the basis for envisaging the future. A trend scenario is developed for the year to which the targets relate. The scenario describes how congestion and pollution will develop if existing trends continue. This scenario clearly illustrates the gap between the existing situation and the targets if the municipal administration does not take any action.

A climate protection or sustainability scenario can then be set against the trend scenario. This scenario consists partly of the defined targets and partly of the strategies with which it is intended to meet the targets. Essentially, the scenario demonstrates the contributions to be made by a) technical solutions, b) changing choice of transport mode in favour of ecomobility options (a combination of non-motorised transport and public transport) and c) the reduction in transport volumes due to shorter journeys. The next step is then to define the individual measures.

4. DEFINE MEASURES TO BE TAKEN

Defining a catalogue of measures is the essential step towards binding action. These measures are developed by the steering group with the support of external experts. The catalogue sets out precisely which measures should be taken to meet the targets. It contains a budget and a timetable. It should be noted that it is advisable to define interim targets, in order to break up a long timeframe into manageable sections. The catalogue of measures is then discussed by the advisory panel and made binding by means of policy decisions (e.g. as part of a transport development plan). It is wise to make provision for monitoring at regular intervals (e.g. every five years), to ensure that the implementation process can be evaluated and modified.

The catalogue of measures should as far as possible cover all the main areas of sustainable mobility. However, it should only contain measures which can be influenced by the town or city itself.

Traffic reduction

A climate protection strategy for urban transport cannot be produced without addressing urban and settlement development. The lower the settlement density and the further away residential areas, workplaces, schools and shopping facilities are from each other, the more transport is necessary and the more difficult it becomes to meet ambitious climate targets. The distance to be travelled also affects whether a journey can be made on foot or by bicycle. Settlement density has an impact on whether or not it is worth developing public transport connections.

Important measures which contribute to traffic reduction are:

- developing city-centre living, for example by building on existing brownfield sites;
- improving the urban living environment, for example by safeguarding open spaces;
- ensuring that there are facilities such as nurseries, schools and shops located in the vicinity of residential areas; and
- avoiding the development of large-scale shopping centres on the outskirts of towns and cities.

Individual municipalities have limited scope in terms of the influence they can bring to bear on settlement development. For this reason it is important to develop cooperation with neighbouring municipalities. Ideally, the result of this cooperation is a mutually agreed and binding land-use concept. However, even part-concepts form important building blocks, for example the development of a regional retail strategy or the designation of shared commercial sites. This type of cooperation reduces traffic and also saves money. For example, the development costs of a shared commercial site can work out considerably cheaper for the municipalities involved than would be incurred if they each developed their own sites.

Modal shift

The space available for transport in the urban environment is scarce. In most towns and cities car traffic claims far too great a share of this space. The aim, then, is to create a more harmonious balance and at the same time to enhance the street environment. A considerable amount of space can be gained by introducing parking controls and moving parking spaces to carparks. This measure also functions as an effective incentive for increased use of public transport and decisions to travel by bicycle or on foot.

Tübingen: Französisches Viertel

Equally promising and nevertheless relatively low-cost options are measures to improve conditions for cyclists and pedestrians. A simple step such as reducing speed limits in urban areas to 30 km/h results in considerable improvements in safety for non-motorised traffic. A comprehensive and dense network of cycle routes, ideally as cycle lanes marked on the road, makes cycling safe and

Tübingen: Historic Centre

convenient. There should be ample cycle parking facilities in the town or city – at all the main public facilities, shopping areas and public transport stations and stops. Easily visible sign-posting for pedestrians and cyclists helps people to find their way and also highlights the fact that non-motorised modes of transport are taken seriously. The convenience and safety of pedestrians can be considerably enhanced by means of shorter routes (for example, by opening private thoroughfares), sufficiently wide pavements (where necessary at the expense of cars) and well-located pedestrian crossings on busy roads.

As long as there is good public transport provision, new passengers can be attracted through carefully targeted marketing. One approach which has proved effective is packs for people new to the area, with information about public transport services and possibly including a free ticket so they can try out the system for themselves.

Speeding up public transport by introducing dedicated lanes and priority at traffic lights can also significantly enhance its attractiveness. The same applies to simplified fare structures and making ticket purchase straightforward and convenient, for example with easy-to-use on-board ticket machines. Public transport information should be available in every home, in public buildings and in hotels and restaurants. In addition, public transport should be visible around the town, for example with attractively designed stops with real-time information about the next services.

Mobility management and environmentally sustainable vehicles

Mobility management can promote demand for sustainable transport at both municipal and company level. The tools of mobility management are primarily information and assistance, but also include measures such as corporate tickets, lift-sharing schemes and cycle parking facilities near entrances to buildings. Good contacts between the municipal administration and the town's employers can be utilised to ensure that company mobility management is comprehensively embedded. Mobility management also makes sense for schools and housing companies. Key to the success of mobility management is that it is embedded in the administration or company in terms of staff and organisation and that resources are made available for it. The city of Munich, for example, has created a dedicated mobility officer post.

The municipal administration itself should lead by example. It can use its own organisational mobility management to support its staff in choosing environmentally sustainable modes of transport to get to work. The public views it very positively if the mayor or the head of the transport department travel to work by bicycle or on public transport. The municipal council should provide bicycles or public transport tickets for journeys which are made on council business and the council car pool should comprise environmentally sustainable vehicles. Options such as car-sharing and electric bicycles can also be made available where appropriate.

