



Transport Infrastructure Framework for the Philippines

National Academy of Science and
Technology (NAST) Roundtable Discussion

Hyatt Hotel, Manila

March 6, 2014



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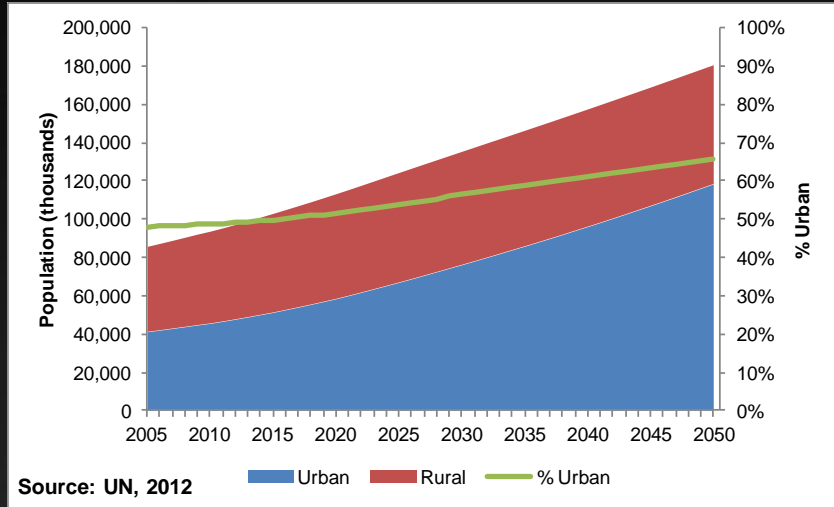
Institute of Civil Engineering &
National Center for Transportation Studies
University of the Philippines Diliman

Outline

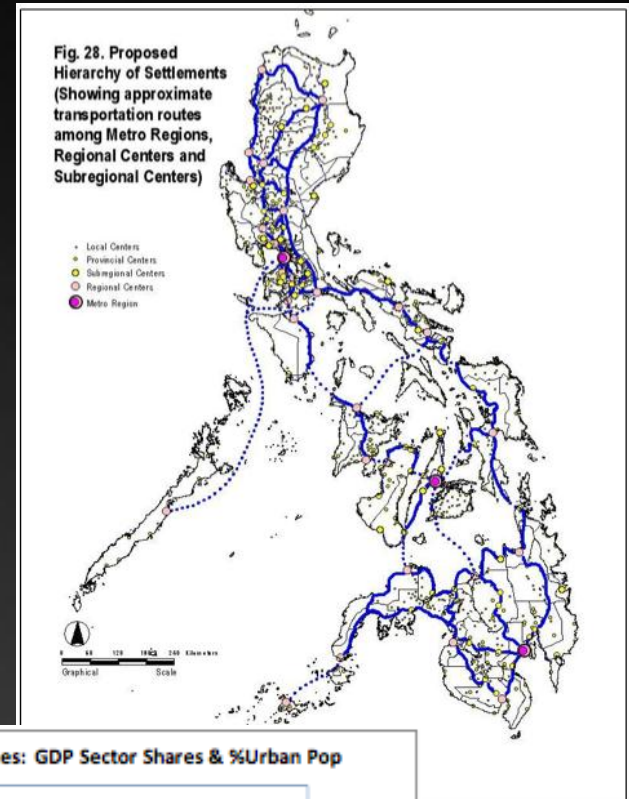
- Urbanization and economy
- Relationship between infrastructure and poverty
- Poverty incidence
- Transport and poverty
- Framework development: catch up or go strategic?
- Visioning & benchmarking
- Application in the Philippines
- Where do we invest?

Urbanization and Economy

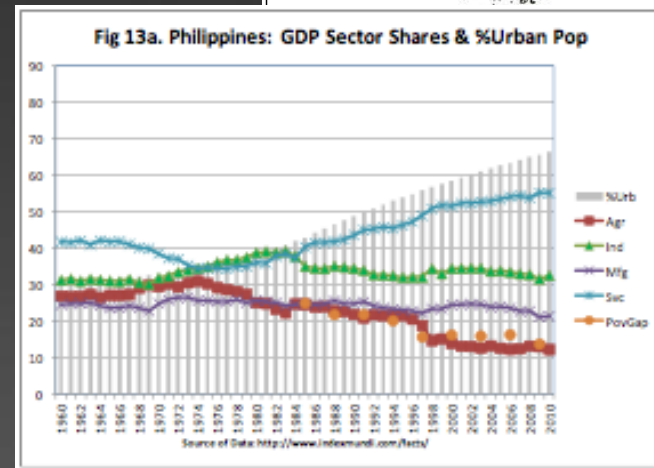
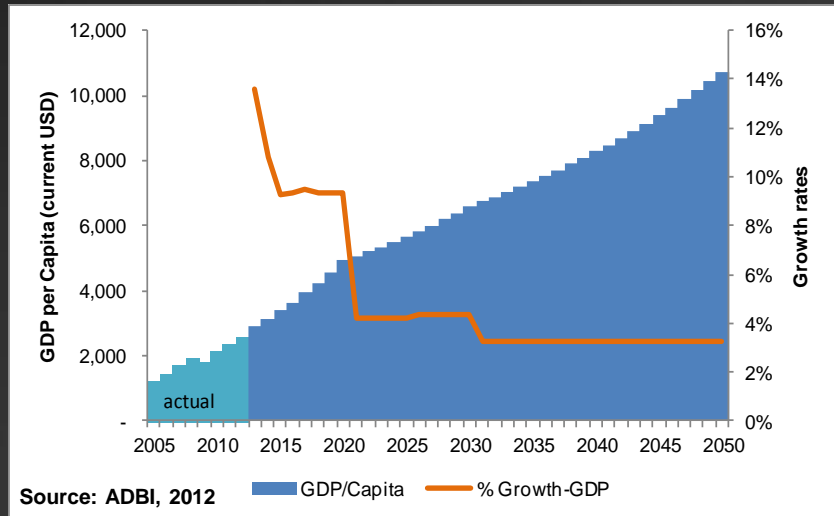
Urban and rural population



National Spatial Strategy (2013)



