

Future of Urban Mobility: Ten Theses from an environmental NGO perspective

(1.) **Soot and NO_x-reduction: Air quality problems** in virtually all big cities may trigger **substantial changes** in urban mobility: Immission of **soot particles** (PM₁₀ or PM_{2.5}) and **nitrogen dioxide** (NO₂) are restricted by EU wide limit values since 2005 or from 2010 onwards. Particulate matter alone is responsible for 320.000 premature deaths in Western Europe every year. Diesel cars – passenger cars, heavy duty vehicles and buses – are the dominating or at least main emitters in these cities.

At the same time, soot and nitrogen oxide – as a precursor of ozone – are identified by recent scientific research as **strong forcers of global warming** in addition to CO₂. Soot is considered responsible for the rapid reduction of arctic sea-ice. Reduction of those short- lived climate forcers is a very urgent and a very promising strategy to obtain quick improvements and to prevent climate from going beyond tipping points of climate change. Thus there is an additional reason to intensify and accelerate reduction of PM₁₀ and NO_x (nitrogen oxide).

Noise so far has not been able to build up enough pressure for a change in mobility patterns due to the lack of European limit values. The EU Environmental Noise Directive has no enforcement teeth ; municipal action plans so far have little impact.

(2.) The **big cities in Europe** will have to **deliver a substantial share of CO₂-reduction in transport by 2020 at latest**. Realistic forecasts show that by 2020 CO₂ emissions have to be cut down by half in order to stay within the "2°C objective" to stabilize the climate and by 80 to 95% in 2050. At the covenant of mayors 877 European cities have promised jointly to reach a higher CO₂-reduction as the European target of minus 20/30% in 2020. But so far it aims primarily at energy saving measures in buildings. Without abatement measures in the urban transport sector neither the 2020 nor the 2050 CO₂ reduction target will be reached. Yet urban mobility has a big CO₂ reduction potential which can be mobilized in a cost efficient way..

(3.) **Strongly rising costs of car mobility** – due to the rapid **end of cheap oil** and the failure to make cars more efficient– will lead to a political hype of electric cars and **could lead to a boom of electric mobility in urban niche markets** and the use of **regenerative energies**. But for the next five years electric cars will not be able to meet the expectations of customers regarding the cruising range of these cars. But an intelligent combination of regenerative energy and electric mobility based on pedelecs, electro scooters/solar scooters, battery electric Carsharing and Taxi fleets etc. could provide a conspicuous and relevant contribution to the reduction of pollution, CO₂-emissions and noise in cities. Rising costs of cars will also strongly advance biking.

(4.) **Reduction of pollutants, climate gases and noise** bring a **redistribution of welfare**: Low income people will profitmost. **Cities will become more liveable**. Suburban sprawl could be slowed down or even reversed. Thus social and economic trends support environmental necessities.

(5.) Measures to reduce soot particles and nitrogen oxide have to contain

- regulatory measures and
- measures promoting sustainable mobility.

Low emission zones (LEZ) are used in several countries to push equipping new cars with par-

ticulate traps and filters and to retrofit old cars by imposing bans on driving with highly emitting cars. The total abatement effects are between 10 and 20 per cent regarding soot particles and up to 30% regarding NO_x. In most cases LEZ alone are not enough to abide by the EU limit values. They have to be combined with measures advancing cycling or public transport. In London a LEZ is combined with a congestion charge. In Germany, 34 LEZ have been established. In fact LEZ lead to a reduction of cars in the city zone (e.g. in Berlin for almost 5 percent).

(6.) Due to constraints on public spending of cities, environmental pressure and rising costs of mobility **biking will increase considerably** during the next years. The share of bicycles has been rising during the last years in many cities. In Cities with purposeful advancement of cycling bikes will become a major part of urban mobility. Good practice shows the future potential: Copenhagen for instance has increased its share of cyclists during the last ten years by 6 percent **even to 36 %** of all routes and has **set a target of 50% in 2015**. In other towns e.g. Münster cyclists or in all Dutch cities cover one third of all everyday routes. New modes of – additional – electric propulsion can also be used to expand cycling in cities with adverse topographical conditions and

(7.) **Public transport** must become the backbone of affordable mobility for all. **Expansion is possible by** using very cost efficient solutions like in Zürich – increase of velocity of the tram system and priority in operation over other modes – **to one third of all routes**.

Buses also must play a major role in expanding public transport as an integrated part of a system of city/metropolitan railways or as a town bus system. They also need priority in operation.

(8.) **Redistribution of road space (incl. parking areas) to** walking, cycling and public transport is a prerequisite to push **ecomobility** (push factor) and upgrade urban areas.

(9.) **Comprehensive mobility management** as a step to inter und multi-modality: **All ecological transport modes**, including scooters, cycling, taxis, buses, trams, rail transport, carsharing, organized hitchhikes ... should be integrated into one system and merchandized corporately. Thus existing infrastructures and transport capacities can be utilized better or even fully. **E(lectronic)-tickets**, full mobility tickets integrating these transport and other municipal services should become the **brandmark of sustainable urban mobility**.

(10.) **Cityscapes** as symbols of "**embedded urban mobility**": Efficiency and better technical solutions will not suffice. **Lifestyle changes** are necessary. But they will only become epidemic, if we spread existing good/best urban practices, defuse and downsize cars and embed mobility discussions in realistic every day visions of sustainable urban futures in attractive cityscapes.

Consequences:

European cities could become a global role model for sustainable urban transport and liveable cities. Half of the world population live in cities occupying 1% of earth's surface.

Clean air and climate problems of European urban mobility can be solved. For that modal split must change fundamentally. To give an example (motor cars/publ. transport/walking & cycling): **2009: 50/20/30 (= ø German city) → 2015: 35/25/40 (= Zürich today) → 2020: 20/30/50**.

Berlin, 17.10.2009

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