The critical Importance of Non-motorised Transport Planning for Modern Asian Cities

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1. Asia and urban transport in Asia
2. The universal experience with urban transport (planning)
3. Why Asian cities have no choice
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1. Asia and urban transport in Asia
My experience in Asia

• For work
  – India (4 months)
    - Pune, Nanded (design, technical assistance)
  – Philippines (6 weeks)
    - Marikina City (cycle network design assistance)
  – Thailand (1 week)
    - Bangkok (capacity building)
  – (My main experience: South America & Europe)

• For holidays:
  – Thailand (11 months), India (2 months), Japan (4 weeks), Laos (3 weeks), Cambodia, Vietnam, Singapore
Asia

- Impossible to talk in general terms about Asia: most diverse continent
- At least three ‘Asias’
  - Low Income (Cambodia, Bangladesh, etc.)
  - Middle Income (Thailand, Malaysia, etc.)
  - High Income (Japan, South-Korea, Singapore)
- My main focus: Developing Asia (LIA, MIA)
  - My experience (India, Philippines, Thailand)
  - Most to win
Low- & Middle-Income Asia

• Traffic and Transport in (most) cities:
  – Income is important \(\rightarrow\) Determines motorisation
  – (Extremely) high motor cycle use
  – Inadequate public transport without priority
  – (Rapidly) falling NMT-use
Example: NMT-use in Indian cities

Most larger cities: NMT-use < 33%!
Bangalore: 25%!

Some smaller cities: cycle use >15%!
• Sharp declines in use!
• As in cities in developing Asia everywhere
• But many Indian & Chinese cities still have high levels of cycling (and walking)

Source:
Bicycles in Urban India: Geetam Tiwari, Himani Jain (IIT Delhi) 2008
NMT use in Western Europe

- **Netherlands:**
  - Amsterdam: NMT = 50%,
  - Delft: NMT = 53% (37% cycling)

- **Germany:**
  - Muenster: NMT = 54%
  - Munich (BMW) = 35%

- **Spain:**
  - Barcelona: NMT = 32%
  - Vitoria: NMT = 66%

Source: Axel Friedrich
This means

...that many Indian (Indonesian, Thai, etc.) cities have higher levels of motor vehicle use than much wealthier cities in Europe (and probably Asia)
2. The history of urban transport planning worldwide
Example: The Netherlands

- 1960’s
  - Rapid growth of car use
  - Focus:
    - More room made for the car in and outside cities
    - No policies for cycling and walking

- 1970’s
  - Increased congestion and pollution
  - Economic loss in cities
  - High fatality rates (3200 in 1972, 800 in 2007)
So.....The individual dream...
…led to a collective nightmare
The vicious circle of the provision of infrastructure for motorised transport

- Universal law: all over the world
Road capacity
(people per hour on 3.5 m width in the city)

Source: Botma & Papendrecht, TU Delft 1991
The car: inefficient use of scarce public space!
Building more and ever wider roads...

Los Angeles, 12 lanes!

will attract more and more cars (and/or motorcycles)

Buenos Aires 14 lanes!
Many European cities, however, have partly reversed policies

- E.g the Netherlands from mid 1980’s
- Local Policies:
  - Car-free areas in city-centres
  - Access to the city-centre by car is restricted
  - Steep car-parking fees in city-centres
  - Cycle networks in all cities
- Result in the cities:
  - The use of the car in cities diminished
  - Cycle use increased
    - (currently 26% of all journeys nationwide, > 30% in many cities)
  - Quality of life and local economy improved
1989:
- Place Kleber: 50,000 veh./day

Strasbourg: 12% bicycle use
Place Kleber today
Narrower roads: Amsterdam

• From 4 lanes for cars to 2!
  – Still there is space for 4 lanes
  – Traffic moves better
    (less congestion than before)
Narrow roads: Amsterdam 2005

Yellow = 2 x 4 100 km/h, Brown = 2x2 70 km/h, Green = 2x2 no parking.
Blue = 2x1 70 km/h, Purple = 2x1 no parking, Red = 2x1 with parking

Only a few roads have more than 2 lanes (2 x 1)
Utrecht city inner ring road

Widening was proposed, but never realised
Result of all this & pro cycling policies: more cycling!

% of vehicular journeys by bicycle
But while, though late, the tide is turning in developed countries (as is happening in Korea now) unfortunately many cities in developing countries, still follow the same (or worse) car-based traffic and transport policies that cause(d) so much problems in the West...
Mexico-city

Following the US-model: and congestion & pollution keeps worsening every year
Shanghai, China
A brand new road in Pune, India

- Which...
  - Will attract more motor vehicles
  - Will lead to high speeds
  - Is difficult to cross → will discourage walking and cycling
For many Asian cities sustainable transport is not just about what to do but also about, what NOT to do

The Hyderabad (India) case (ring-road, spreading traffic)
3. Why Asian cities have really no choice

...then to plan for walking and cycling (and high-quality public transport)
(1) High urban density - congestion

Asian cities do (did) relatively well in terms of energy use but high density also means:
- No space for cars (congestion!)
- Air pollution!

