

URBAN RENEWAL TAKING INTO CONSIDERATION DISASTER RISK REDUCTION

MAKATI CITY, METRO MANILA

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THE PACIFIC RING OF FIRE

- Composed of 75% of the world's active and dormant volcanoes.
- Average of 19 Major Earthquakes (Magnitude 7 & Higher) in the World a Year

World-Wide Earthquakes: 1990-1993

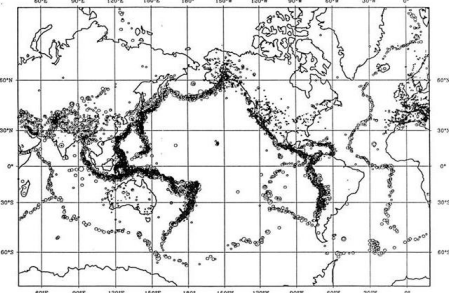
Thousands of earthquakes occur around the world every day, although most are so small they can only be detected by sensitive seismographs. As more and more seismographs have been installed in the world, more earthquakes can be and have been located. However, the number of large earthquakes (magnitude 6.0 and greater) has stayed relatively constant. The U.S. Geological Survey's Global Earthquake Information Center currently locates over 15,000 earthquakes per year worldwide.

Seismites	Magnitude	Average Intensity
Great	8 and greater	IX
Major	7-7.9	IX
Minor	6-6.9	IX
Minor	5-5.9	IX
Minor	4-4.9	IX
Minor	3-3.9	IX
Minor	2-2.9	IX
Minor	1-1.9	IX
Minor	0-0.9	IX

Frequency of occurrence of earthquakes based on observations since 1900

Seismicity data are plotted according to magnitude

Mag. 3.0-3.9 Mag. 4.0-4.9 Mag. 5.0-5.9 Mag. 6.0-6.9 Mag. 7.0-7.9



Prepared by the U.S. Geological Survey's National Earthquake Information Center

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Natural Disasters in the Philippines



Mount Pinatubo Eruption, 1991



Typhoon Ondoy (Katsana) Flood, Sept. 2009 (Reuters)



Luzon Earthquake, July 16, 1990

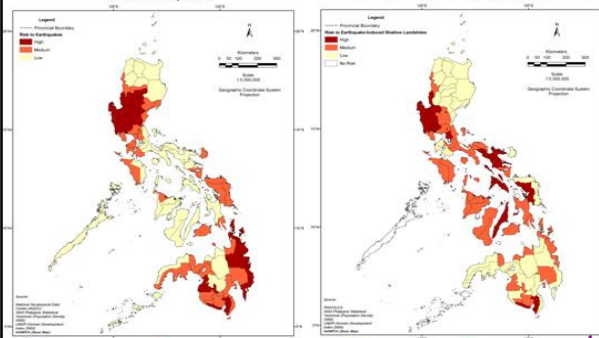


Negros Oriental Earthquake, Feb 26, 2012

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Vulnerability of Cities to Geo-physical Hazards in the Philippines

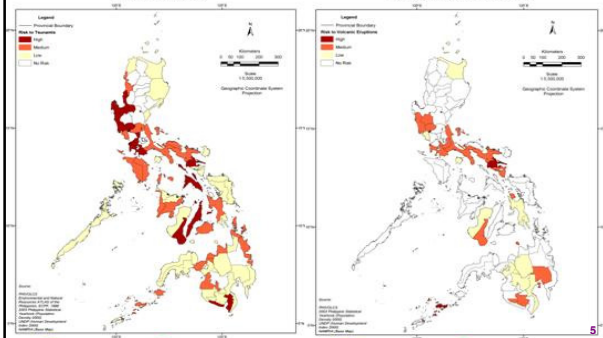
Risk to Earthquakes Risk to Earthquake-Induced Shallow Landslides



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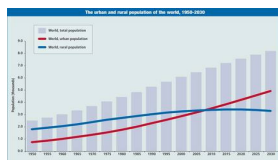
Vulnerability of Cities to Geo-physical Hazards in the Philippines

Risk to Tsunamis Risk to Volcanic Eruptions



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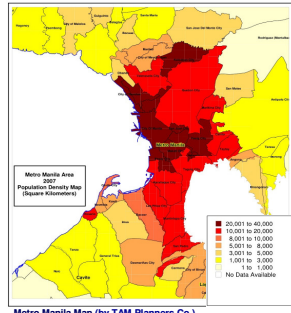
THE WORLD'S URBAN - RURAL POPULATION



