EASTS & EASTS-Japan
20th Anniversary International Symposium
"Future of Transportation in Asia"

Ups and Downs of Urban Transportation Planning (experiences of a consultant)

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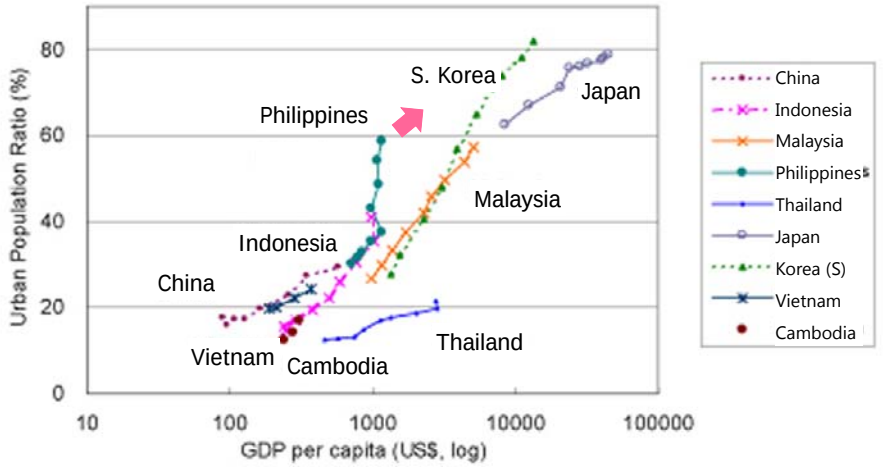
■ Urbanization = Economic growth ?



Source: MMUTIS (WB, 2003c. UN.2002b.)
Note: Data is plotted every five years.

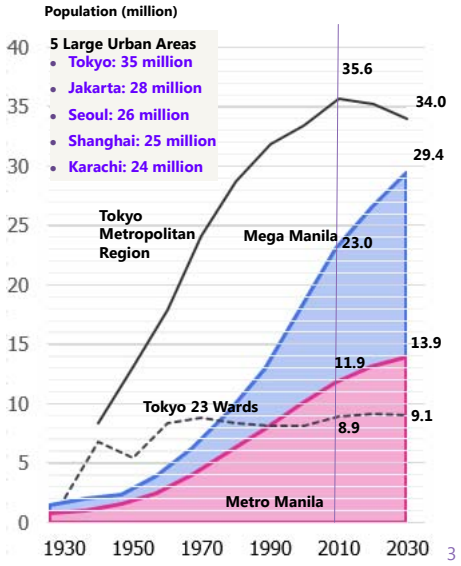
■ Mega cities: primacy and city-region

- **Developing Mega Cities show;**
  - Farther population increase beyond 2030
  - Densification of urban area
  - Concentration of economy
- **Changing environment (external impact)**
  - globalization, internationalization
  - Competition among cities
  - Private sector's interest in infrastructure

	Tokyo M. Region		Mega Manila	
	23 Wards	Suburban	MManila	Suburban
Area (km2)	621	12,938	620	8,101
Popul'n '10	8.9	26.7	11.9	11.1
(mil.) '30	9.1	24.9	13.9	15.5
Density '10	144	21	191	14
(no./ha) '30	146	19	224	19
GDP Share	19.0[1)]	n.a.	36.0	n.a.
(% national)	33.4		62.0	

1) share of the entire Tokyo Metropolitan

Need to specify sustainable urban development

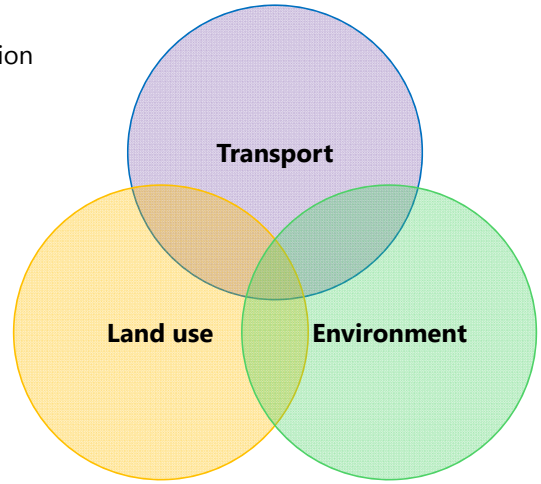


■ Urbanization: Is growth managed adequately?