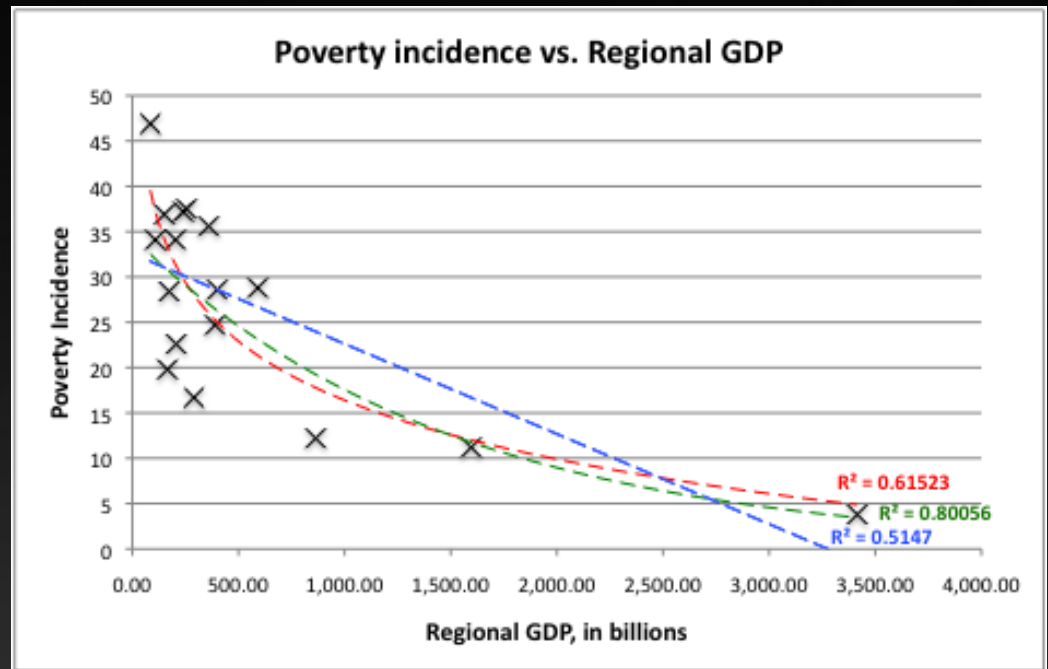
Economic performance



Relationship between infra & poverty

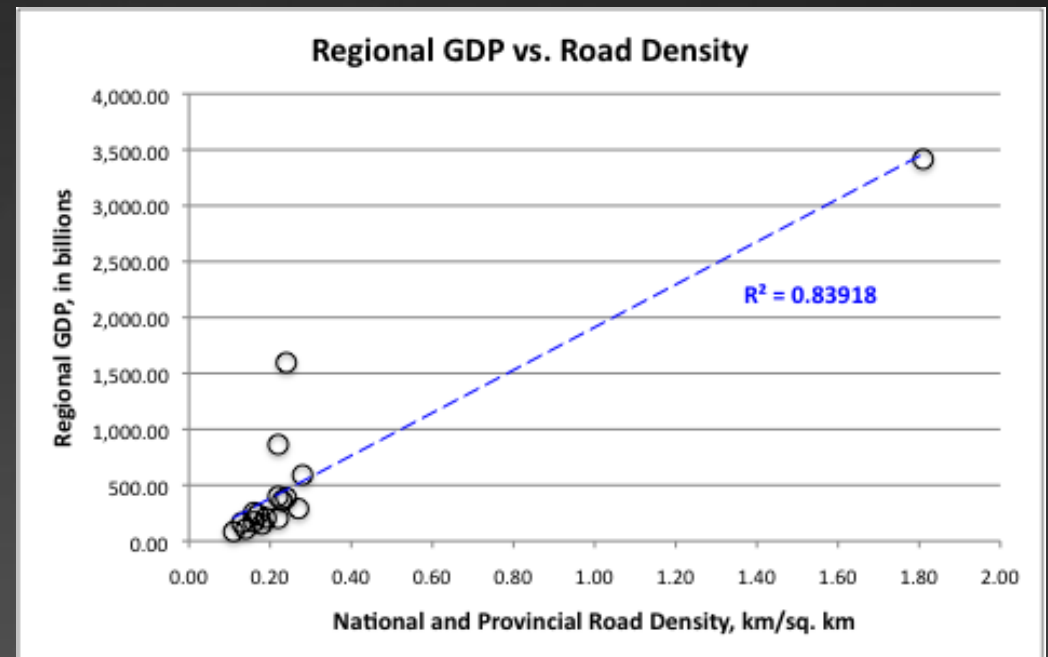
There is a strong relationship between GDP and poverty

Higher GDP → Less poverty



There is a strong relationship between road density and GDP

Higher density → Higher GDP



Poverty Incidence (NSCB, 2013)



Highest 10 Provinces

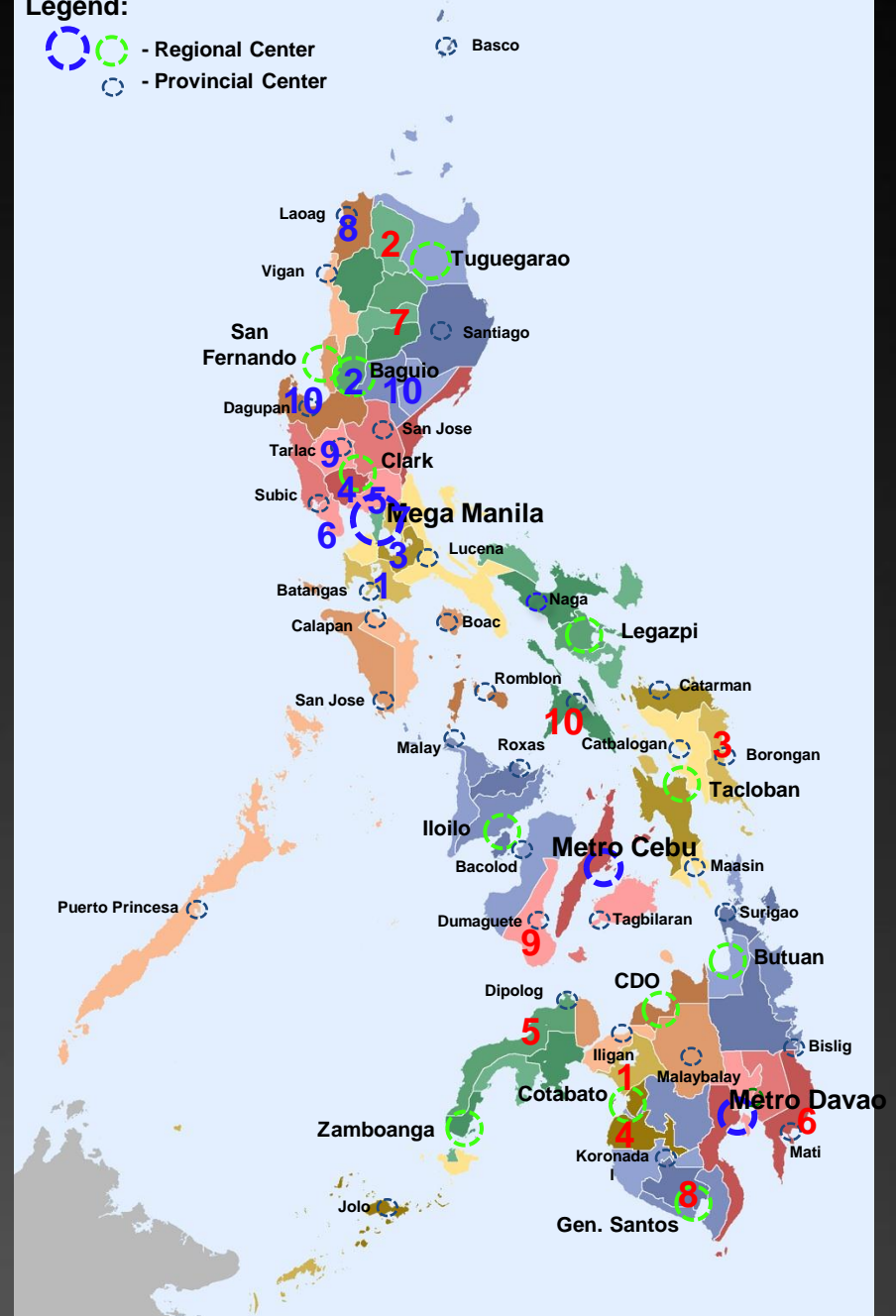
- 1 – Lanao del Sur (68.9%) – ARMM
- 2 – Apayao (59.8%) – CAR
- 3 – Eastern Samar (59.4%) – Reg. 8
- 4 – Maguindanao (57.8%) – ARMM
- 5 – Zamboanga del Norte (50.3%) – Reg. 9
- 6 – Davao Oriental (48.0%) – Reg. 11
- 7 – Ifugao (47.5%) – CAR
- 8 – Saranggani (46.5%) – Reg. 12
- 9 – Negros Oriental (45.3%) – Reg. 7
- 10 – Masbate (44.2%) – Reg. 5

Lowest 10 Provinces

- 1 – Cavite (4.1%) – Reg. 4A
- 2 – Benguet (4.3%) – CAR
- 3 – Laguna (6.3%) – Reg. 4A
- 4 – Pampanga (6.4%) – Reg. 3
- 5 – Bulacan (6.7%) – Reg. 3
- 6 – Bataan (7.3%) – Reg. 3
- 7 – Rizal (7.6%) – Reg. 4A
- 8 – Ilocos Norte (11.0%) – Reg. 1
- 9 – Tarlac (14.0%) – Reg. 3
- 10 – Nueva Vizcaya (17.0%) – Reg. 2
Pangasinan (17.0%) – Reg. 1

Legend:

-   - Regional Center
-  - Provincial Center



Poverty in terms of population* (NSCB, 2013)

Highest 10 Provinces



- 1 – Cebu (933,480 / 22.4%) – Reg. 7
- 2 – Negros Occidental (761,860 / 26.2%) – Reg. 6
- 3 – Lanao del Sur (643,017 / 68.9%) – ARMM
- 4 – Camarines Sur (610,495 / 33.5%) – Reg. 5
- 5 – Negros Oriental (582,860 / 45.3%) – Reg. 7
- 6 – Leyte (570,742 / 31.9%) – Reg. 8
- 7 – Bukidnon (562,551 / 43.3%) – Reg. 10
- 8 – Maguindanao (546,048 / 57.8%) – ARMM
- 9 – North Cotabato (538,438 / 43.9%) – Reg. 12
- 10 – Davao del Sur (516,911 / 22.3%) – Reg. 11