METROPOLITAN MANILA:

- Metro Manila has a total land area of 638 square kilometers (0.2% of Philippines Total Land Area).
- There are 17 Local Government Units (LGUs), each with its own Mayor;
- The Local Government Code of 1991 requires the LGUs to prepare their own Comprehensive Land Use Plan
- Total Population of 11,556 in 2011; Population Density of 18,097/square kilometer

- The world population reached 7 Billion in 2011. It was in 2007, when the world's urban population surpassed the world's rural population.
- In the Philippines, more than 50% of the national population live in urban areas.



Metro Manila Map (by TAM Planners Co.)

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INCREASE EFFICIENCY IN THE USE OF A FINITE RESOURCE

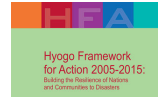
POPULATION DENSITIES IN MAKATI CITY AND METRO MANILA

	Land Area (sq. kms)	Population	Pop. Density
Metro Manila	638.55	11.556 M.	18,097/sq.km.
Manila	38.55	1.660 M.	43,061/sq.km.
Quezon City	161.12	2.679 M.	16,627/sq.km.
Makati City	27.36	0.567 M.	20,724/sq.km.

POPULATION DENSITIES IN OTHER CITIES



	Land Area (sq. kms)	Population	Pop. Density
New York City	786.00	8.175 M.	10,401/sq.km.
Tokyo Metropolis	1,808.00	13.047 M.	7,216/sq.km.
Singapore	710.00	5.183 M. (3.257 M. are Singaporeans)	7,300/sq.km.
Hong Kong	1,104.00	7.061 M.	6,396/sq.km.



THE HYOGO FRAMEWORK FOR ACTION (HFA)

Reduce loss of lives, and social, economic, and environmental assets when hazards strike.

Priority Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority Action 2: Identify, assess and monitor disaster risks and enhance early warning.

Priority Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Priority Action 4: Reduce the underlying risk factors.

Priority Action 5: Strengthen disaster preparedness for effective response at all levels.

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MAINSTREAMING DISASTER RISK REDUCTION IN HIGHLY URBANIZED CITIES

- Very few urban centers today were planned taking into consideration disaster risk reduction.

- And since disaster risk reduction is a new concept, only a few cities have started to re-examine their districts with regards to vulnerability to earthquakes and other disasters.

- The poor and informal settlers are considered the most vulnerable to earthquakes and disasters. Urban low-cost housing are often located in areas with narrow roads and congested conditions.

- The Local Government Code mandates all cities and municipalities to formulate a Comprehensive Land Use Plan (CLUP) that will serve as the Local Government Unit's (LGU's) Comprehensive Development Plan and Land Use Plan.

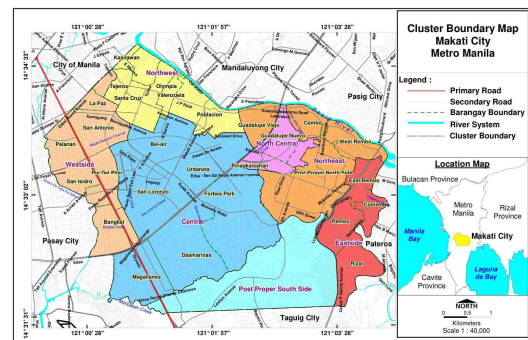
- Areas that are found to be high-risk have to be redeveloped to respond better to geophysical and hydro-meteorological hazards.

- NEDA has prepared a set of guidelines called "Mainstreaming Disaster Risk Reduction in Sub-national Development" (funded by UNDP and European Commission for Humanitarian Aid)

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THE VULNERABILITY GAP

Makati City, Metro Manila



The Makati CBD and gated subdivisions were master planned in the late 1940s and are now the addresses of the Philippines biggest corporations and affluent families.

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VULNERABILITY

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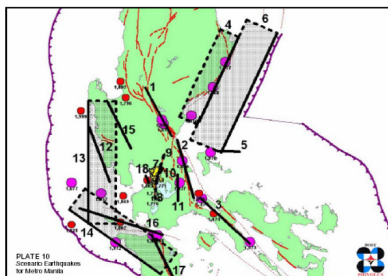
Physical vulnerability of an area will depend on the exposure of vulnerable structural elements within an area such as buildings, dwellings, critical facilities, and other infrastructures;

Economic vulnerability will come from the area's wealth, income, potential for growth, among others;

Social vulnerability stems from the characteristics of individuals or groups in the area that determine their well-being in terms of their income and access to basic services such as education and health; and

Environmental vulnerability refers to the state of the environment.