- Do we still have opportunities for sustainable growth?
- How transport can contribute to sustainable urban development?
- What do we have to think in urban transport planning?

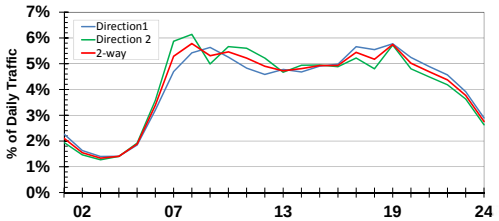
Expected role of transportation in sustainable urban development of Mega Cities

- **Integration is the key for success**
  - Spatial integration
  - Cross-sector integration
  - Modal integration



Traffic congestions; everywhere throughout the day

- **Hourly Traffic Distribution on MManila Roads[1)]**



1) Results from 11 survey stations, 2012

- **Traffic Demand and Impact (Metro Manila)**

		2012	2030	'30/'12
Traffic demand (million trips/day)		12.8	14.5	1.13
Public transport share in total demand		69%	69%	1.00
Occupancy of road space by private vehicles		78%	78%	1.00
Transport cost (USD million/day)		54	134	2.50
Air quality (million Tons/year)	GHG	4.79	5.72	1.19
	PM	0.014	0.019	1.36
	NOx	0.049	0.059	1.20

Note: 2030 is Do-nothing situation

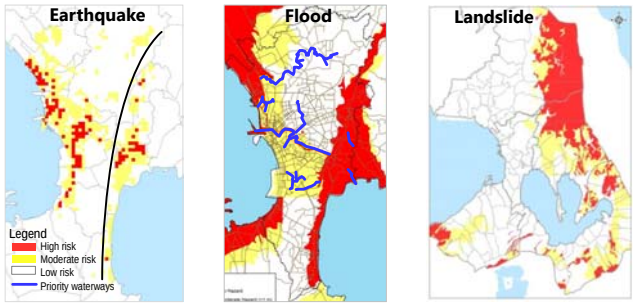
- **Congestions Scenes**

Who are to be blamed?
How can the situation be improved?

Hazard risks threaten large number of households.

- **No. of households living in hazard areas in Metro Manila**
  - **High risk areas: 0.5 million**
  - Moderate risk areas: 0.7 million
  - No. of ISFs living along waterways; 60,130
  - No. of ISFs in priority (8) waterways; 19,440

- **Hazard risk areas**



How can they be protected or where to be relocated???

Need for affordable housing is large.

- **Affordable housing needs (Metro Manila 2010)**
  - Backlog: 500,000 households
  - Resettlement: 560,000 households



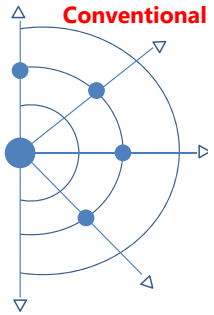

Where can they find sites for affordable housing being free from hazard risk?

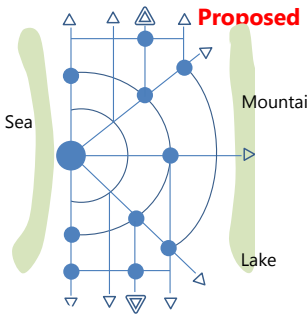
Distribution of Informal Settlers

Opportunity for sustainable growth

- **Redefine spatial structure through shift from radial/circumferential to ladder form**
  - Encourage movement of people from city center to suburban areas through TOD (public transport, housing, livelihood, etc.)
  - Retrofit city center areas
  - Recover green space and hazard risk free area