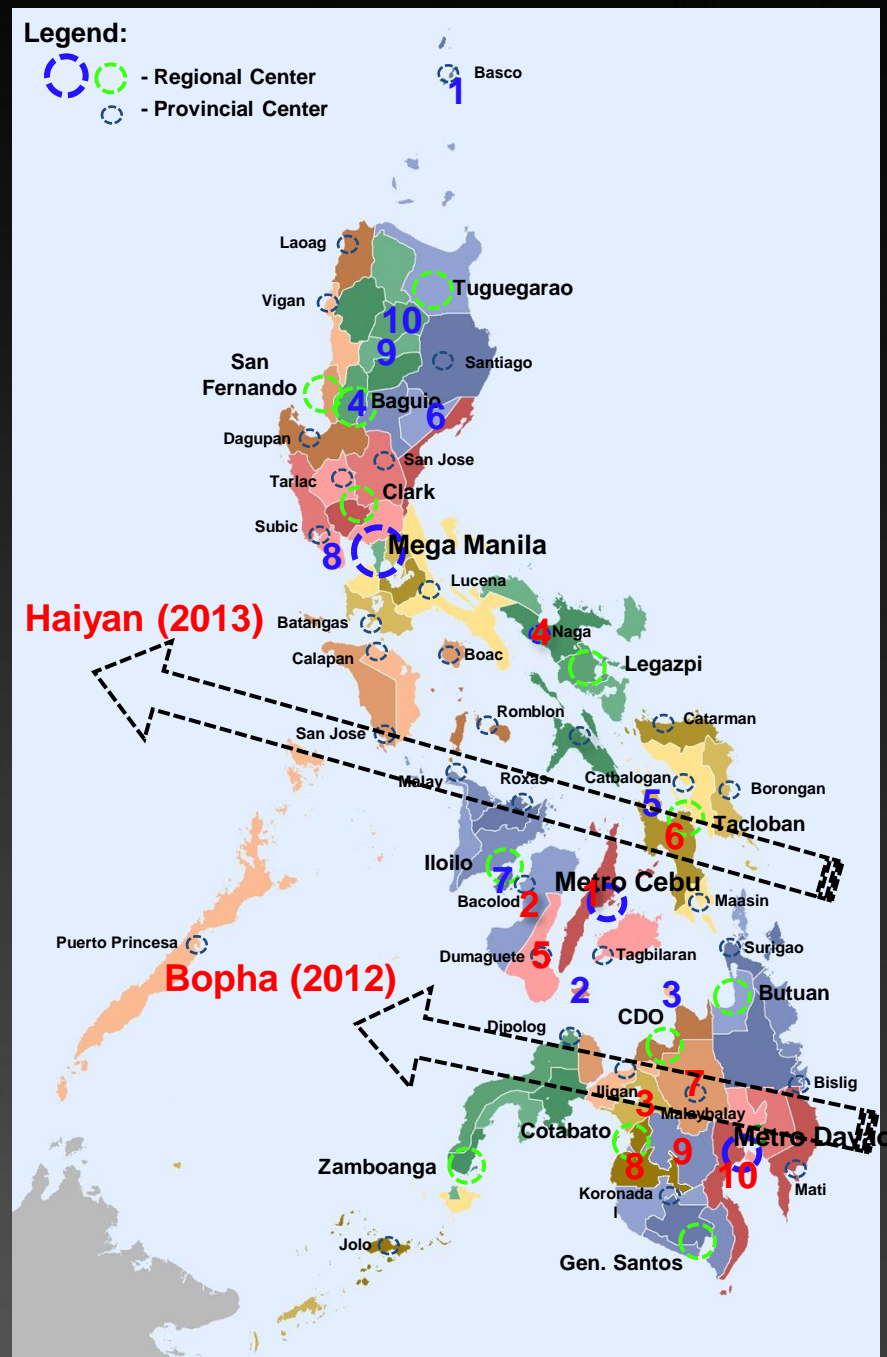
Lowest 10 Provinces

- 1 – Batanes (3,554 / 21.4%) – Reg. 2
- 2 – Siquijor (22,403 / 24.6%) – Reg. 7
- 3 – Camiguin (29,249 / 34.9%) – Reg. 10
- 4 – Benguet (31,073 / 4.3%) – CAR
- 5 – Biliran (33,485 / 20.7%) – Reg. 8
- 6 – Quirino (38,363 / 21.7%) – Reg. 2
- 7 – Guimaras (42,692 / 26.2%) – Reg. 6
- 8 – Bataan (50,187 / 7.3%) – Reg. 3
- 9 – Mt. Province (53,658 / 34.8%) – CAR
- 10 – Kalinga (59,275 / 29.4%) – CAR

*Based on 2012 poverty incidence and 2010 population

Legend:

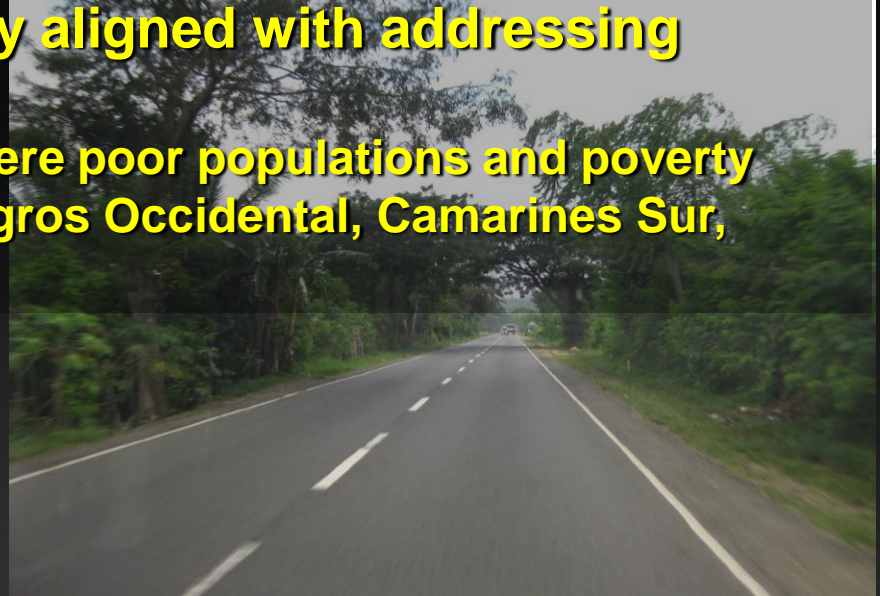
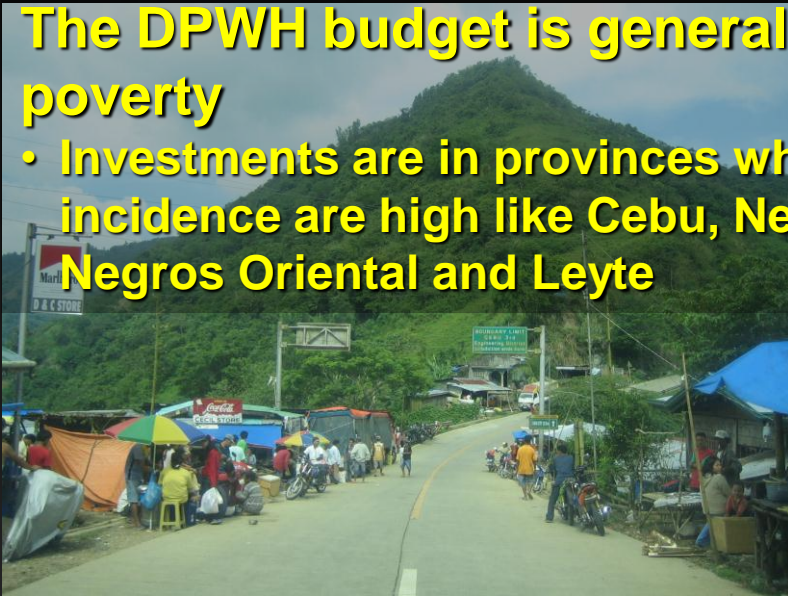
-  - Regional Center
-  - Provincial Center



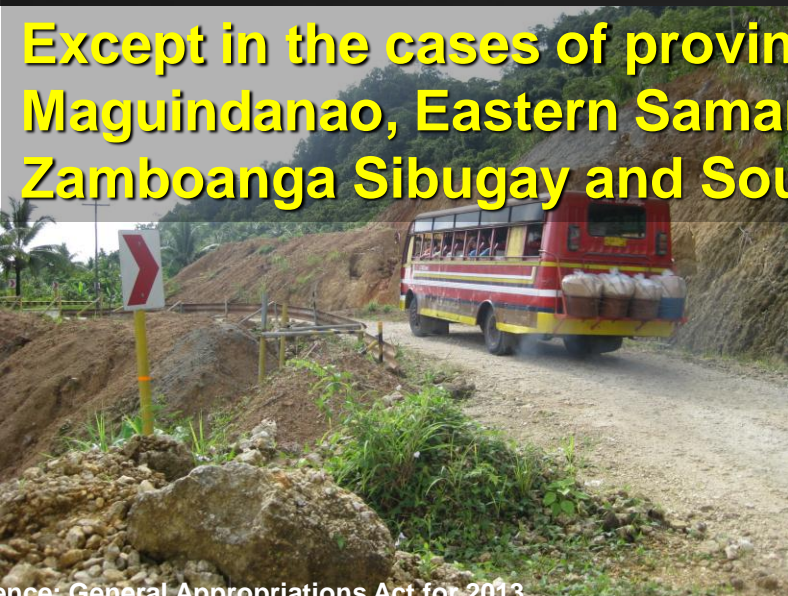
Budget – where is it going?