As proprietor of transport companies or public transport operator, the town or city can also exert an influence on the public transport vehicle pool and lay down exacting environmental standards in the local transport plan and transport contracts for both bus and rail transport.

5. INVOLVE THE LOCAL POPULATION

Seeking to make urban transport more sustainable can only work if it is backed by the local population. The public must be informed and encouraged to act.

A broad campaign can be used to raise awareness among the public of the climate protection strategy and inform them of the project's targets and what it involves. The PR work should be organised professionally and targeted to reach as many people as possible. Events for information and debate, articles in the press and the internet, photos and videos with examples from other towns are all ways of communicating the strategy to the public and showing that quality of life in the town or city will be improved. Competitions or campaigns such as "car-free month" can be used to encourage people to abandon their passive role. Once the ball is rolling and people are taking the initiative themselves, much will happen of its own accord.

It is very important to have the right partners for the PR work. Representatives from the town or city will already be on the advisory panel set up at the beginning of the project. They support the project not only by providing advice, but also as strategic partners and opinion formers. They can publicise project targets

and content in their sphere and can pick up on ideas early on and implement them, for example by introducing mobility management to their own companies.

We also recommend seeking additional partners who will ensure that the issue of more environmentally sustainable transport is present over a long period and in many locations around the town or city. For example, car dealerships could do more advertising of particularly efficient vehicles and give their customers better information about fuel consumption. Schools could explore the topic of sustainable mobility in class and/or organise, in cooperation with parents, supervised walking and cycling routes to school. Companies could take part in the national Bike to Work scheme or set up their own initiatives along similar lines.

Networks of individual stakeholders can be useful. So, for example, several schools could get together to exchange experiences and carry out joint campaigns. Or several companies could join together. Or companies could sponsor school campaigns. Once these sorts of activities get started, they can be sustained with fairly minimal support from the municipal administration.

FINANCIAL ASPECTS

Through the Climate Protection Initiative, the German Federal Ministry for the Environment supports both the development of a climate strategy for “transport” and its implementation. To support local authorities, the German Institute of Urban Affairs (Deutsches Institut für Urbanistik – Difu) has set up a local authority climate protection service. Information about funding conditions, sample projects and application documents can be found online at: http://www.kommunaler-klimaschutz.de.

FURTHER INFORMATION:

- Umweltbundesamt (German Environment Agency): Portal Kommunal Mobil (in German)
  http://www.umweltbundesamt.de/verkehr/mobil/index.htm
- Umweltbundesamt (German Environment Agency) (2005), Quality targets and indicators for sustainable mobility – User guide.
  http://www.umweltdaten.de/publikationen/fpdf-l/3793.pdf
- Umweltbundesamt (German Environment Agency) (2006): Mobilitätserziehung in der Schule (in German)
  http://www.umweltbundesamt.de/verkehr/mobil/projekte/schule.htm
- Umweltbundesamt (German Environment Agency): Umgebungslärmrichtlinie (in German)
  http://www.umweltbundesamt.de/laermprobleme/ulr.html
- Practitioner Handbook for Local Noise Action Plans:
  http://www.silence-ip.org/site/fileadmin/SP_J/E-learning/Planners/SILENCE_Handbook_Local_noise_action_plans.pdf
- Klimabündnis (Climate Alliance): Benchmark Kommunaler Klimaschutz (in German)
  http://www.benchmark-kommunaler-klimaschutz.net/
- Institut für Landes- und Stadtentwicklungsforschung (Research Institute for Regional and Urban Development): Leitfaden Nachhaltige Verkehrspolitik – Akteure und Prozesse, ILS-Forschung 3/10 (in German)
  http://www.ils-forschung.de/index.php?option=com_content&view=article&id=343&Itemid=205&lang=de
- Stadtentwicklungsplan Verkehr Berlin: Leitbild und Ziele (in German)
  http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/step_verkehr/leitbild/
- Fahrradportal Nationaler Radverkehrsplan (Cycle portal – National Cycling Plan) (in English and German)
  http://www.nationaler-radverkehrsplan.de/
- European Local Transport Information Service (ELTIS):
  http://www.eltis.org/Vorlage.phtml?mainID=452&id=452
- European Commission CIVITAS Initiative
  http://www.civitas-initiative.eu/main.phtml?lan=en
- Aktionsprogramm für Mobilitätsmanagement (Action Programme for Mobility Management) (in German)
  http://www.effizient-mobil.de/

- Institut für Landes- und Stadtentwicklungsforschung (Research Institute for Regional and Urban Development) (in German):
  http://www.mobilitaetsmanagement.nrw.de/cms/index.php?option=com_content&view=article&id=220&Itemid=83
- European Platform on Mobility Management
  http://epomm.eu/index.phtml?ID1=2182&id=2182
- Verkehrsklub Deutschland (VCD): Leitfaden Effizienter Fuhrpark
  http://www.vcd.org/leitfaden_effizienter_fuhrpark.html
- Allgemeiner Deutscher Fahrrad-Club (ADFC) and AOK: Mit dem Rad zur Arbeit (in German)
  http://www.mit-dem-rad-zur-arbeit.de/bundesweit/index.php
- Verkehrsklub Deutschland (VCD), Auto Club Europa (ACE) and Sporthochschule Köln: Infos rund ums Rad für Kindergärten, Schulen, Familien und Vereine (in German)
  http://www.radschlag-info.de/startseite.html

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