

Key Determinants of Future Mobility and Transport Systems

*- Economic, Geographic and
Demographic Factors -*

Yoshitsugu Hayashi

Graduate School of Environmental Studies

Nagoya University

26 January 2010

What do the Changes of Economic, Geographic and Demographic Factors Mean ?

- Rapid Growth in Asian (Current) Developing Countries
 - Rich people with poor infrastructure
- Westernization of Society in Asian Developing Countries
 - Aging, Recession & Unemployment, Nuclear Family
- Vulnerability of Society → Difficulty in Adaptation
 - Poverty
 - Aging → Less Potential Economic Power

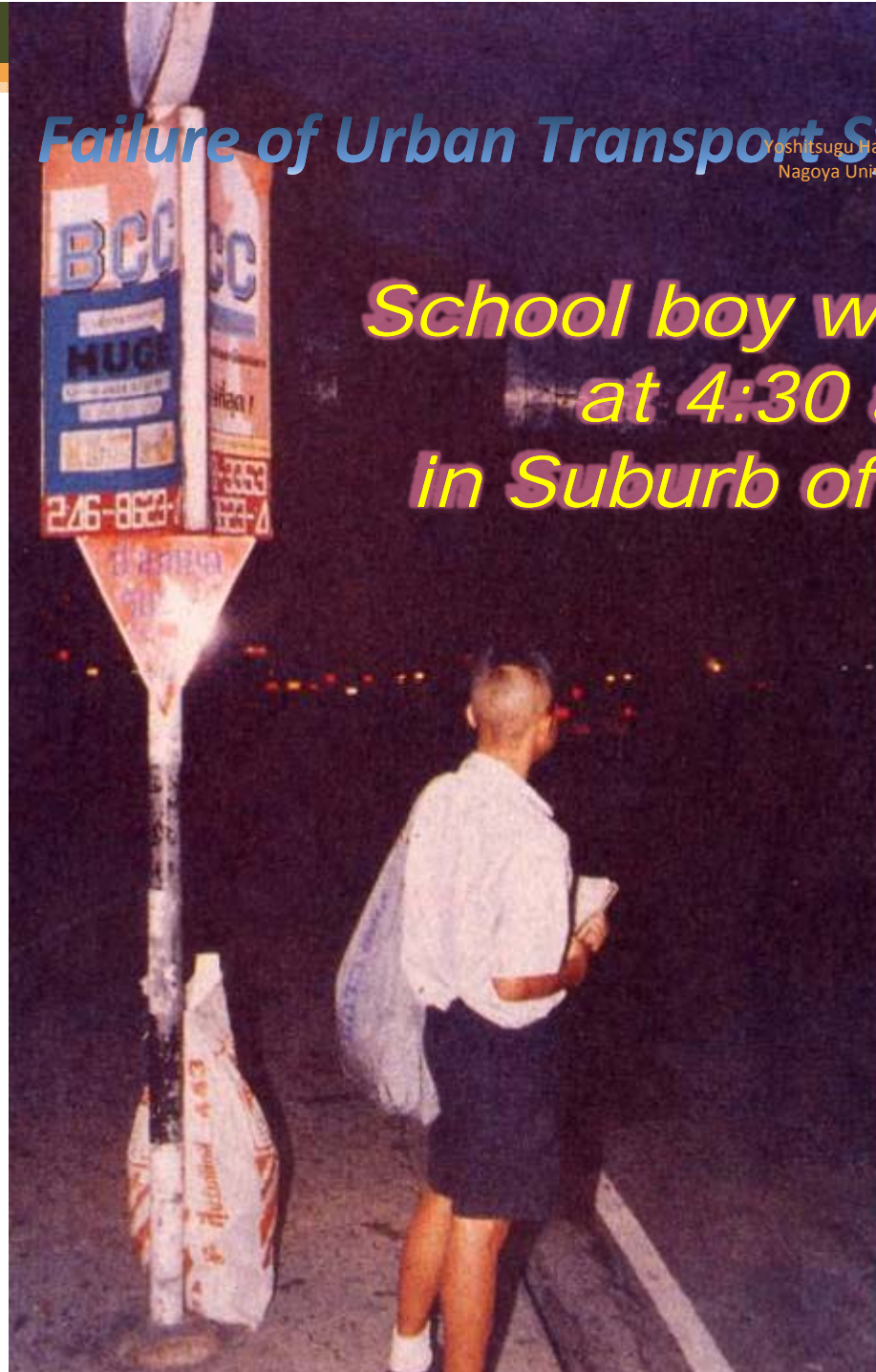
Rapid Growth in Asian (& African) Developing Countries

