

# **LAND USE AND URBAN PLANNING TOOLS FOR DISASTER RISK REDUCTION IN METRO MANILA**

**Chairman Atty. Francis N. Tolentino  
Metropolitan Manila Development Authority**

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Hanoi, Vietnam

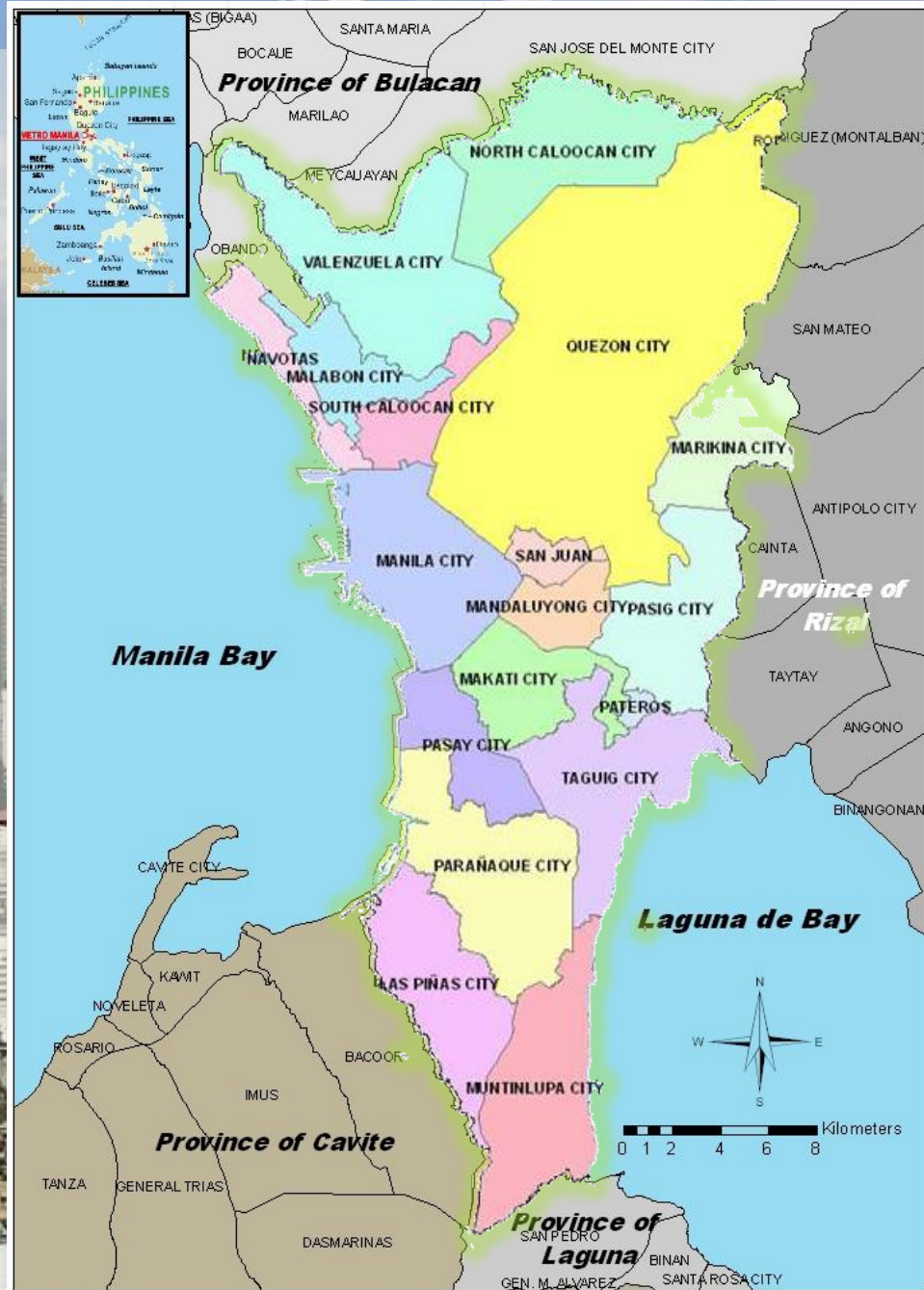


# METRO MANILA PROFILE:

Land Area	:	636 Km <sup>2</sup>
City	:	16
Municipality	:	1
Population	:	11,855,975*
		14,500,000**
Pop. Density	:	19,137/Km <sup>2</sup>