(UNDP, 2004 - Mainstreaming DRR in Subnational Development and Land Use/Physical Planning in the Philippines).

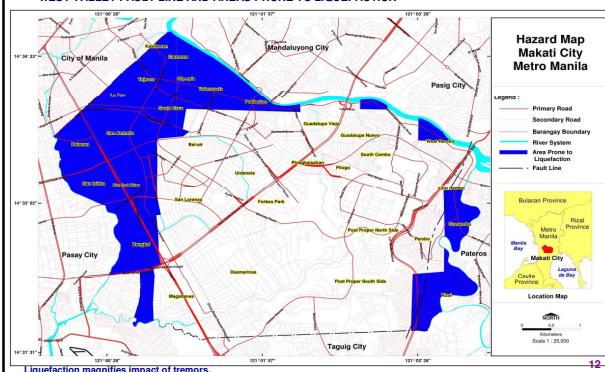


- Metro Manila Impact Reduction Study (MMEIRS) - funded by JICA (2002-2004)
- identified 18 possible earthquake scenarios that may severely affect Metro Manila.

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WEST VALLEY FAULT LINE AND AREAS PRONE TO LIQUEFACTION



Liquefaction magnifies impact of tremors.

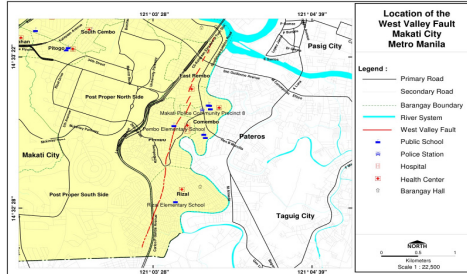
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CONDITIONS FOR DRR-BASED RENEWAL/ REDEVELOPMENT

- An area is assessed to be high risk
- the Local Government Authorities are willing to plan for redevelopment
- the Local Community is willing to participate in the redevelopment for DRR.

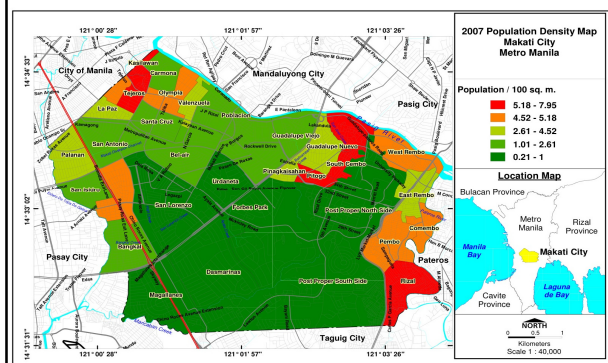
PRINCIPLES THAT WILL GUIDE THE RENEWAL/ REDEVELOPMENT PLAN

- Rehabilitation of high risk sections of the Redevelopment area
- Provision for Emergencies and Rescue
- Adherence to Existing National Building Laws ad Local Building Ordinances
- Sustainable Planning and Design
- Community Involvement in Planning and Design
- Responsive Land Use Planning
- Minimal Displacement



POPULATION DENSITY BY BARANGAY

Makati City, Metro Manila



LEVELS OF LAND USE AND INFRASTRUCTURE INTERVENTION

- Enforce a "no new building, no addition, no renovation policy" along 10-meter easement
- Ensure safety of Disaster-response buildings
- Clear the 10-meter easement
- Convert lots traversed by the fault-line into a linear park.

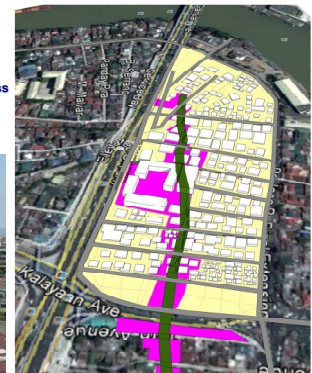


2.0 Plan for a safe, secure, and liveable environment.

MAKATI CITY CLUP/CDP

2.1 Disaster risk reduction and mitigation measures

- Assess, plan for and address geo-hazards
- Integrated program for disaster preparedness
- Provision of disaster-response facilities