- Skyrocketing Increase in Car Ownership (20 times in 2050)
- Less Power to Self-finance Railways in Mega-cities
- Increasing Mega-cities (50 or more in 2050) without Railway Systems
 - Another many Catastrophic Congestion like Bangkok in 90's
- Unacceptable Increase in CO₂ from Urban Transport

Failure of Urban Transport System

Yoshitsugu Hayashi
Nagoya University

*School boy waiting for bus
at 4:30 am
in Suburb of Bangkok*



Bangkok Post
4 Sept 1993

Failure of Urban Transport System

Yoshitsugu Hayashi
Nagoya University

Slower than walkers in Sukunvit Rd, Bangkok



Photo by Hayashi(1993)

Failure of Urban Transport System

Yoshitsugu Hayashi
Nagoya University

Neglecting Railways In Bangkok

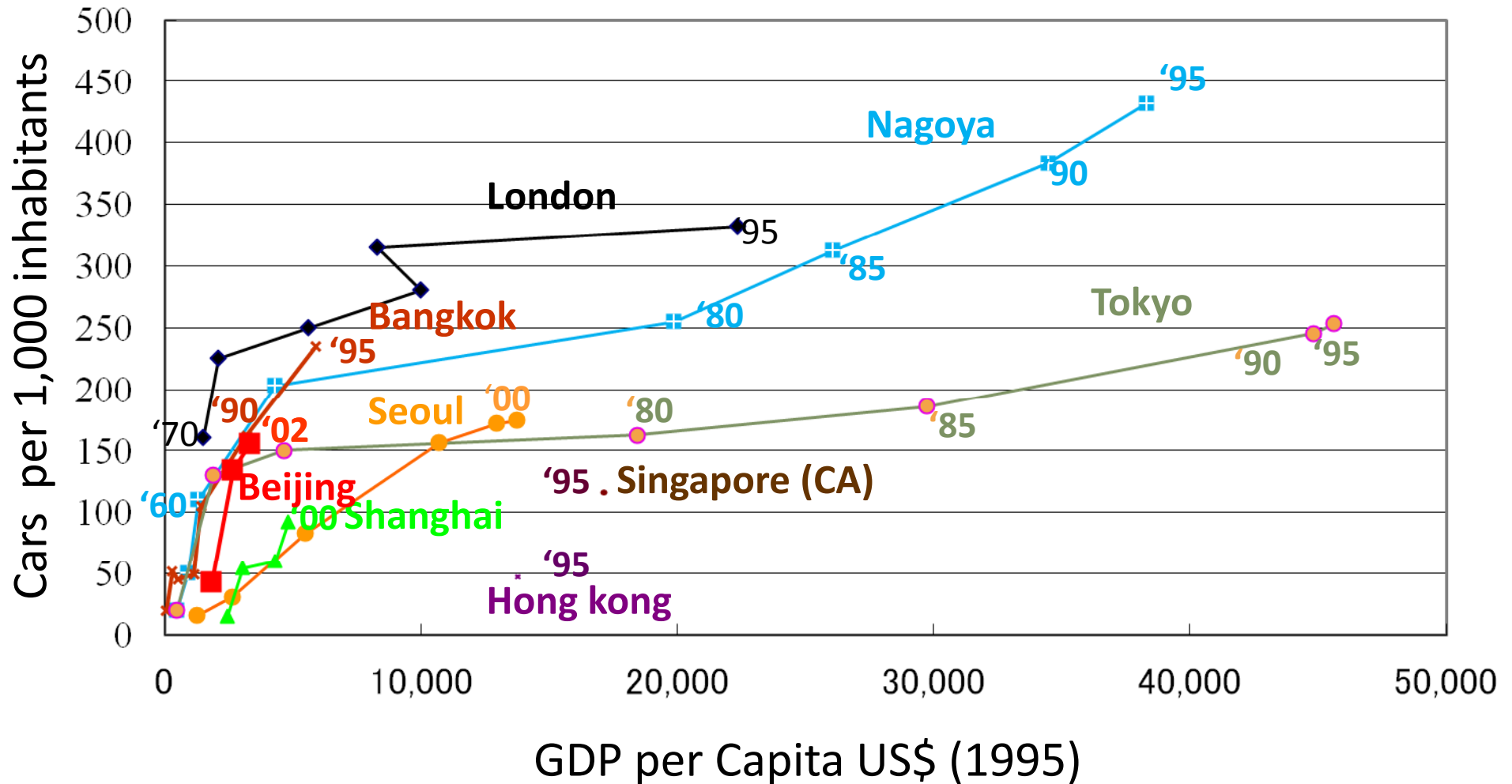


Photo by Hayashi (1994)