The DPWH budget is generally aligned with addressing poverty

- Investments are in provinces where poor populations and poverty incidence are high like Cebu, Negros Occidental, Camarines Sur, Negros Oriental and Leyte

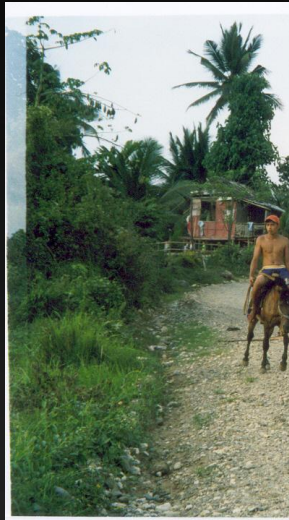


Except in the cases of provinces like Lanao del Sur, Maguindanao, Eastern Samar, Occidental Mindoro, Zamboanga Sibugay and Southern Leyte



Transport and Poverty

Local roads provide access for communities



Classification	Length of roads, km			% Paved
	Total	Unpaved	Paved	
National	31,597.7	6,154.2	25,443.4	80.52
Provincial	31,233.2	21,457.6	9,775.6	31.30
City	14,739.4	5,537.6	9,201.8	62.43
Municipal	15,816.0	10,422.0	5,394.0	34.10
Barangay	121,702.0	113,682.0	8,020.0	6.59
Total	215,088.3	157,253.5	57,834.8	26.89



- Access to:
- Education
 - Health services
 - Markets
 - Jobs/employment
 - Other social services




Required:

Framework for Transport Infrastructure Development

STRATEGIC or CATCH-UP?

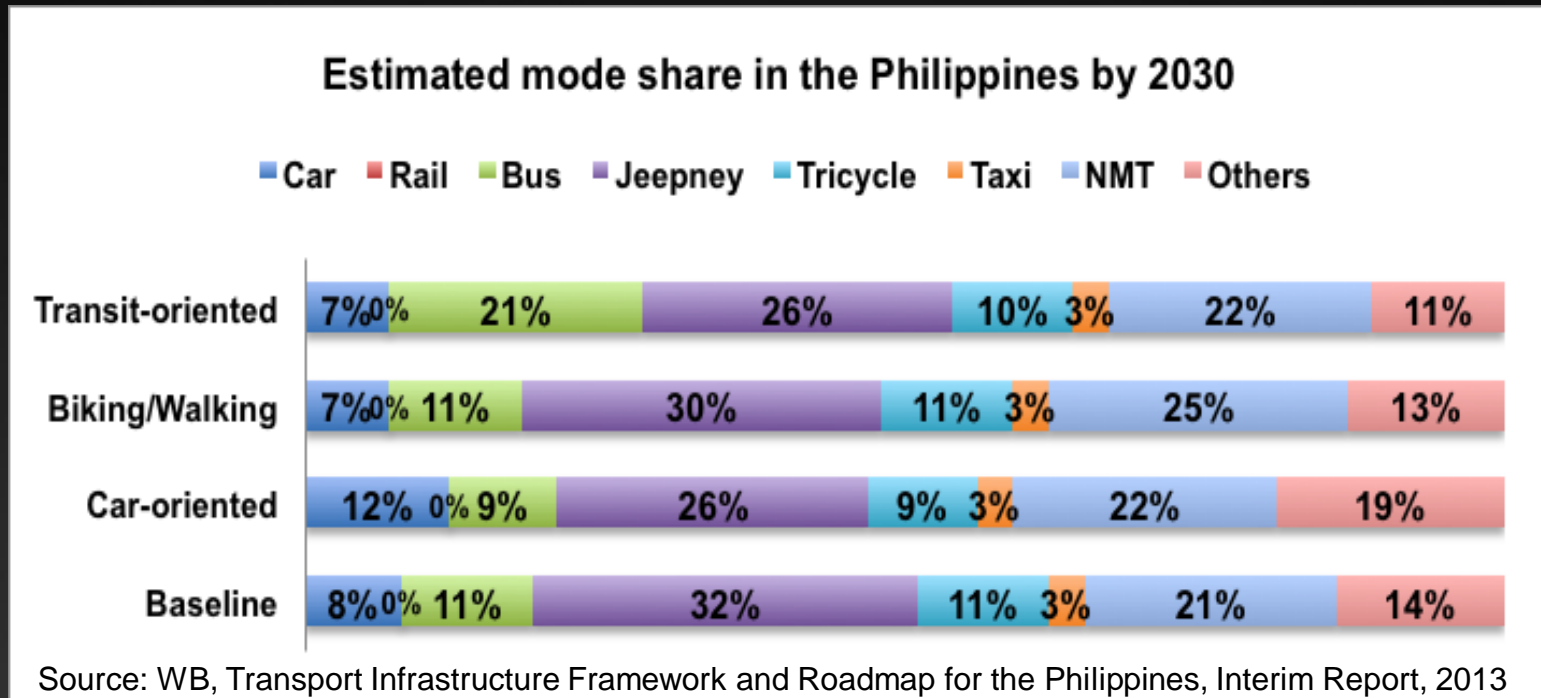
How?

Visioning → Future image of cities and transport

Case	Characteristic Policies	Future Image for Transport
LARGE CITY 	<p>A. Rail transit (MRT or LRT) introduced starting 2025, targeting perhaps at least 2 lines for each city by 2050.</p> <p>B. BRT and bus are introduced starting 2020 and 2015, respectively.</p> <p>C. EV is pursued as dominant mode for modern jeepneys and tricycles.</p> <p>D. Hybrid and electric cars will replace conventional cars though not as widely as in Metro Manila.</p>	<ul style="list-style-type: none">- Large cities will have mass transit systems;- Modern jitneys will serve feeder routes;- electric tricycles will serve residential areas and local streets;- Significant number of cars will be hybrid or electric.- Walkable and bicycle-friendly cities

Mode Shares

FUTURE SCENARIOS



This assumes that there is no aggressive push for rail development in the country both for urban and long distance services.

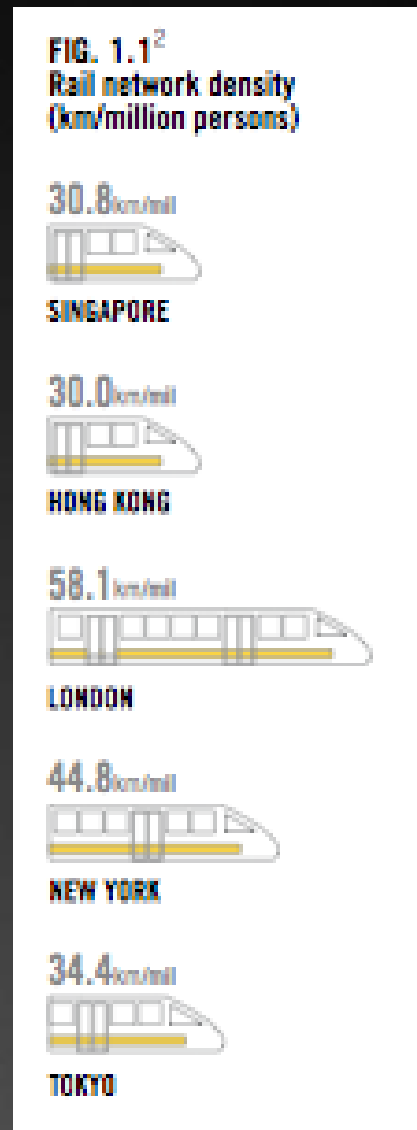
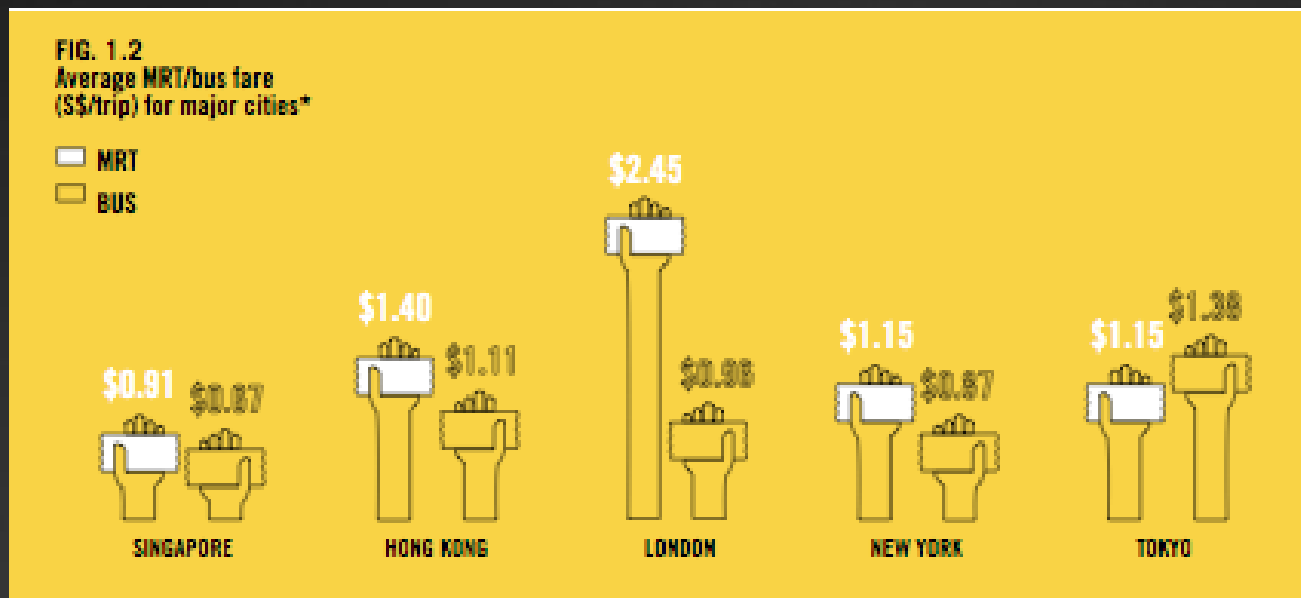
How?