Newman & Kenworthy, 1990
And, Asian mobility is rapidly becoming more energy-intense

ADB, CAI-Asia – 2008

CO2-emissions from Transport in Asian Countries
• But: Almost all of India and many Asian cities are covered with such a layer of smog!
Pollution: Ex. Bangalore, India

“30 per cent of Bangalore's children suffer from asthma”

“Record that at least 1500 new vehicles are registered daily. “

“It is up to the parents to take utmost care and ensure that their children wear masks every time they are out in the open, he said. “

“Statistics reveal that in 1979 only 9 per cent of the children were affected with asthma, but the figure rose to almost 30 per cent in 2007. “

→ There are many ‘Bangalores’ in Asia

Source: Rediff website, November 6, 2007
Asia’s high-density cities are the least appropriate for the car, but ideal for non-motorised transport and mass public transport.
India: 5 times more motor vehicles per capita in 2035

In cities, more roads can never ever accommodate this

→Promoting NMT and PT and restricting PMV use is a must not an option!

ADB, CAI-Asia – 2008
(3) Cycling and pedestrian inclusive planning safes lives

India 2007:
- 130,000 killed (China 2007 : 90,000)
- about 90 million motor vehicles (70% two-wheelers)
→ **140 fatalities per 100,000 MVs**

Netherlands 2007:
- 800 killed (1973: 3200)
- 8 million MVs
→ **10 fatalities per 100,000 MVs**

The Department of Road Transport and Highways,
Government of India
4. Public transport alone is not enough

NMT is essential
Public transport alone is not enough: NMT is essential

- Pedestrian and cyclists are there
- NMT does not pollute, PT does
- NMT is faster and more appropriate for short trips than mass public transport
  - e.g. Indian cities typically 56% - 72% of all trips is under 5 km\(^1\)
- unlike PT, NMT offers flexibility of car or motorcycle,
- NMT provides egress and access to public transport

\(^{1}\)Geetam Tiwari, Himanji Jain, Bicycles in India
Central station of Groningen

NL: 40% of all journeys to train station is by bicycle
Maua, Sao Paulo State

Suburban rail station
5. Cycling and pedestrian-inclusive planning: better for all
Good planning for cycling and walking leads to:

- Better quality of urban life
- Lower maximum speeds of motorised traffic
  - Less accidents
  - Less noise and pollution
- Less air pollution
- Less traffic and congestion
- Better health for users
  - Exercise
  - Inhale less pollution than motorists
- Better economy (Bangkok –2.4 billion US$/yr)
Goal:
Equilibrium: Space for all!
6. Some issues in planning for NMT in developing Asian cities
(1) Guidelines and design habits

2.75 m. footpath
2.00 m. cycle track
2.50 Multi Utility Zone
0.50 m. median
4.75 m.

2.00 m. M2W / Autorickshaw lane
2.75 m. M4W lane

IRC-guidelines (6.00 m curbed road / 3.50 m wide traffic lanes)
Walking & Cycling: plan for the reality (current use)

Our counts:
- Pedestrians: 47%
- Cyclists + cycle rickshaws: 25%
- Motor cycles: 14%
- Auto rickshaws: 13%
- Cars: 2%

Road (Nanded, India), mobility study (by consultant) did not include pedestrian counts
→ How to design the road?
Traffic projections

Traffic studies in India:
In many cases MT-growth is extrapolated 30 years ahead
→ Leading to very wide roads
(3) For discussion: Cycling often seen as mode for the poor

Picture in a museum in Mysore, India, depicting poverty
In contrast to wealthy countries
Even Dutch ministers cycle

Minister Donner of Justice visits the queen
7. Some advice for Asian cities
(1) Make space for walking, cycling and public transport, **at the expense** of space used by cars and motorcycles.

**Not** like this: cycling **at the expense of pedestrians** (creating conflicts)

But like this: cycling at expense of carriageway (design can be improved)
(2) Restrict car & motorcycle use and access in the city-centre

Carfree square in Delft (The Netherlands), was car parking
Less space for the car, more for the bicycle
(3) Avoid road widening & construction of elevated highways in cities
→ Plan for the traffic you want

- Wider roads lead to higher speeds & more accidents
- Wider roads are difficult to cross
- Wider roads & elevated highways attract more motorised traffic (into the city) & discourage cycling
- Wide roads lead to delays at junctions
No elevated highway in Bogota

Bogota highway (Proposal 1998)

Mayor Peñalosa’s project instead

Info by Oscar Diaz
(5) Provide good and sufficiently wide footpaths along ALL urban roads

- Walking is the essence of urban life
- Many citizens depend on walking

Not like this
(if pedestrians do not use the footpath it is not good)

But like this

Delhi, India

Mysore, India
What, as a car-owner, is the chance that I walk (or cycle) if this is how the street outside my house (or hotel) looks?

Seoul, beside Grand Hyatt hotel

Pune, India

(Law in Netherlands)
(6) Create 30 km/h zones (and narrower roads)

Netherlands: 50% of cities are 30 km/h zone
NL 2008: 800 road fatalities, only 39 (5%) in 30 km/h zones!
(7) Create cycle networks
8. Positive developments in Asia?

- Oh, yes....
  - Beijing: (restriction of car-use 1 day a week, public bicycles)
  - Many cities started planning for cycling (incl. Seoul)
  - India: JWNURM invests in NMT & BRT, NUTP: “equitable space allocation with a focus on people rather than vehicles”

- And... many countries still have high levels of cycling and walking (China, India, etc) and chances to maintain (some of) this.
A brand new cycle track & footpath
Nanded, India…
Seoul: Demolished urban highway to restore river front and reduce traffic and pollution
Final remarks

The key is:

- Rational use of car and motorcycle
- Where and when appropriate

The task of planners and policy makers is:

- To provide all alternatives (where appropriate) and to encourage those that are most sustainable
We all recognise quality of urban life when we see it, why not plan for it from the beginning
Thank you very much for your attention!

And the best of luck with your work making Asian cities more liveable and sustainable...

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