2.0 Plan for a safe, secure, and liveable environment.

MAKATI CITY CLUP/CDP

2.1 Disaster risk reduction and mitigation measures

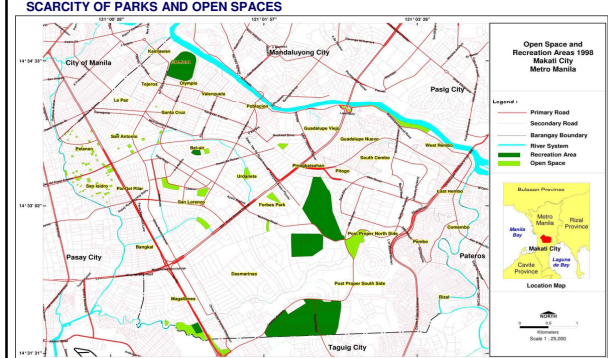


The Local Government facilities (e.g., hospitals, health centers, barangay halls, schools) perform relief functions during disasters. These facilities have to remain safe to continue performing their roles as first response facilities during disasters.

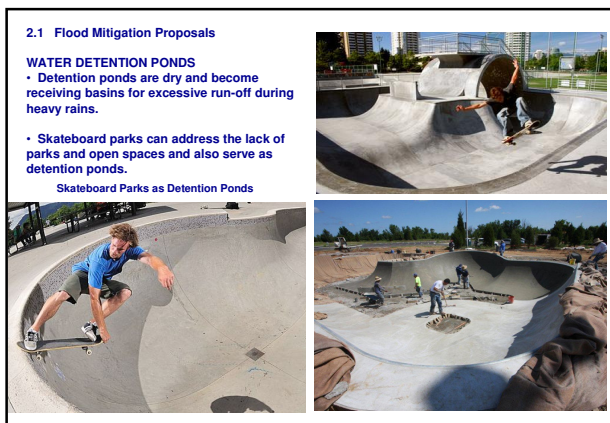
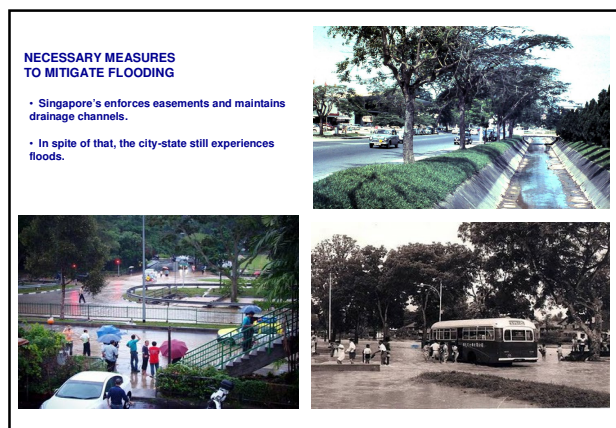
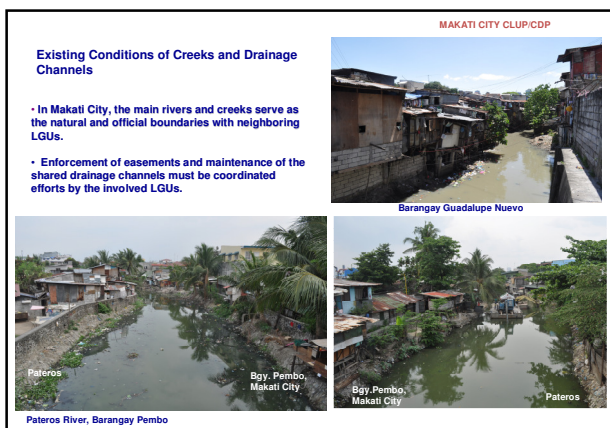
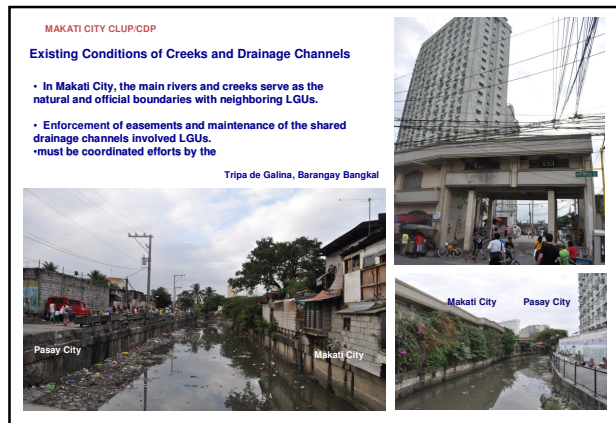
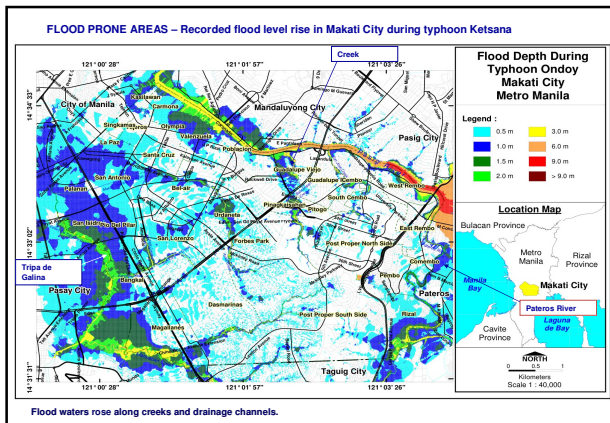