Benchmarking...What are our neighbors doing?

Example: Singapore

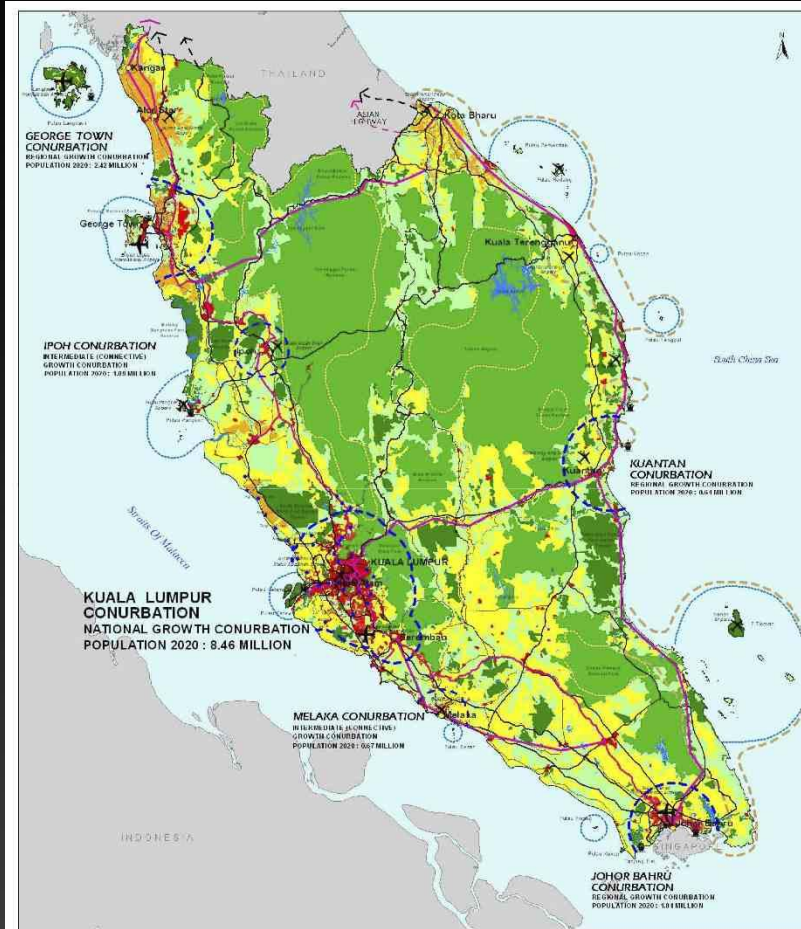
Strategic thrusts

- Making public transport a choice mode
- Managing road use
- Meeting the diverse needs of the people



Example: Malaysia

National Spatial Framework (Karim, 2012)



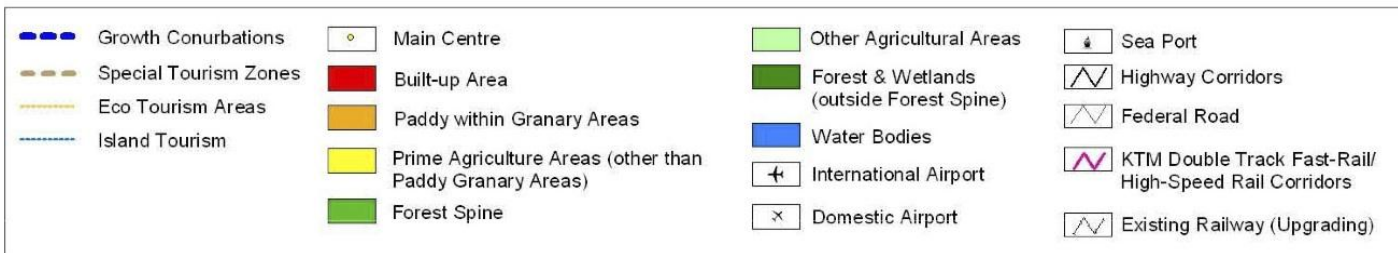
IP 1 : NATIONAL SPATIAL FRAMEWORK 2020

National Physical Plan

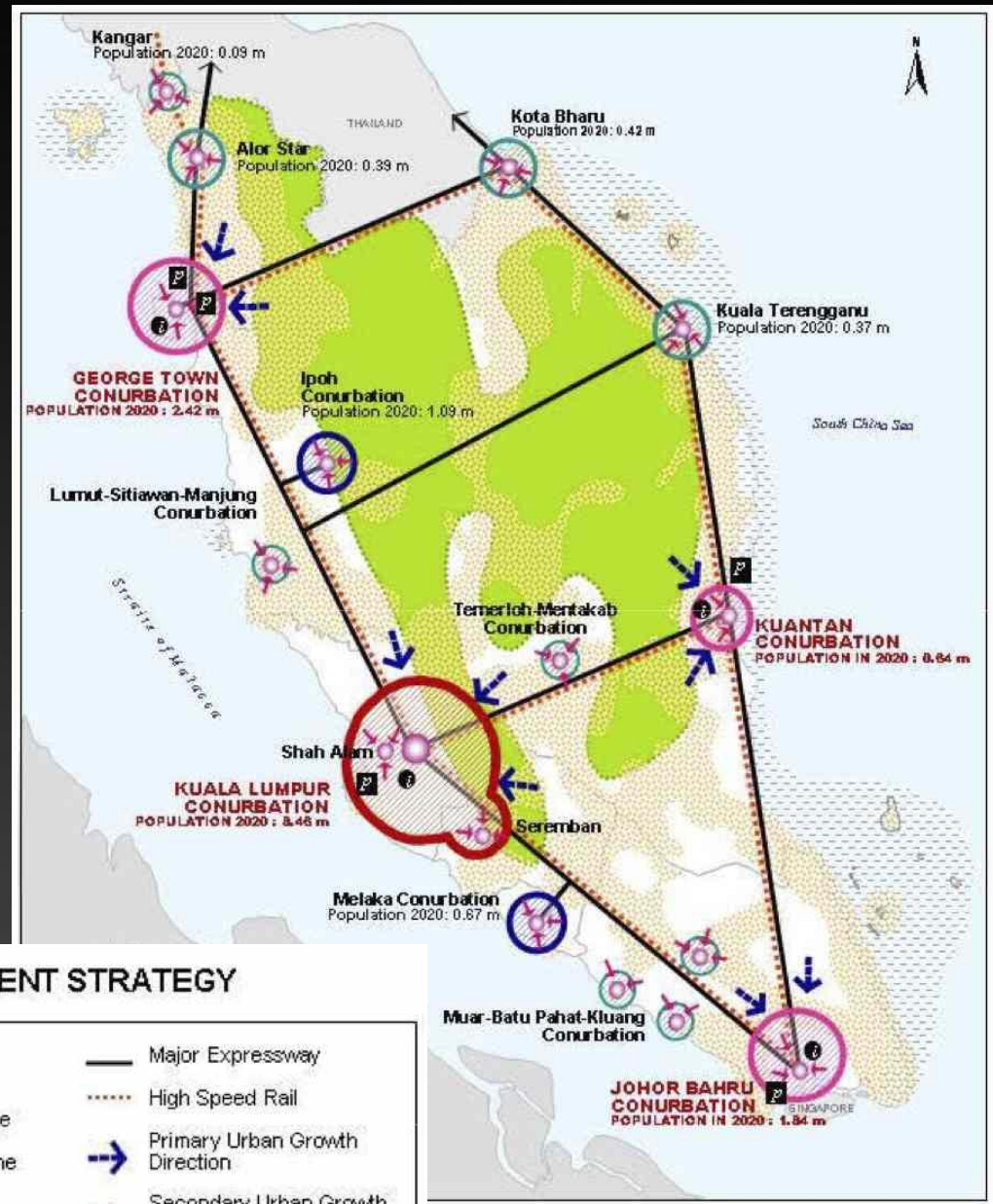
GOAL:

The establishment of an efficient, equitable and sustainable National spatial framework to guide the overall development of The country towards achieving developed nation status by 2020

