Public transport and non-motorized transport in a sustainable perspective

Arjen Jaarsma
consultant
Balancia
The Netherlands
Outline

1. Crisis
2. Future
3. Low carbon cities
4. Cities on the road to sustainability
5. Walking, cycling, public transport and cars
6. Mombasa
7. Cities in 2090
1. CRISIS

Yes, we have more than one crisis:

- economic crisis
- climate crisis
- oil crisis
- food crisis

*By the end of February 2008, the price of oil reached $103/barrel. Prices based on Refiner Acquisition Costs provided by Energy Information Administration.
2. FUTURE

The future is....... sustainability.

Three P’s: People, Planet, Profit.
Four Z’s: zero waste, zero emissions, zero congestion, zero accidents.
3. LOW CARBON CITIES

Low carbon city = city with zero (or low) CO2 emissions.

Three main producers of CO2 in cities:
1. Buildings (housing, working)
2. Hard infrastructure (energy delivery, waste management, water supply, sewage, etc.)
3. Mobility of persons and goods (traffic)
4. CITIES ON THE ROAD TO SUSTAINABILITY

- **Amsterdam** (the Netherlands) – solar energy / cycling / electric vehicles
- **Vauban** (suburb of Freiburg in Germany) – car free / tram / cycling / car sharing
- **Sino-Singapore Tianjin Eco-city** (China) – new planned city with 90% PT+cycling
- **Masdar City** (UAE) – new planned city, the low carbon city of the future!
MASDAR CITY (United Arab Emirates)

- Satellite city of Abu Dhabi
- In 2016: 40-50,000 inh. + 70,000 jobs
- Zero-carbon city: generating all its own power
- Walled: no urban sprawl + protection against desert winds, all buildings max. 5 storeys
- No broad streets but tight shady alleys (Arabian style), roads are all pedestrian
- Public transport (metro, light rail, HST?) + Personal Rapid Transit + parking at border of city
5. WALKING, CYCLING, PUBLIC TRANSPORT AND CARS

The private car on fossil fuels was great in the 20th century but is definitely not the transport mode in the 21st century.

Paradigm shift among traffic planners:
1. Walking
2. Cycling
3. Public transport
4. Cars
WALKING

Walking is healthy and perfect for distances up till 1-3 kilometers.

Walking has been rediscovered:
- Water Front developments
- Greenways
- Concentration of facilities (shopping malls, marina’s)
- Covered / airconditioned walkways
CYCLING

Cycling is healthy, CO2 neutral and a suitable mode for distances up till 6-15 kilometers.

Cycling is:
- hip and trendy (+ electrification trend)
- a new policy theme in many local mobility plans
- successful public bicycle schemes (like Velib in Paris)
- an instrument for local governments to meet climate standards (e.g. in Copenhagen)
CYCLING IN AMSTERDAM
CYCLING IN PARIS (Vélib)
PUBLIC TRANSPORT

Public transport has low CO2 emissions and is perfect for distances up till 1000 kilometers.

Public transport is:
- mini-bus, urban bus, Bus Rapid Transit (BRT), light rail, heavy rail, high speed trains
- the sector of the future: investment volumes grow year after year, e.g. in China, Turkey, France, Spain, India, UAE, Kuwait, Qatar, Saudi Arabia, etc.
- Bus Rapid Transit is a success in many countries!
BUS RAPID TRANSIT (BRT)

The main features of BRT:

- Segregated busways (bus-only)
- Good quality bus stops (stations)
- Clean, modern vehicles
- High frequency
- Attractive product name (branding)
- Ticketing on stops/stations (not in bus)
- Use of ITS (Intelligent Transport Systems)
BRT – South American approach

- High passenger volumes
- Fine-tuning of the BRT concept
- Often in combination with urban renewal
- Example: TransMilenio in Bogotá (Colombia)
BRT – European approach

- Lower passenger volumes
- High Quality of Service / Design
- Often as second / third tier
- Example: Zuidtangent in Amsterdam (the Netherlands)
BRT – African approach

- High passenger volumes
- Young concept for the continent
- Formalization of the taxi industry
- Example: Rea Vaya in Johannesburg (South-Africa)

Photos: ITDP
BRT – Asian approach

- High passenger volumes
- Different forms (Seoul vs. India)
- Boom of BRT systems in Chinese cities
- Example: BRT in Changzou (China)

Photos: ITDP
CARS

Cars are suitable for distances till 500 kilometers and are perfect for longer trips outside the city where public transport is not available.

Cars will:
- face massive electrification
- loose its status symbol
- be banned from many city areas
6. MOMBASA

- City with coastal tourism
- Future low carbon city?

The High Quality Zone will have the following elements:
- Attractive walking route from the Central Transport Hub via Uhuru Gardens (The Tusks), Moi Avenue and Makadara (Jamhuri Park and Lord Shiva Temple) to Fort Jesus.
- One big public multi storey parking building at Makadara location.
- Comprehensive parking policies in the zone consisting of an increase of parking tariffs in the zone and a reduction of on-road parking space in the zone.
- With the (gradual) decrease of on-road parking space, there will be more room for sidewalks. Moi Avenue can be turned into an attractive boulevard with wide sidewalks where it is attractive and save to walk, meet friends and to go for a drink.
7. CITIES IN 2090

Forecast:

- In 2090 around 90% of the world population will live in low carbon cities.
- All cities in the world have a public transport share of at least 35%.
- All cities in the world have a cycling share of at least 7%.