URBAN RENEWAL TAKING INTO CONSIDERATION DISASTER RISK REDUCTION

SCARCITY OF PARKS AND OPEN SPACES



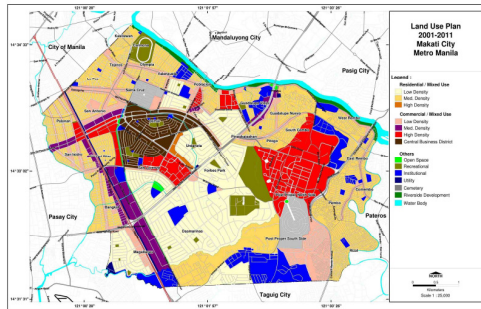
One of the deficiencies of Makati is the lack of parks and open spaces. These spaces are not just for recreation but also serve as evacuation sites or staging areas during disasters.



CONCLUSION: Complying with the Hyogo Framework for Action

Hyogo Framework for Action 2005-2015
International Conference on Reducing Disaster Risks

Priority Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.



- NEDA has formulated a set of guidelines for mainstreaming DRR into the formulation of land use plans.
- Some cities, like Makati City have considered DRR in the formulation of the Comprehensive Land Use Plan

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Priority Action 2: Identify, assess and monitor disaster risks and enhance early warning.



LEGAZPI CITY WITH MAJESTIC BUT ACTIVE MAYON VOLCANO

Many of the natural hazards have been identified but the actual occurrence cannot be predicted. Legazpi City, has always existed with Mayon Volcano looming in the background. Volcanoes and even floods have warnings. Earthquakes have no warnings. Planning, however, should recognize the geo-physical hazards present.

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Priority Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.



Earthquake Drills in Schools (2006)

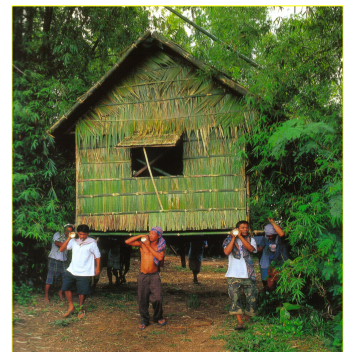
Education plays a key role in the awareness of geo-physical and hydro-meteorological hazards. The science of natural hazards are part of the curriculum. Drills are also conducted on a regular basis not just to remind us of the constant threat but more importantly to keep us prepared for such eventualities.

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CONCLUSION:

Priority Action 5: Strengthen disaster preparedness for effective response at all levels.

- When a natural disaster occurs, the nearest place where the assistance and rescue will come from is the community itself. Communities have to sustain the "bayanihan" spirit in order to help themselves.
- All of us in the urban areas can learn a lot from the rural areas. The traditional Filipino Architecture was sustainable because it used the materials such as bamboo that was in abundance in the area. Material and design produced passively cooled architecture.
- In a sense, the bahay kubo is disaster-resilient. It is raised on stilts and could be safe from floods. Because it is made of bamboo, the bahay kubo is flexible and will sway with the motion of an earthquake and hence, will often survive it.
- Like the bahay kubo, the community has to be resilient...and that includes being disaster-resilient.



"BAYANIHAN" – COMMUNITY SPIRIT

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END OF PRESENTATION... THANK YOU.

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