IP 1 : NATIONAL SPATIAL FRAMEWORK 2020



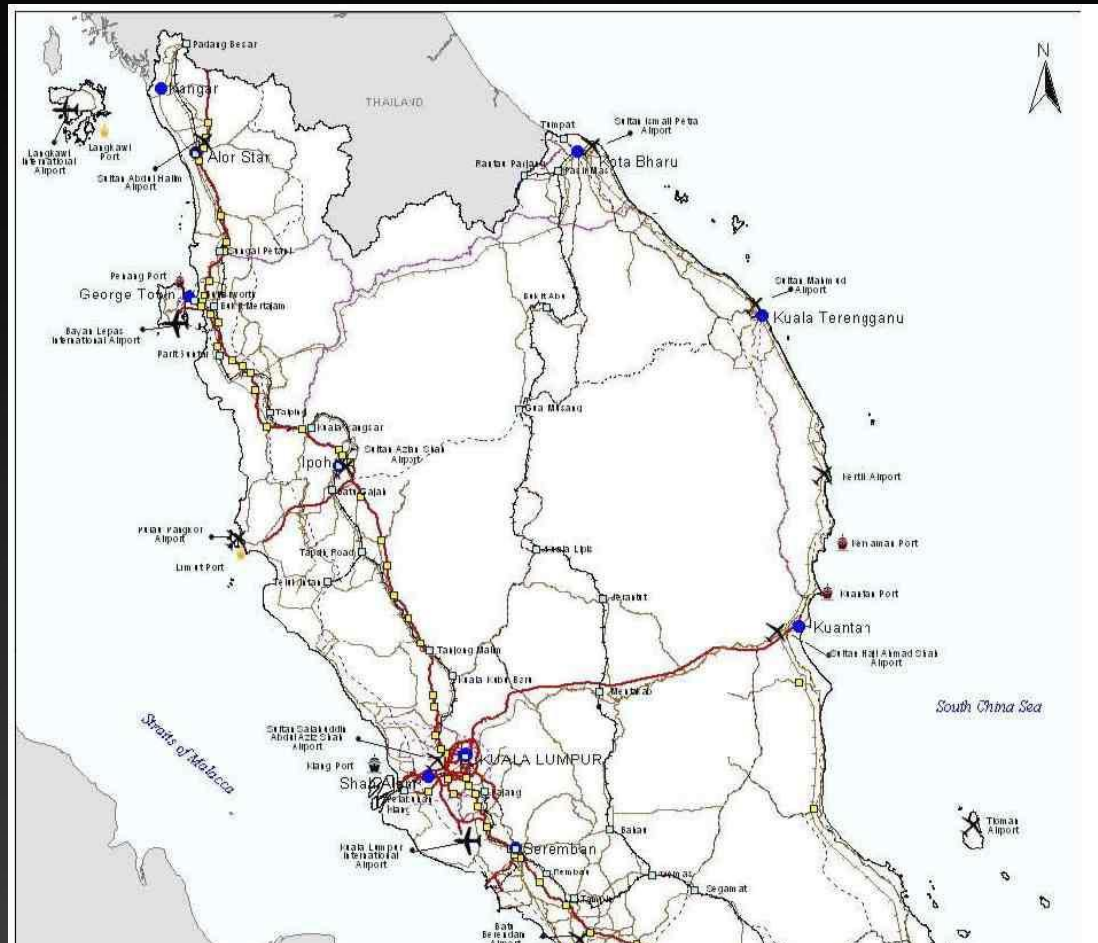
Selective Concentration Development Strategy (Karim, 2012)



IP 2 : SELECTIVE CONCENTRATION DEVELOPMENT STRATEGY




Integrated National Transportation Network (Karim, 2012)




IP 13 : INTEGRATED NATIONAL TRANSPORTATION NETWORK


 Existing and Committed Expressway


 Proposed Expressway

 Proposed Highway (Actual Alignment)

 NPP Proposed Highway

 NPP Proposed Road Upgrading (Coastal Road)


 Proposed High-Speed Rail


 Major Federal / State Road


 Existing Railway

 International Airport


 Domestic Airport

 National Sea Port

 Regional Sea Port

 Coastal / Feeder Sea Port

 Rail Station

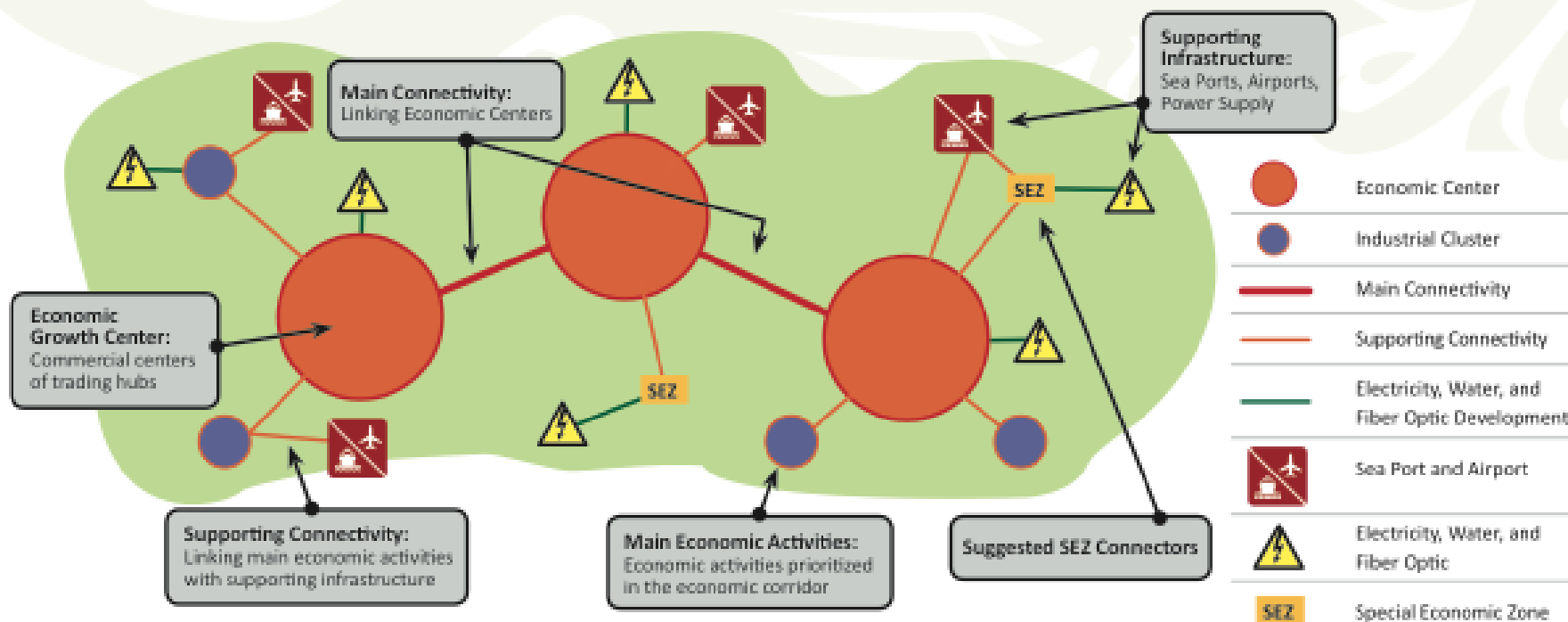
 Interchange

 State Capital

Example: Indonesia

Economic Master Plan (2013)

Indonesia's Economic Corridor Development: The development of main economic activities in the centers of economic growth accompanied by strengthening the connectivity between economic centers, the location of the main economic activities and supporting facilities



Economic Master Plan (2013)



Figure 2.2
Concepts of Gate Port and
International Airport in The
Future

Strategic Framework and the Policy of Connectivity Strengthening

The aims and objectives of the National Connectivity Strengthening are:

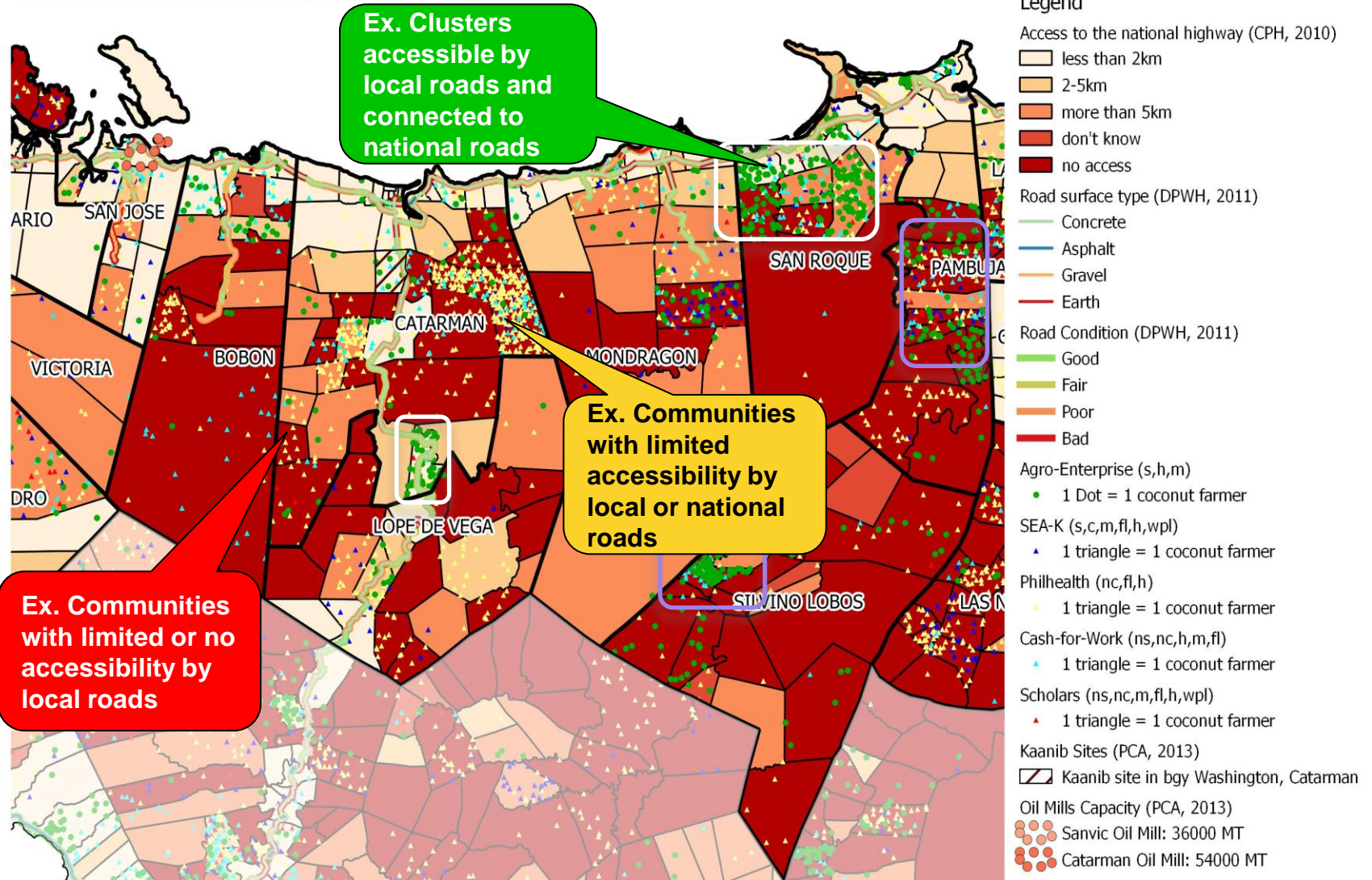
1. Connecting the centers of major economic growth based on the principles of integration and not similarity, through "inter-modal supply chain systems".
2. Expanding economic growth through accessibility improvement from the centers of growth to the hinterland.