Failure of Urban Transport System

Car Ownership

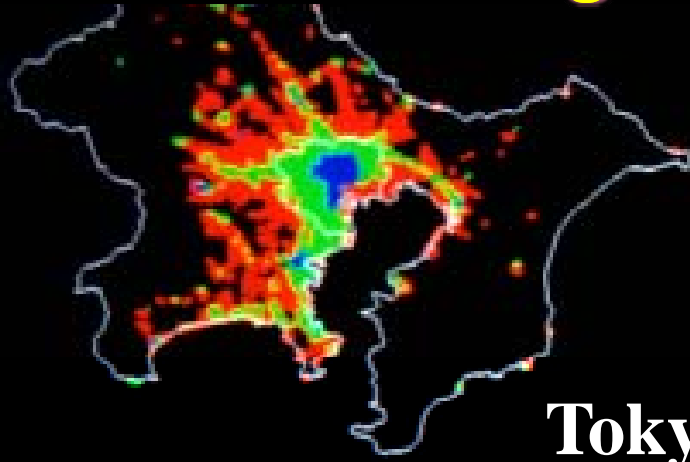
Yoshitsugu Hayashi,
Nagoya University



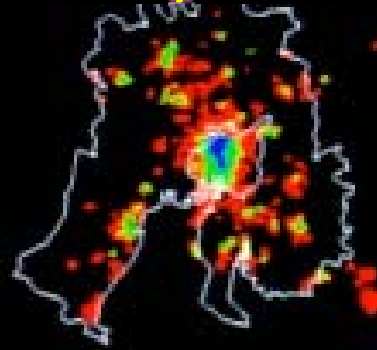
Urban Sprawl Change in Built-up Areas

Yoshitsugu Hayashi,
Nagoya University

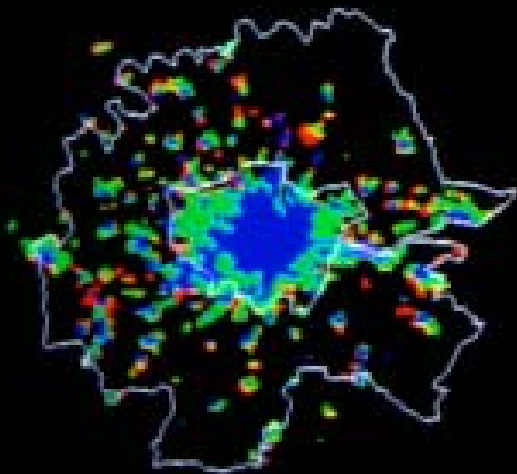
Changes in Built-up Areas



Tokyo

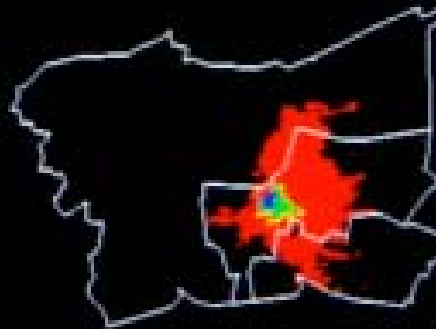


Nagoya

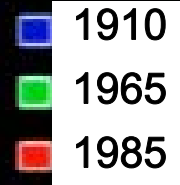


London

0 50 km



Bangkok

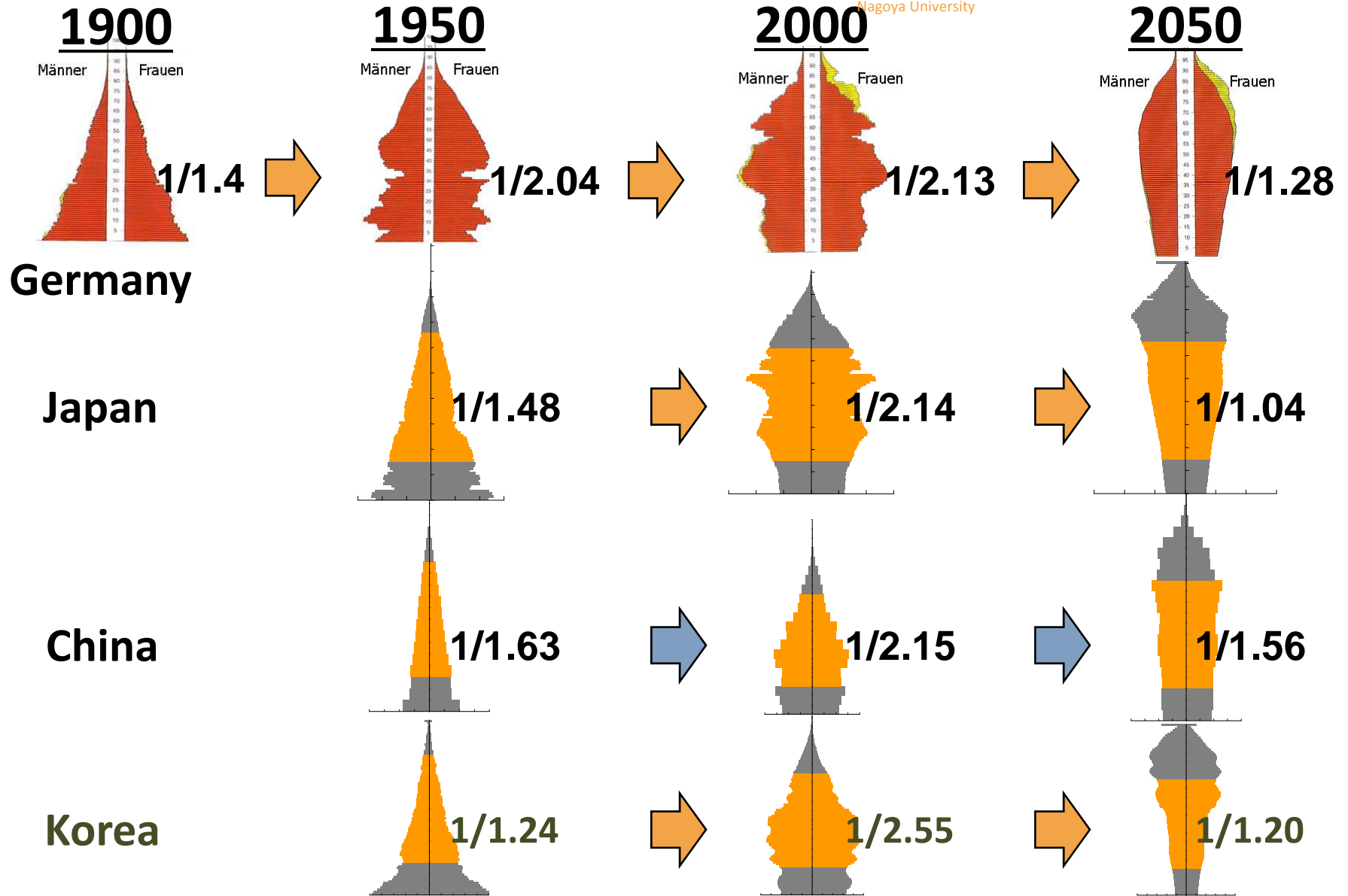


How should we (re)build the cities and transport with Low Carbon and in Low Cost?

- Avoid: **Smart Shrink-built-in Smart Growth**
 - Compact City formation
 - Quality Stock formation <Western Europe has done>
 - Street block, houses, green spaces, waters
- Shift: **Low Carbon Transport Systems Universal Over Time**
 - Infrastructure usable by different age groups
 - Tokyo's excellent suburban railways would become useless for the future aged society
- Improve: **Leapfrog in system and technology**
 - Redesign towards a totally new urban integrated transport system
 - Integrated transport system of bicycle-personal car-railway
 - New Cars – 1 seated personal vehicle with carbon textile/plastics

Ageing (Growth → Maturity → Shrink)

