

Guideline **PROMOTION OF PUBLIC TRANSPORT**

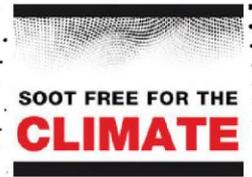


Public transport emits about four times less pollutants than cars. Electrically powered trams, trolleybuses and local trains have no local emissions at all and virtually no CO₂-emissions if powered by renewable electricity. After the triumphant advance of private cars until the seventies of the last century had made the cities very car-oriented, a renaissance of public transport began with investments in local trains, tram systems, buses with separate lanes and priority for public transport and will continue. Public transport has the biggest potential to become a very sustainable and clean mode of transport that provides mobility for all citizens.

Development of the cities was coined by transport systems as they emerged near waterways and railway lines. Since the fifties, mass motorization transformed the cities in Europe: Urban sprawl caused immense commuter traffic, deepened the separation of dwelling and working, led to high

levels of pollution which again fostered moving to the green suburbs: A vicious circle.

In the seventies and eighties **Smog problems** resulting from emissions of cars and industry led to high and visible pollution and many fatalities. Ozone problems in the nineties and exceedances of limit values of fine dust (PM₁₀) since 2005 and



nitrogen dioxide (NO₂) since 2010 have helped to make public transport again a central issue for environmental reasons.

Comparison of emissions

A policy of modal shift to public transport not only leads to reduced space consumption in urban areas and regained public spaces for the citizens but also to reduced emissions. Changing from cars to buses, local trains and trams – with occupancy rates between 20-25% - halves CO₂-emissions. Carbon monoxide emissions are smaller by factor 10-50, volatile organic compounds by factor 5, 15 or reduced to zero. The reduction of NO₂ and PM depends on the use of diesel engines and particulate filters. Therefore the responsible municipalities must pursue a strategy of retrofitting of trains and buses or switch to – renewable energies. Increasing occupancy rates by target oriented marketing measures is another smart and cost efficient tool.

Environmental effects

Reduction of emissions results partially from “cleaning”, i.e. retrofitting, public transport vehicles. Any city with imission problems needs a concept of public procurement for their buses and their vehicle fleet. The second aspect is the reduction of car use in the city and the switch to public transport or to zero emission vehicles such as bikes. Public transport systems should be embedded in an overarching approach of multimodality and cooperative with biking, car sharing and other mobility services.

For any car ride substituted for emission free public transport, a reduction effect of 140 g CO₂, 0.9 g carbon monoxide, 0.17 g VOC, 0.3 g NO₂

and 0,008 g PM per km can be calculated (cf. Environmental Protection Agency, Germany 2011).

Obstacles to overcome

Public transport suffers most from insufficient financing. Public transport is a task that can't be tackled by local governments alone. Regional economic interdependences cause the daily streams of commuters into the cities and agglomerations. Thus national programmes should be offered to incentivize public transport investments. Without attractive financial opportunities, municipalities will feel overburdened and will not invest in further public transport.

Local levies, charges and fees can be used to promote public transport: the congestion charges in London and Stockholm e.g. is used for investments in public transport. Revenues of parking management are used in Copenhagen and Amsterdam for expenditures in public transport and create an added value by diminishing car us.

Cost efficient solutions have to be found: Giving priority to trams instead of constructing new metro lines, using light rail instead of heavy trains, tight schedule coordination between national, regional and local trains and buses. Reducing emissions and noise of public transport is another means to make public transport a role model. And: the more satisfied passengers use public transport the more public and financial support can be mobilized.

- Measure pollution
- Identify polluters (local, regional, ...)
- Propose measures
- Public participation
- Adopt & enforce



Best practice examples

Acceleration of public transport

Zürich has become a role model in the 1980ies and 1990 by implementing its programme to prioritize trams und buses at traffic signals. A “green wave” (coordinated green phases) for trams and buses reduced the waiting times to zero and accelerated the average speed of public transport over 25 km/h thus making it fully competitive with the car. The modal split share of public transport increased to one third of all routes. Redistribution of road and parking space was a supporting pillar for the success of the “Zürich model” as well as the continuing support of the voters for this public transport policy including restrictions for cars, documented in several referendums and “Volksabstimmungen”. And the voters had rejected alternative proposals to construct new roads and a subway lines previously.

Zürich is one of the very few big cities and agglomerations without clean air problems. On the contrary: As the share of cars is less than on third, the concentration of PM and NO₂ oxide is far below the EU limit values.

Solving the commuter problem

Considering the routes within the cities or in the city center the modes of eco-mobility – public transport, cycling and walking – has always been very high. Yet for all big cities the daily avalanche of cars has been the biggest challenge.

Commuter trains, express-trains and light rail systems have been the appropriate means to reduce the percentage of cars for the way to work. Some cities prefer radial lines, other ring or tangential lines. But they are only successful if they connect the relevant industrial und business with the residential areas.