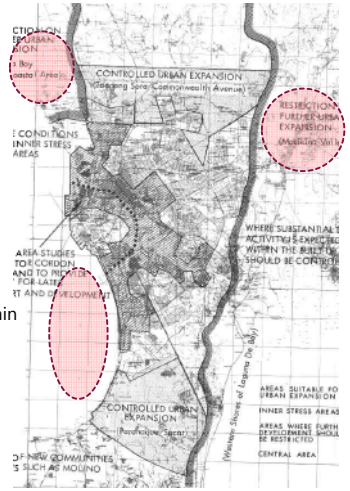
Road network pattern





Urban area expansion

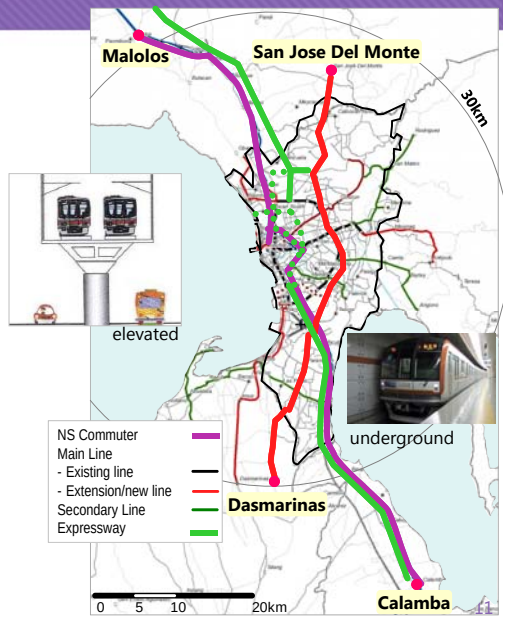
1977 Metro Plan



Urban area expansion

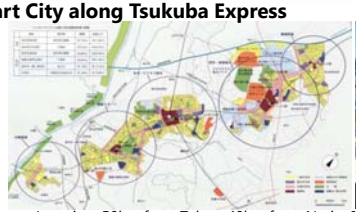
Role of transport vs sustainable growth

- **Opportunities**
  - Upgrade existing PNR and construct a subway to establish north-south public transport backbone
  - Connect NLEx and SLEx in city center areas
  - Develop secondary roads in integration with land developments
- **Impact on overall urban transport system**
  - Overall transport network performance and resilience increased
  - Intercity and urban traffic segregated and safety increased
  - Redistribution of population and socio-economic activities accelerated



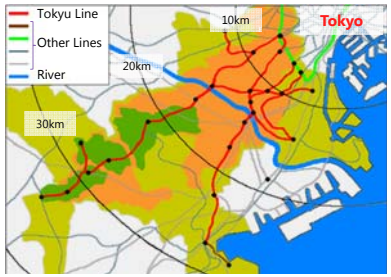
Approach of Tokyo Suburban rail + new town

- **Kashiwa-no-Ha Smart City along Tsukuba Express**



- Location: 50km from Tokyo, 40km from Narita International Airport
- Area：28,400 ha; Central part：2,700 ha
- Population：216,300 (2011)

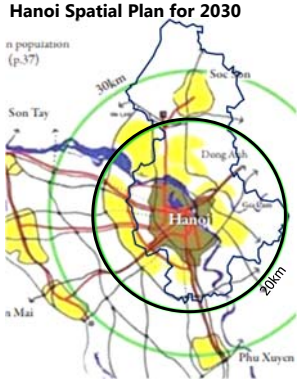
- **Tokyu Tama Denentoshi along Tokyu Denentoshi Line**



- Location: 20-30km from Tokyo
- Area：5,000ha
- Population：600,000 (2013)

Approach of other cities

Hanoi Spatial Plan for 2030



Population: 6.6 million
(3 million: previous Hanoi)

Source:
Vietnam Urbanization Review (World Bank, 2011) and other sources

Tokyo 23 Wards

Population: 8.9 million

Ho Chi Minh City

Population: 8.0 million

Seoul

Population: 11 million

Singapore

Population: 5 million

Integrated urban mass-transit network is a must!

