Moving Towards Low Carbon Cities
- Integrating Public Transport Planning in Urban Development - Case of Japan

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Background

Accelerated urbanisation in Asian countries

- Expansion of urban areas leads to increasing options for personal mobility
- If the trend continues without adequate planning
- Unabated pace of motorisation will continue

What are the implications on cities with rapid motorisation?

Challenges of Asian Cities and Suburban Cities in Japan

- Adverse impacts of uncontrolled motorization
  - Higher Travel Costs
  - Limited transport options for people who have no cars
  - Increased Pollution & CO₂ Emissions
  - Congestion / Inconvenience

Share of Public Transport (for Commuting)

- London CBD: 81%
- Manhattan: 71.5%
- New York City: 54.3%
- Tokyo CBD: 59.5%

Car Use/capita (km)

- Tokyo: 1,103 km
- New York: 8,317 km
- London: 3,456 km
- Paris: 3,692 km

Potential for reducing CO₂ Emission / Pollutants
A Possible Solution: Transit-Oriented Development (TOD)

Cities should be developed along public transport lines in a compact manner.

Advantages of TOD:
- Secure means of transportation for those who have no car (low-income segment)
- Reduce public service costs
- Mitigate air pollution
- Reduce energy costs
- Reduction of CO₂ emissions
- Use land space efficiently

Reduction of Energy Costs

Society dependent on automobiles is highly vulnerable in terms of energy security given the soaring gasoline price. Meanwhile, TOD can mitigate this risk by encouraging people to use public transportation which is much more energy efficient.

Contribution to the Reduction of CO₂ Emissions

In Compact cities, the Modal share of Railroad is high, and in cities with a high railroad modal share, the emission of CO₂ from transportation sector is low.
Public Transportation system allows more efficient move of people

Moving Towards Solutions

<Course of Action>
Compact urban forms supported by public transportation systems are necessary to achieve a Low Carbon City

<Actions In line with Course of Action>
Integration of land use and public transport systems in urban development

Experiences of Mega-cities in Japan

Japanese Experiences

The Tokyo area has been developed with integrated planning of public transportation and city development

Urban areas have been developed along the railroad networks

Positive Cycle of Benefits for Cities as Promoted by Public Transportation

Integrating Public Transportation and Land Use

Increasing Public Transportation Users

Improving Profitability, Convenience, Reliability

Development of Seamless Public Transportation

Population Growth & Development of Urban Functions

Developing public transportation

Urban Development around Rail Stations (Houses / Business / Leisure / Stores)

Developing seamless networks (transit-oriented, utilization of ICT etc.)

Improving Feeder Services (Bus, Bicycle)
Rail service providers developed new city and service facilities along the new railroad in the same time.

New City Areas: Tokyu Tama Dennen City
Area: 50km²
Population: 560,000

Integrated Development of Railroad networks & Urban Functions

Tokyo Corporation

Establishing Tokyu Stores (Since 1963)
Upgrading Bus Services,
Attracting Hospitals, etc
Leisure & Sports Facilities
Shopping Centre
Information Service
Shopping Mall

Services for enriching communities

Strategy for enriching communities along railroads
Formulating identities of railroad areas

Approaches from a “Hardware” Perspective
Approaches from a “Software” Perspective

Improved transit connection to Subway networks in Tokyo enhanced users’ convenience and resulted in increasing number of passengers.
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Seamless Public Transportation System

Bus and rental bicycle networks are provided by the rail service provider, HANKYU.

Institutions and Policies to Facilitate and Support Implementation

Prioritising railroad use in land readjustment plans, and providing residential areas that are based on proximity to railroad locations.

Flow Integrated Transport and Urban Planning

Integrated transport and urban planning integrate railroad use decisions in compliance with the land readjustment plan. Integrated railroad use plans are approved and forward purchased land is reported.

Institution and Policy Contributing to Implementation

National government supports the establishment of private railroad and development along railroads from various perspectives:

- Urbanisation Promotion Area in city planning
- Formulating metropolitan area plan
- Legislating integral development of railroad network and along-urban functions.
- Financial support for development of railroad network

Transit-Oriented Design (TOD) is Essential for Low Carbon City

Supporting System at National & Municipal Level
(Land Use Standards, Development of Legal Systems, Financial Assistance)

Key:
- Integration of Public Transport and Land Use Systems
- Seamless Network of Public Transport
Role of Integrating Land Use and Public Transportation System

Potential Areas for Collaborative Research in Asian Countries

- Integrated planning of land use and public transportation system that can contribute towards a low-carbon society
- The role of the state in the development of public transportation system and the establishment of policy frameworks
- Methods for promoting environmentally-sustainable cities (ESC) utilizing international funds
- Private-public partnerships towards ESC

Urban Development Experience

Japan's Potential

Opportunities for Low-carbon Urban Development in Asian Cities

Opportunities for Funding

Financial Possibilities

Technological Possibilities

Challenges towards Realising Low Carbon Cities in Asia

Opportunities for Low-carbon Urban Development in Asian Cities

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