Master Plan (2013)

Posture Forming Components of the National Connectivity			
SISLOGNAS	SISTRANAS	REGIONAL DEVELOPMENT (RPIMN and RTRWN)	ICT
1. Decide Key Commodities	1. Transportation Safety	1. Local Economy Improvement	1. Migration Toward Convergence
2. Strengthen Logistic Services	2. Transportation Procurement	2. Human Resource Capacity Building	2. Equitable Access and Services
3. Infrastructure Network	3. Transportation Network	3. Infrastructure Development	3. Broadband Network Development
4. Human Resources Capacity Building	4. Human Resource and Science and Technology	4. Institutional Capacity Building	4. Improving Network Security and Information System
5. ICT Improvement	5. Maintenance of Environment Quality	5. Improvement of Access to Working Capital	5. Integration of Infrastructure Application, and National Data
6. Regulation Harmonization	6. Provision of Development Fund	6. Improving Basic Social Facilities	6. Increasing e-literacy, independent domestic ICT industry, ICT HR availability
7. National Logistic Board is Needed	7. Improvement of State Administration		7. Synergy of National ICT Activities and Investments
<p align="center">Strengthening National Connectivity Carried Out by Integrating and Synergizing Sislognas, Sistranas, Regional Development, and ICT Plans</p>			

Building an infra network for inclusive growth: Example from NAPC

Coconut Industry Roadmap: Farmer Beneficiaries Province of Northern Samar



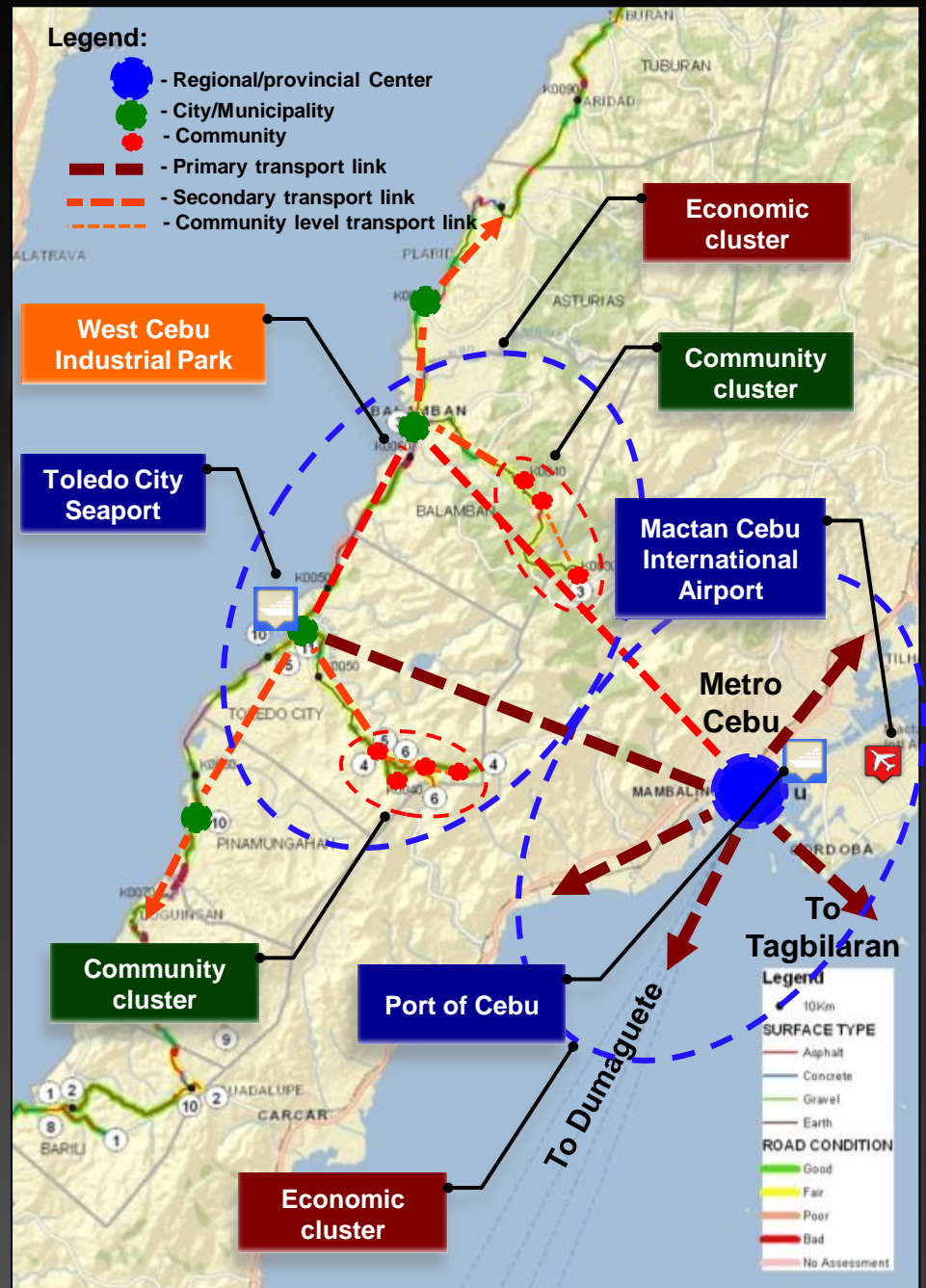
Ex. Communities with limited or no accessibility by local roads

Ex. Clusters accessible by local roads and connected to national roads

Ex. Communities with limited accessibility by local or national roads

Source: NSO CPH, 2010 and RSBSA, 2012
 NAPC generated map using QGIS 1.8.0
 s: secured land tenure; ns: without land tenure; h: with less than 1.5 farming lands; m: monocrop farmer; c: cct beneficiary; nc: non-cct; fl: farm laborer; wpl: without poultry or livestock) Secured tenurial status are classified farmers who are the registered owner, heir of registered owner, rent-free occupant, occupant of forest land based on CBFMA or occupant of forest land based on stewardship agreement

Transport and inclusive development in a provincial or regional setting



(Base map Source: DPWH, 2013)

Transport and inclusive development in an urban setting

JICA estimate* of losses due to congestion
Metro Manila: **PhP 2.4 B/day**
Bulacan, Laguna, Rizal, Cavite: **PhP 1.0 B/day**