- **Line1, 2 and 3 were failure?**
  - Share 15 – 20% of corridor traffic
- **Demand for Mass-transit in Mega Manila**

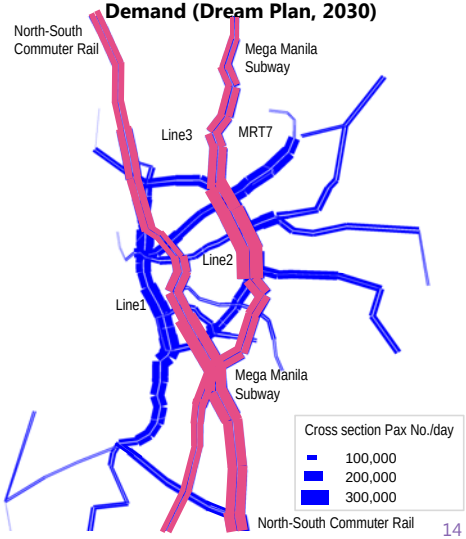
		2012	2030	'30/'12
Ridership (mil./day)	Metro Manila	1.5	7.4	4.9
	BRLC	0	2.1	-
	Total	1.5	9.1	6.1

- **Hierarchical railway network**
  - PNR/AER (suburban/urban backbone)
  - Primary urban
  - Secondary urban
- **Impact of integration (common fare)**
  - Ridership increase: +20%
  - Bus/jeepney ridership increase: + 2%
  - Impact on road traffic: - 4%
- **Expected modal share in 2030 (MManila)**
  - Railway: 41 %
  - Bus/Jeepney: 33%
  - Car: 26 %

(person trip-km)

Note: excluding walk trips

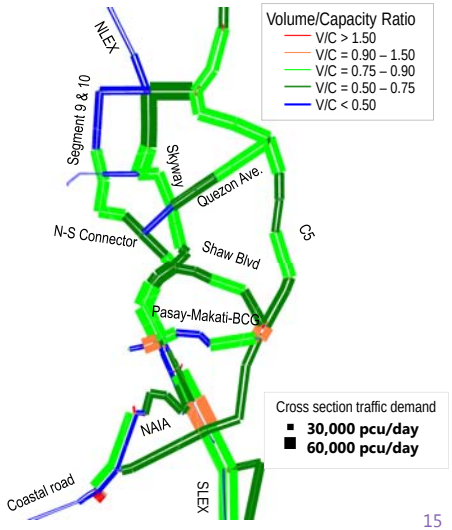
- **Distribution of Mass-transit Traffic Demand (Dream Plan, 2030)**



Is expressway system a must?

- **Role of urban expressway**
  - Attract long-trip vehicle traffic from at-grade urban roads
  - Provide congestion free fast travel to those who are willing to pay for such service
  - Strengthen network resilience
- **Should be integrated in terms of:**
  - Physical (between expressways, and with urban roads)
  - Toll system
  - Operational and management
  - Operational and management
- **Impact on road traffic**
  - 20% of pcu-kms of total road traffic

Distribution of Expressway Traffic Demand (Dream Plan, 2030)



The first priority must be given to the basic!

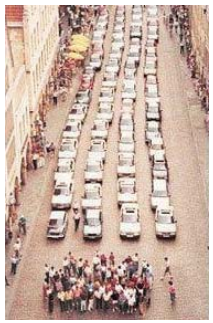
- At-grade roads development; missing links, upgrading, secondary roads
- Modernization of buses and public transport vehicles, operation and management
- Traffic management: facilities, awareness, enforcement, ITS, TDM

Early 1900s

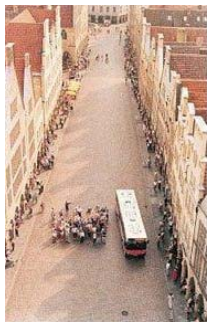
At Present

Why para-transit and motorcycles are not welcomed in many cities?

Space required to transport 60 people

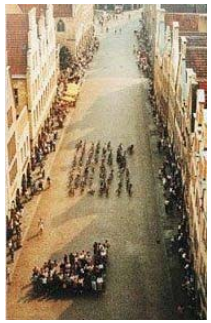


Car



Bus

Para-transit



Bicycle/ Motorcycle

Source: Based on the poster of City of Muenster Planning Office (2001)

Impact of Dream Plan

2012 (Today)

