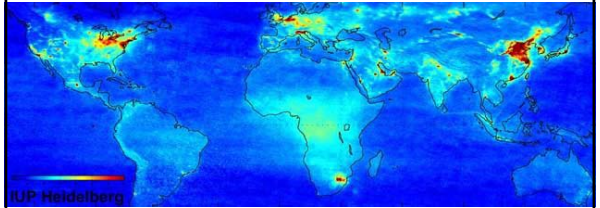


Urban Mobility – Approaches and low-cost solutions for Megacities

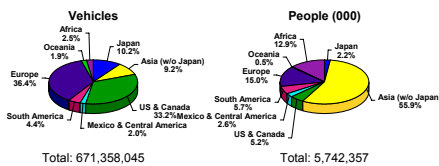
Dr. Axel Friedrich
Umweltbundesamt (UBA)
Germany

Stadt und Mobilität im Wandel:
Wege zu Nachhaltiger Stadtentwicklung
GTZ Berlin 2004

Pollution of the Atmosphere by Nitrogen oxide (NO₂)

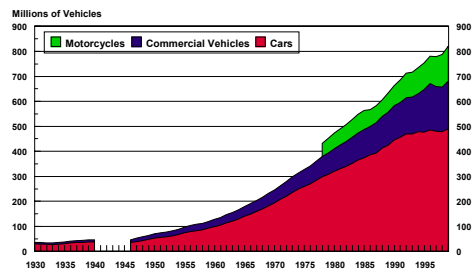


Global Distribution of Vehicles and People

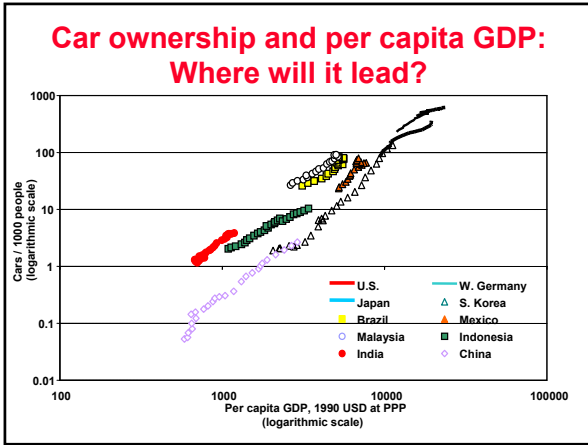


Source: Michael Walsh

Global Trend In Motor Vehicles



Source: Michael Wash



The Vision

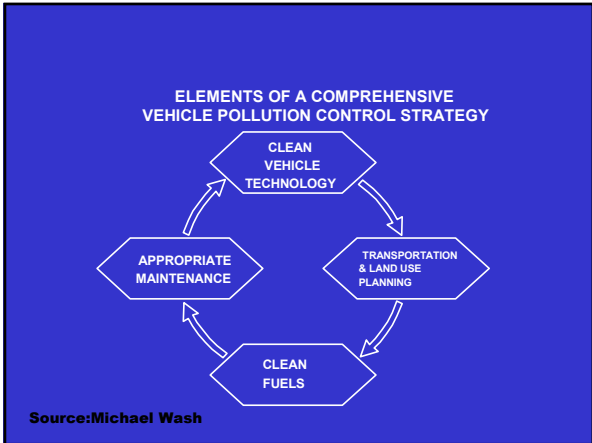
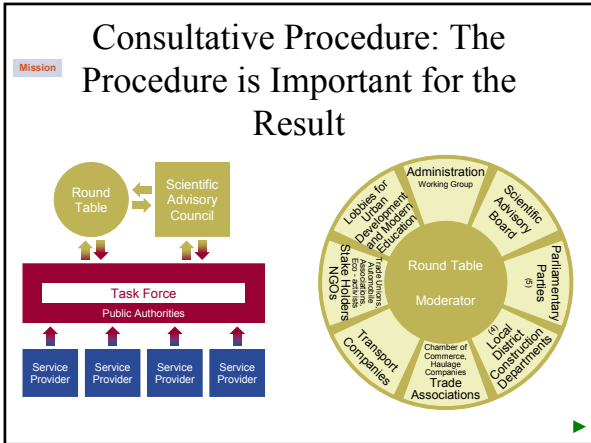
The vision gives an answer to the question „To where we want to go?“; “How should our city look like in 20 years?“.

The basic idea is to fulfil the mobility needs, however to reduce the undesired results of the traffic.



The vision and the goals have to be adopted by the Government and by the parliament

before discussing the measures



Proposal for transport sector

1. Create a regional body for an integrated transport planning including transport, environmental and financial authorities.
2. Establish an commission (consistent of designated experts from the affected authorities) to evaluate the performance of the administrative system in the transport and environment sector (in and between national, provincial and municipal authorities); in particular analyze overlapping of responsibilities, competition between different levels of government on enforcement power, gaps in legislation and enforcement caused by incoherence of administration;

6. Promote the non motorized transport means (bicycles and pedestrians) by creating infrastructure for non motorized transport
7. Promote bike use in Beijing: establish a bike plan, which deals with improving safety, image, selected routes for recommended bike use, cycle paths, promotion of freight bikes for delivery , define standards for the construction of bicycle and pedestrian infrastructure