Copenhagen was very successful in motivating a large share of commuters to move to the city and then using the bike for their way to work.

Very successful has been the so called “Karlsruher Modell” where trams were modified so they can use existing railway tracks. The advantage: Customers could board the tram in their hometown 25 km away from Karlsruhe and get off directly in the Pedestrian zone of the city and go shopping.

Tram renaissance

In the sixties and seventies of the last century and during the triumph of the cars tramlines in many cities were moved to increase the numbers and shares of private cars. Since the eighties a renaissance of trams begin because they proved to be much more cost efficient than subways and were faster than and more independent from traffic congestions than buses. Many cities in Europe, following the model of Zürich invested in new or reopened tramlines. Especially the French government conducted a tram offensive in many cities investing in new and very modern trams in Strasbourg, Paris, Lyon and other French cities since the 1990ies.

Air pollution & Health

In 2010, more than 400,000 people died prematurely in the EU due to air pollution. That makes air pollution the main environmental cause for shortened lives in the EU. The resulting health problems cost society estimated 330-940 billion Euros per year. Over 90% of the urban population in the EU is exposed to concentrations higher than the limit values recommended by the World Health Organisation (WHO). Among the most important pollutants are black carbon (BC), which is a part of particulate matter (PM), Nitrogen Dioxide (NO₂) and ozone (O₃)



Separate bus lanes

Redistributing road space and establishing separate lanes for buses started in Wiesbaden in Germany in 1968 and after a change in Federal Road Traffic Act could be used by all other cities. This infrastructure combined with giving priority to buses at traffic signals thus making public transport much faster and more attractive. Yet a big push for separate bus lanes that can be opened for use of cyclist and taxis took place in the 90ies and the first decade of the 21st century. Introducing congestion charge in London in 2003 and investing the new revenues into improvements of the bus system led to a complete network of bus lanes in inner London.

Attractive fares and tariffs

An outstanding example of the effects of fares gave Vienna in 2013. Against all odds and against all naysayers the price of the annual subscription for public transport has been lowered to 365 Euro, i.e. one Euro a day. The demand push caused by this drastic reduction by about 25% over compensated the reduced revenues per ticket.

E-tickets

More than 500 firms in Germany and more than 10 Million people are using an E-ticket for public transport in many cities. This makes the use of complicated ticket machines unnecessary and reduces barriers for access to and use of public transport.

The same is true for smart phone apps, providing individualized real time-information about public transport facilities in ones specific place.

Multi- and intermodality

Modern public transport should be embedded into a concept of **mobility management** that combines all modes of transport and includes **Car Sharing**

and cycling. Car sharing and taxis in fact is an often overlooked branch of public transport. As young people see a car of their own less often as a status symbol, Car sharing becomes an alternative to private cars according to the principle “use rather than own.” This tendency is even stronger in urban areas. Car sharing in most cases needs to be backed by a good public transport system.

Public transport should also be combined with the use of bikes: bicycle transport should be allowed in all trains, every station should offer sufficient bicycle racks or boxes and also at some station bike rental systems.

Exemplary are the **Mobility Points** in Bremen where stop points of public transport are combined with Car sharing, bike rental, Taxis and public phones.

Summed up:

The promotion of public transport (PT) is a very powerful tool of clean air policy. Its ecological advantage becomes even bigger because of the possibility to switch to renewable electricity. PT is well suited as a pillar of sustainable transport and fulfils social, economic (locational advantage) and ecological goals. Infrastructure is extremely relevant for good PT esp. the redistribution of road space. The most cost-efficient means to promote PT is the prioritization, leading to higher occupancies and higher frequency of service. Fares and tariffs are a central tool to promote PT. Public support is tremendously important in order to attract more capacity and users. Thus marketing and information are indispensable; equally important is the participation of civil society. Finally PT is an indispensable part of concepts of multimodality.



CONTACT

Municipalities interested please contact us for further information:



Bund für Umwelt und Naturschutz Deutschland (BUND)
Friends of the Earth Germany

Arne Fellermann | Phone: + 49 30 275 86-484 |
Email: arne.fellermann@bund.net

ABOUT US

Clean Air is a project by nine European environmental organisations that fight for clean air in European cities. Despite the existing legislative framework and the citizens' right to clean air, continuing violations of air pollution limits remain a problem in many cities. Air pollution threatens health, environment and climate. It's time to take action!

www.cleanair-europe.org

Started in 2009, the associated campaign "Sootfree for the Climate" aims to reduce diesel soot emissions, which accelerate climate change and pose a threat to public health. To this day twelve European NGOs have joined the campaign.

www.sootfreeclimate.org

a project by



project coordination

co-financed by the
EU's LIFE financial
instrument



associated
campaign