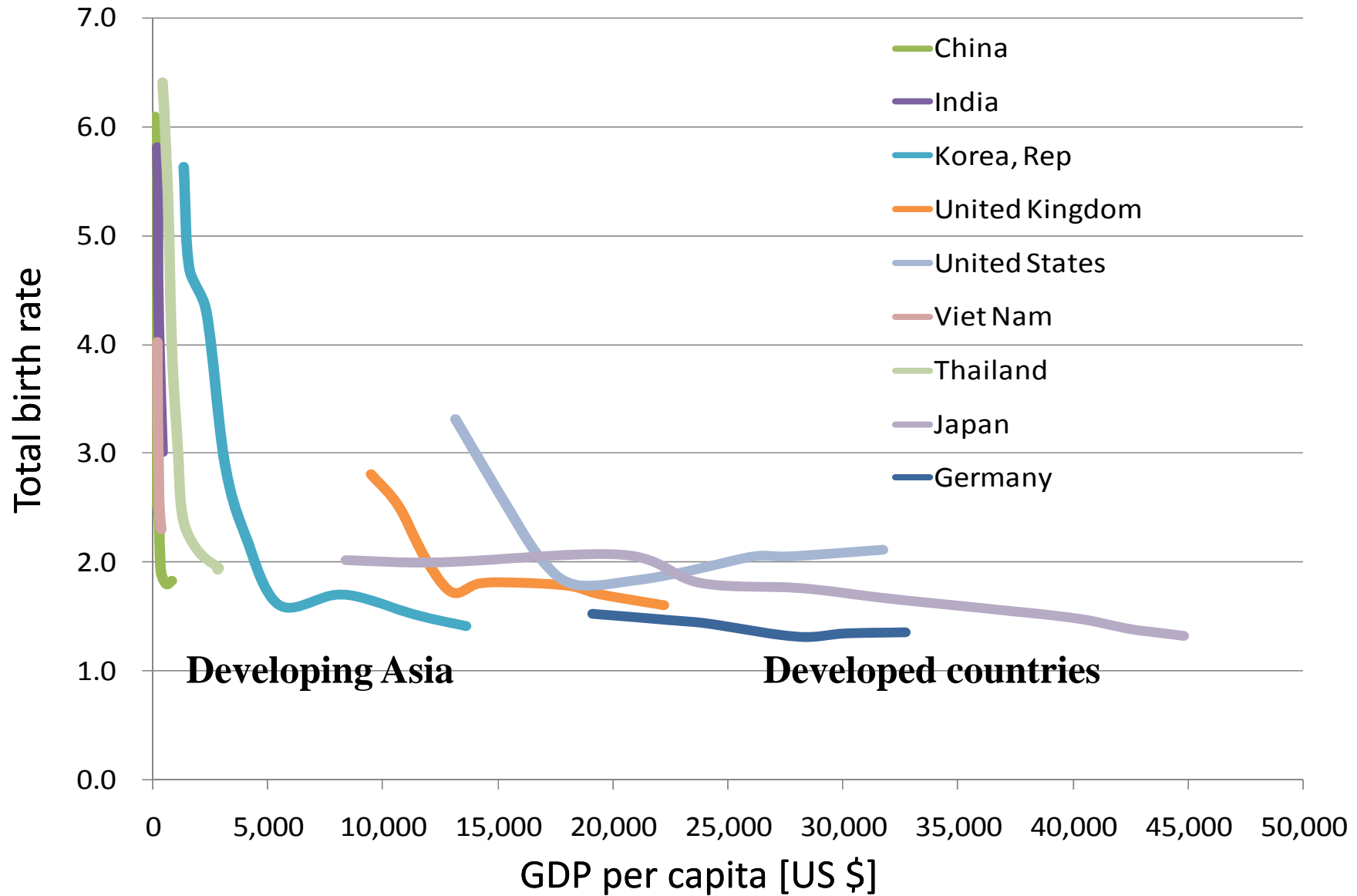
Yoshitsugu Hayashi,
Nagoya University



Challenges for Low-carbon Transport Sector

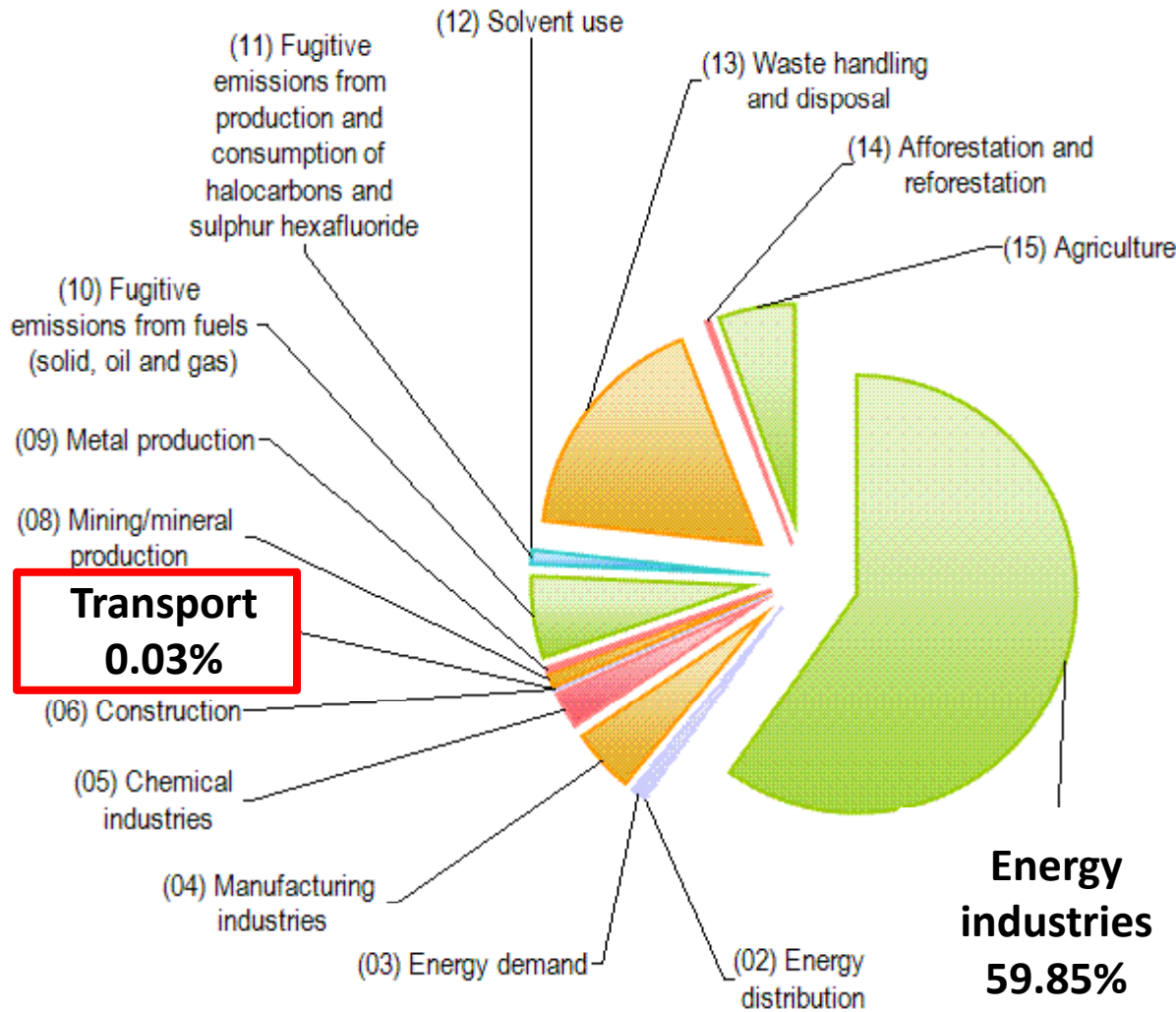
Drastic Drops in Birth Rate in Asia

Yoshitsugu Hayashi,
Nagoya University



Why CDM does not like “Transport Projects” ?

- Only 2 Transport among 2167 CDM Projects



Sectoral Scope	Registered Projects
(01) Energy industries (renewable - / non-renewable sources)	1297
(02) Energy distribution	0
(03) Energy demand	23
(04) Manufacturing industries	101
(05) Chemical industries	59
(06) Construction	0
(07) Transport	2
(08) Mining/mineral production	22
(09) Metal production	6
(10) Fugitive emissions from fuels (solid, oil and gas)	130
(11) Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	22
(12) Solvent use	0
(13) Waste handling and disposal	377
(14) Afforestation and reforestation	6
(15) Agriculture	122
Total	2167

Bringing TRANSPORT into Climate Change Negotiations

Yoshitsugu Hayashi
Nagoya University

- **Brave turn** to low carbon transport
 - We have enough Menu of INSTRUMENTS
- **Redesign of financing systems** for developing countries (new CDM+CDM accredited ODA)
- **Aging** will not allow to postpone policy implementation
- **Yes, We Can !!**
- **Yes, We Should Implement Now !!**