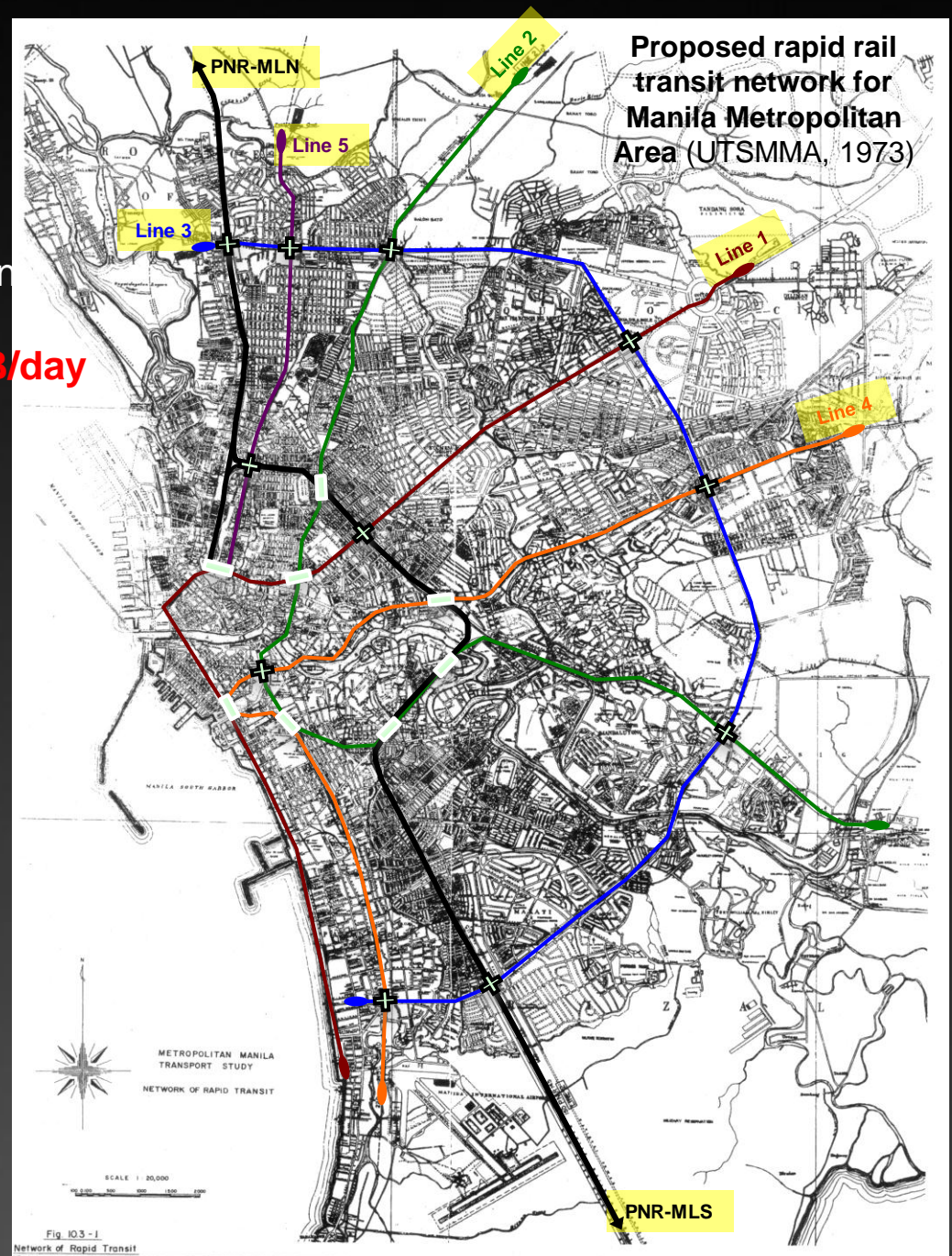
How do we make commuting

Easier? (comfortable)
Affordable? (inexpensive)
Efficient? (less travel time)
Etc.

Social equity!

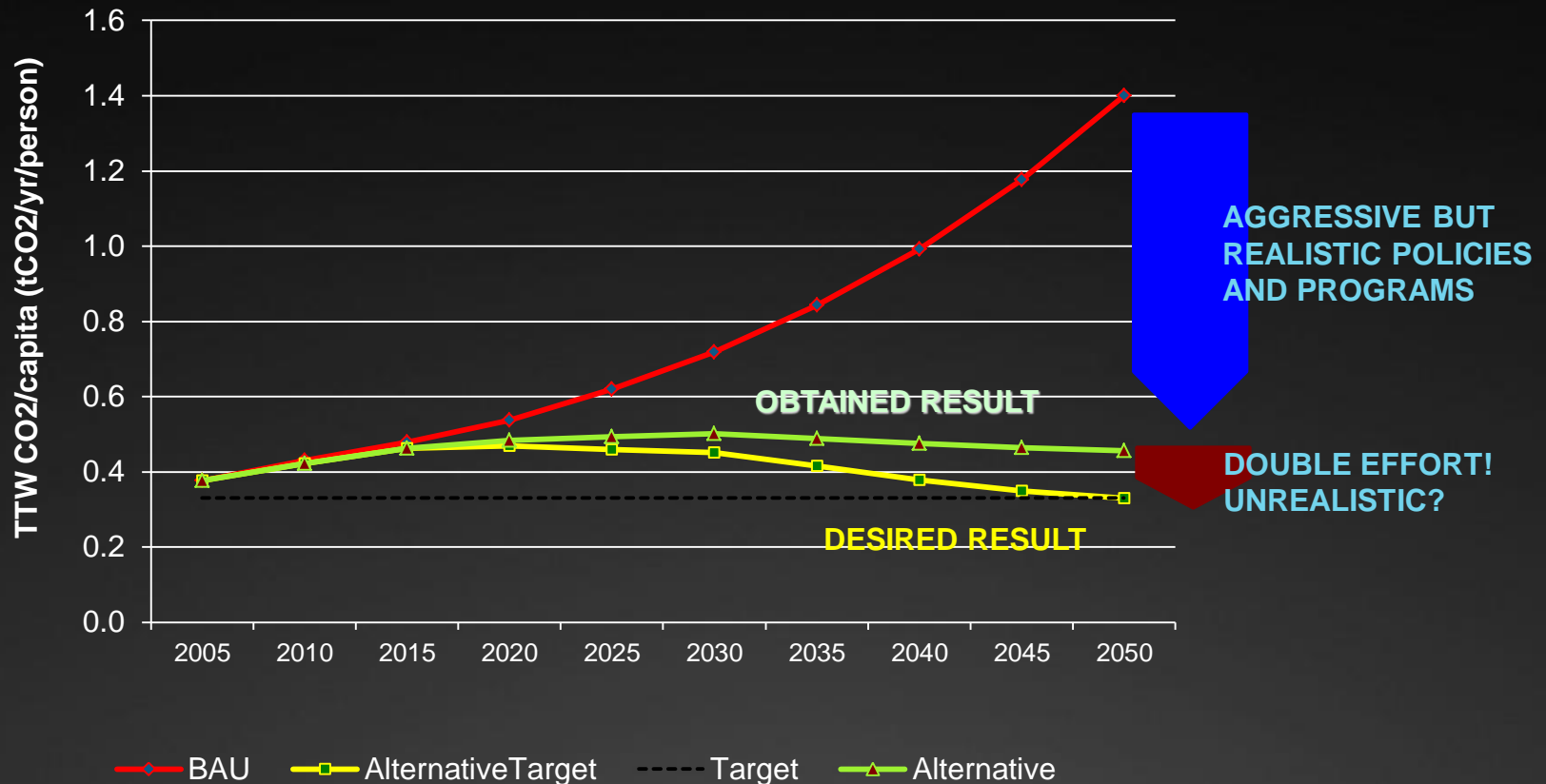
Ex. Efficient transport to address:

Issues on relocation
Issues on sprawl



*JICA (2013) Transport Infrastructure Framework and Roadmap for the Greater Capital Region

Backcasting and visioning outcomes for carbon reduction



Further reduction requires, for example:

- Doubling passengers shifting from 2W/3W to bus and rail
- Significant shift of freight transport from truck and air to rail

Where do we invest?

Where do we need to invest?

- All weather national roads and bridges
- High quality local roads
 - Farm to market roads
 - Access roads to tourism areas
- Urban transport systems
 - Mass transport (BRT and Rail)
 - Pedestrian and cycling facilities
- Modern airports and ports
 - Upgraded passenger terminals
 - Improved capacity for aircraft and sea craft



Challenges:

What to prioritize?

How to prioritize?

Approach should be evidence-based!



Philippines Transport Infrastructure Framework Plan

(WB, Interim Report, 2013)

VISION

To provide an integrated, responsive, effective, and efficient transport system that fosters and supports inclusive growth and poverty-reduction, continued regional and national economic development to create opportunity for all system users, safely and securely transports people and goods, is environmentally responsible and improves quality of life, optimizes existing transport assets, and that is implemented by trusted entities accountable to the citizens of the Republic of the Philippines.

Economic Vibrancy

Safety and Security

Project Delivery

Maintenance and
Operations

Environmental and
Social Sustainability

Philippines Transport Infrastructure Framework Plan

(WB, Interim Report, 2013)

OUTCOMES

GOALS

	Transport for Growth	Inclusive Growth	Urban Transport	Resilient Transport	Improving Efficiency/ Effectiveness of Transport Sector
Economic Vibrancy	●	●	●		
Maintenance and Operations		●			●
Safety and Security	●			●	
Environmental and Social Sustainability				●	
Project Delivery					●

Salamat po sa inyong pakikinig!

Acknowledgement

Data from:

**Department of Public Works and Highways
Department of Transportation and Communications
National Anti-Poverty Commission
Institute for Transport Policy Studies
Clean Air Asia**

End of presentation