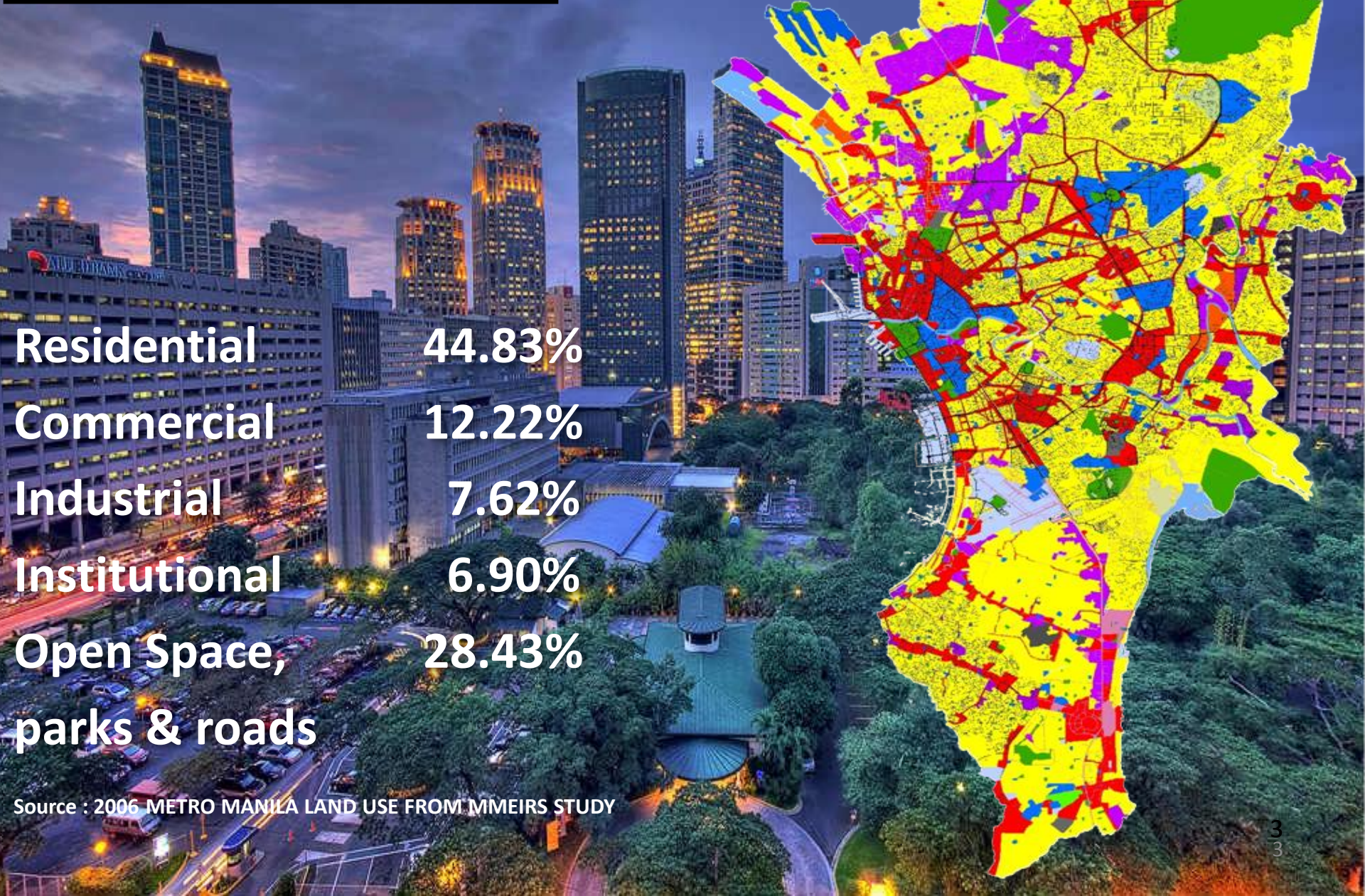
Source: \* 2010 National Census

\*\* Daytime Population due to in-migration  
of workers and employees





# METRO MANILA LAND USE PATTERN



<b>Residential</b>	<b>44.83%</b>
<b>Commercial</b>	<b>12.22%</b>
<b>Industrial</b>	<b>7.62%</b>
<b>Institutional</b>	<b>6.90%</b>
<b>Open Space, parks &amp; roads</b>	<b>28.43%</b>

Source : 2006 METRO MANILA LAND USE FROM MMEIRS STUDY



# Rapid Growth and Urbanization:

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- 11.8 Million (Night time population - Census 2010)
- 14.5 Million (Day time population - Estimated 2010)
- 18,553 population density (compared with the country's 308)
- 2.11 % Annual Population Growth
- 1.7% Average Population Growth Rate 1995-2007





# Proliferation of Informal Settlement

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- 60,130 informal settler families living along waterways in Metro Manila (June 2012)
- 556,526 – total no. of informal settler families in Metro Manila (2010)
- 104,219 (18%) are living in danger areas who are the ones usually affected calamities and disasters.





# Lack of Synchronized Land Use Planning

An aerial photograph of a densely populated urban area, likely in a developing country, showing a river cutting through the city. The buildings are tightly packed, with many having colorful roofs (red, orange, yellow, green). The river is dark and appears to be a natural waterway. The overall scene illustrates the lack of synchronized land use planning, as the urban development has not been coordinated with the river's course and the surrounding environment.

The lack of planning integration among LGUs is most glaring in metropolitan areas. This has compromised land use compatibility across local boundaries as well as the efficiency of basic services such as transportation and traffic management, security, and flood control and drainage.





# Lack of Application of Disaster Risk Reduction On Local Land Use and Development Planning

## Highly Vulnerable to Meteorologic and Geologic Hazards

- 4 to 6 typhoons per year average