8. Require sulphur free (less than 10 ppm) diesel and gasoline fuel for fuel for the Beijing area. These fuel are needed to improve the catalyst performance and to get modern technology like gasoline direct injection engines
9. Introduce vapour recovery for all stations (stage I and stage II, delivery of fuel and refuelling vehicles). By vapour recovery the emissions from gasoline stations can be reduced by more than 90% and it is very cost effective
10. Use emulsified diesel fuel in fleet. By adding about 15% water to diesel fuel NO_x - emissions can be reduced by 30% and the particulate emissions by about 50%
11. Require better lube oil with low viscosity index. By better lube the fuel consumption can be reduced by 3-5% and the emissions by 20-30%

12. Introduce Euro IV for gasoline passenger cars and light trucks from now. For diesel passenger cars and LDT from 2004. For Trucks and busses require Euro III
13. Label high polluting vehicles and restrict this vehicles from driving at high air pollution days; including the forecast in this restriction; after retrofit to EURO I or II allow these vehicle to drive
14. Use economic instruments for the promotion of these cleaner technology by incentives and by penalties for the high polluting vehicles

Indonesia, Surabaya

Outlook for Surabaya (1)

The forecast for the transport sector of Surabaya of the Dorsch Consult study show an increase of **120%** of the trips within the city. Expressed in vehicle trips it means the numbers go up from 2,0575 million in 1995 to **3,7 million in 2010**, the number of public transport trips will increase only from 98,000 in 1995 to 111,000 in 2010

Outlook for Surabaya (2)

Assuming the all committed road projects will be carried out until then, the fraction vehicle hours below 10 km/h will increase from **2% to 21%**, another **17%** will be in the range of 10-20 km/h.

Measures for a Sustainable Transportation System in Surabaya

A set of measures was proposed in order to change to direction towards a more sustainable development

This set includes promotion of better standards for vehicle and fuels, improvement of the institutions, a centralized I/M, to raise public awareness, creation of environmental trust fund and more



Policy Fundamentals From Bellagio Memorandum

- Consider Air Quality and Energy Needs in Parallel
 - Case A - Diesel Cars - Conflict
 - Case B - Fuel Cells - Harmony
- Pursue Inherently Clean Vehicles/Fuels
 - Combustion Engines - Constant Battle
 - Electric Drives - Initial Push Pays Off
- Vehicles Doing Same Job Should Meet Same Standards
 - Diesel = Gasoline
 - Sport Utility Vehicles = Cars

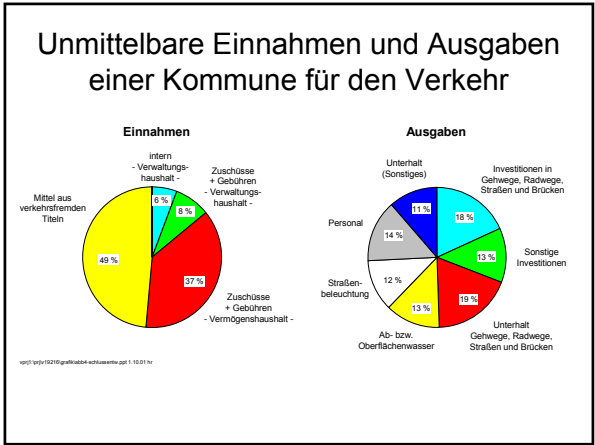
Policy Fundamentals (continued)

- Clearly Defined Roles Benefit Everyone
 - Gives Manufacturers Clear Targets
 - Efficient Use of Resources
 - Flexibilities Possible when needed (eg CARB)
- Newly Developed Industry Should Start Toward the Top Not the Bottom
 - Minimizes Emissions/Energy Consumption
 - Good Industrial Policy - Exports
- Same Old Sequence Not Necessary

Policy Fundamentals (continued)

- Vehicles & Fuels Are A Package
 - Clean Fuels Reduce Emissions Directly
 - Clean Fuels Enable Advanced Technologies
- Adopt Mutually Reinforcing Not Conflicting Policies
 - CAFE Standards/Low Fuel Price - Not Efficient
 - Strong I/M Programs/Waivers - Less Benefit
- Effective Environment Agency Must Have Strong Technical Capabilities

www.cleantransportcouncil.org



Mexico City: Action Arena

Making Hopeless Transport Sustainable

The Challenge

- Get opposing jurisdictions, parties, modes, paradigms to work together
- Reinvent bus system
- Introduce breath of fresh air (ULS Diesel and CNG)

The Project

- **Participants:** Local Govt.; WB/GEF, NGOs
- **Init. Support:** \$13m over 5 years; buses (Volvo, DC, Scania); fuel (Shell, Ecomex); Env. Can., Hewlett Fnd

Activities planned/underway (2003-2005)

- Develop bus corridors, solve underlying institutional reforms:
- Calibrate flows of people around the region
- Pilot feeder routes for colectivos to BRT and Metro
- Emissions tests, fuel cycle and economic analysis
- Harmonize pollution, transport, and climate plans:
- Test fixes for existing diesel vehicles



PM Emissions Also Come From 2-Stroke Motorcycles









A largely unused pedestrian bridge in Kuantan



- Penalty for not using pedestrian bridge:**
- 1st transgression, : RM 1000 or up to 3 months prison
 - 2nd transgression, : RM 2000 and/or 6 months prison

**No Freedom
without
Wastefulness**



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New Limit values for motorcycles

	Class	CO g/km	HC g/km	NOx g/km
A 2003	I (<150 cc)	5.5	1.2	0.3
	II (≥150 cc)	5.5	1.0	0.3
B 2006	I (<150 cc) 1)	2.0	0.8	0.15
	II (≥150 cc) 2)	2.0	0.3	0.15

1) Test cycle : *ECE R40 (with emissions measured for all 6 modes - sampling starts at T=0)*

2) Test cycle : *EUDC for LDV*