Dream Plan Projects

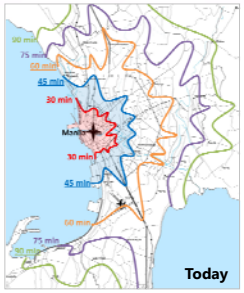
- **At-grade roads (urban roads)**
  - Missing links: C3, C5, bridges and others
  - New roads (137km)
  - Flyovers
  - Sidewalks and pedestrian facilities
  - Secondary roads in periurban areas
- **Expressways**
  - Intercity expressway (426 km)
  - Urban expressway (78 km)
- **Urban/Suburban rails**
  - Main line: 246 km (6 lines)
  - Secondary line: 72 km (5 lines)
  - Integrated lines and improved accessibility
- **Bus/Jeepneys**
  - Modern fleet and operation
  - Rationalized route structure
  - Improved terminals and interchange facilities
- **Traffic management**
  - Traffic signals
  - Traffic safety
  - Traffic enforcement and education
  - ITS

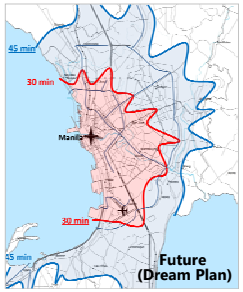
2030 Dream Plan

Can Dream Plan be justified?

- **Budget envelop**
  - 5% of GDP for total national infrastructure, of which 50% for transport (2014 – 2030) = USD188 billion
  - 60% of national for Mega Manila = USD106 billion
- **Total investment cost up to 2030: US$ 65.3bil.**
- **Economic impact:**
  - VOC saving: USD14.0 bil./year
  - Time cost saving: USD12.7 bil./year

  } **USD26.8 bil/year**
- **Financial impact:**
  - Toll and fare revenue: **USD2.7 bil./year**
- **Social impact:**
  - Public transport fare saving: **USD0.4 /person/day**
  - Travel time reduction: **30 min./person•trip**
- **Environmental impact:**
  - Reduction in GHG: 10,233 ton/day
  - Reduction in PM: 6.7 ton/day
  - Reduction in NOx: 50 ton/day





Lessons learned

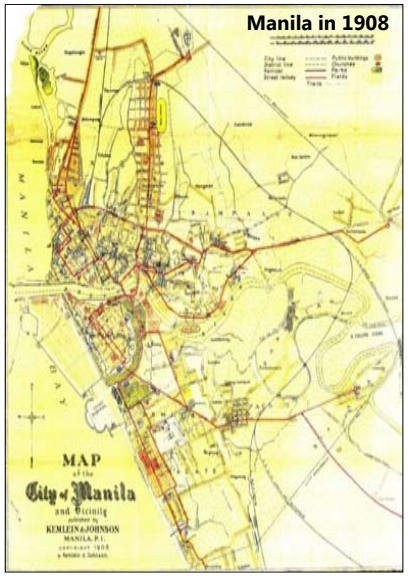
- **Integrated Approach**
  - Transportation together with core urban issues
  - Spatial hierarchy (region, city, local)
  - Network and operation outcome and service oriented
- **Shared Understanding and Consensus Building**
  - Participatory planning
  - High level consultation
  - Information sharing across the society
- **Focus on Implementation Strategy**
  - Policy commitment
  - Inter-agency coordination
  - Private sector initiatives

Main Transportation Studies Conducted in Metro Manila

1945	Major Thoroughfare Plan
1973	**UTSMMA (comprehensive urban transport masterplan)**
1977	METROPLAN (land use cum transport strategy)
1981	**MMUTIP (bus amalgamation project)**
1983	MMUTSTRAP (urban transport strategy study)
1984	**JUMSUT (bus/jeepney rerouting along LRT1 and TOD)**
1996	**MMUTIS (comprehensive urban transport masterplan)**
2013	**Metro Manila Transport Roadmap Study**

Learn from its own experiences (failure and success)

- Manila's Transportation in 1920 – 30s
  - Population: approximately 300,000 in 1920 – 30
  - Well planned urban area
  - Extensive tranvia network (track length): ~ 85km
  - Tranvia covered about 40% of total demand.
  - Strategic integrated development by private sector: suburban line + housing development + power supply
  - Diversified urban transport modes
  - Good traffic management



Thank you for your attention…