- Perennial flooding
- Threat from a 7.2 magnitude earthquake

Source: (MMDA-PHIVOLCS MMEIRS Study)





### Legend

#### Multiple Climate Hazard Index

- 0.00 - 0.04
- 0.04 - 0.09
- 0.09 - 0.14
- 0.14 - 0.19
- 0.19 - 0.24
- 0.24 - 0.31
- 0.31 - 0.39
- 0.39 - 0.47
- 0.47 - 0.60
- 0.60 - 1.00

Country Boundary

1. Central Jakarta (DKI Jakarta)
2. North Jakarta (DKI Jakarta)
3. West Jakarta (DKI Jakarta)
4. Madol Kir (Cambodia)
5. East Jakarta (DKI Jakarta)
6. Rotano Kiri (Cambodia)
7. **National Capital Region (Philippines)**
8. South Jakarta (DKI Jakarta)
9. Bandung (West Java)

# Vulnerability to Disasters

Metro Manila ranks 7th among the 530 Southeast Asian cities in Climate Change vulnerability.

Source: Climate Change Vulnerability Mapping for South Asia of International Development Research Center (IRD)



# Mandate (Republic Act 7924)



## Metropolitan Manila Development Authority

MMDA shall perform **planning, monitoring, coordinating, and implementing functions**, and exercise **regulatory and supervisory authority** over delivery of metro-wide services

Metropolitan Manila is treated as a **special development and administrative region** subject to the **direct supervision of the President**

### *Fund Sources:*

\* P1B - Initial appropriation in 1995  
under RA 9724

### Regular Sources:

- National Subsidy (GAA)
- 5% LGUs' Internal Revenue Allotment (IRA)
- Fines, Fees and Penalties





# Scope of Service

Metropolitan Manila Development Authority



Development  
planning

Transport  
and traffic  
manage-  
ment

Solid  
waste  
disposal  
and  
manage-  
ment

Flood  
control  
and  
sewerage  
manage-  
ment

Urban  
renewal,  
zoning  
and land  
use  
planning,  
and  
shelter  
services

Health  
and  
sanitation,  
urban  
protection  
and  
pollution  
control

Public  
safety



An aerial night view of a city skyline, likely Metro Manila, featuring numerous illuminated skyscrapers and buildings. The lights create a vibrant, glowing effect against the dark night sky. The text is overlaid in the center of the image.

**Metro Manila:  
Vision of a world-class,  
vibrant, safe and healthy  
metropolis**



# Crafting of Greenprint 2030



METRO MANILA  
**GREENPRINT2030**  
MY METRO. ONE STORY. OUR HOME.

**A STRUCTURAL PLAN LINKING ALL METRO MANILA STAKEHOLDERS THROUGH A COMMON GOAL:**

*To create a Metro Manila that is inclusive and green-resource and time-conserving, recognizing residents' prioritized for livelihood, mobility & a liveable habitat they will nurture, cherish and call truly their own.*



**Cities Alliance**  
Cities Without Slums



# Zoning and Land-use Planning Related Activities



**Technical Assistance to LGU's and Joint Technical Review of Comprehensive Land Use Plans (CLUPs)**

**Capacity enhancement of the LGU's in mainstreaming DRR and CCA in their CLUPs**



**Makati City is the 1<sup>st</sup> city to have a DRR enhanced CLUP**





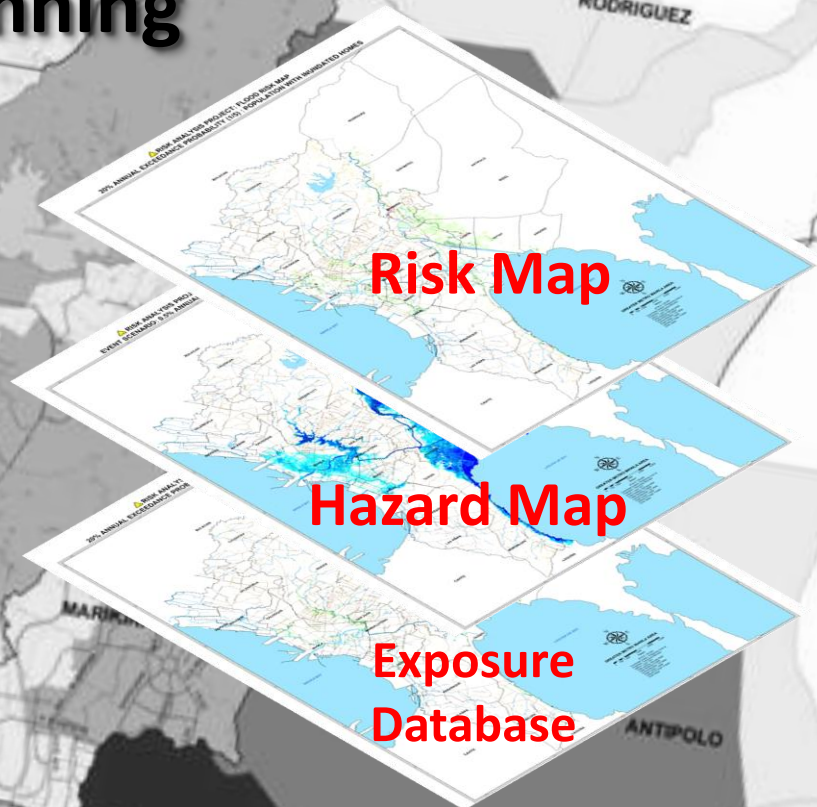
# Zoning and Land Use Planning Related Activities

Earthquake  
Floods  
&  
Severe Wind



Engineering  
Economic  
Social

People, Buildings,  
Businesses,  
Infrastructure, & Other  
Critical Facilities



## Multi-Hazard and Risk Maps of Greater Metro Manila Area





*Thank you very much*

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