



# Technical Deep Dive on Seismic Risk and Resilience

## Philippine Action Plan

March 12 – 16, 2018  
Tokyo, Sendai and Kobe

# Philippines - Key Takeaways from TDD



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1. The Level of Public Awareness on Seismic Risk is Very Important.
2. Cost (\$) is a big consideration that affects policy and implementation.
3. The Value of Private Sector and Community-Based Programs is high.
4. Lack of Enforcement of policies is a common problem.
5. Interface of the National and Local Government Agencies is crucial



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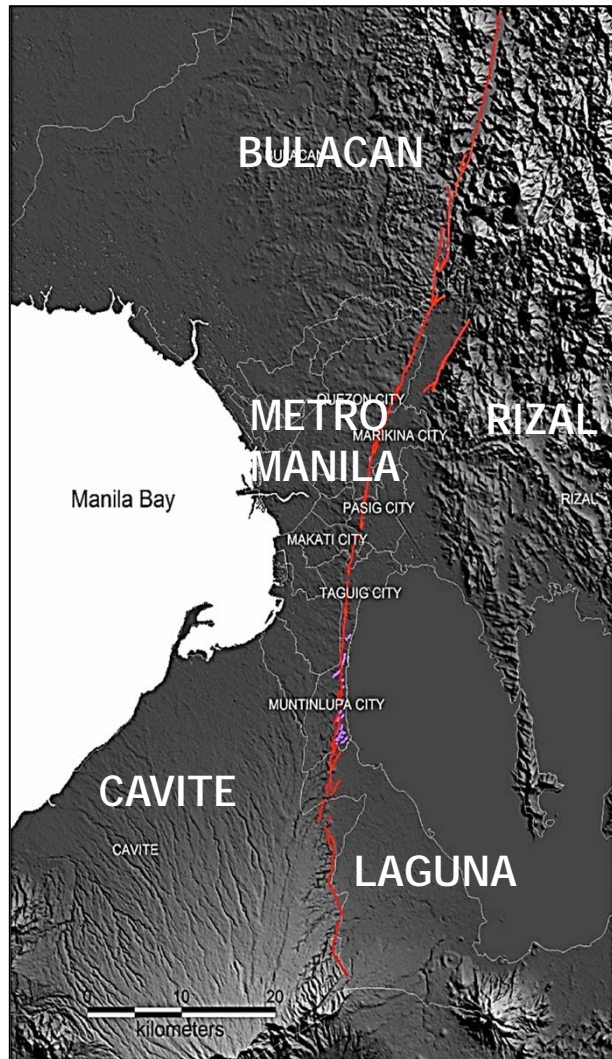
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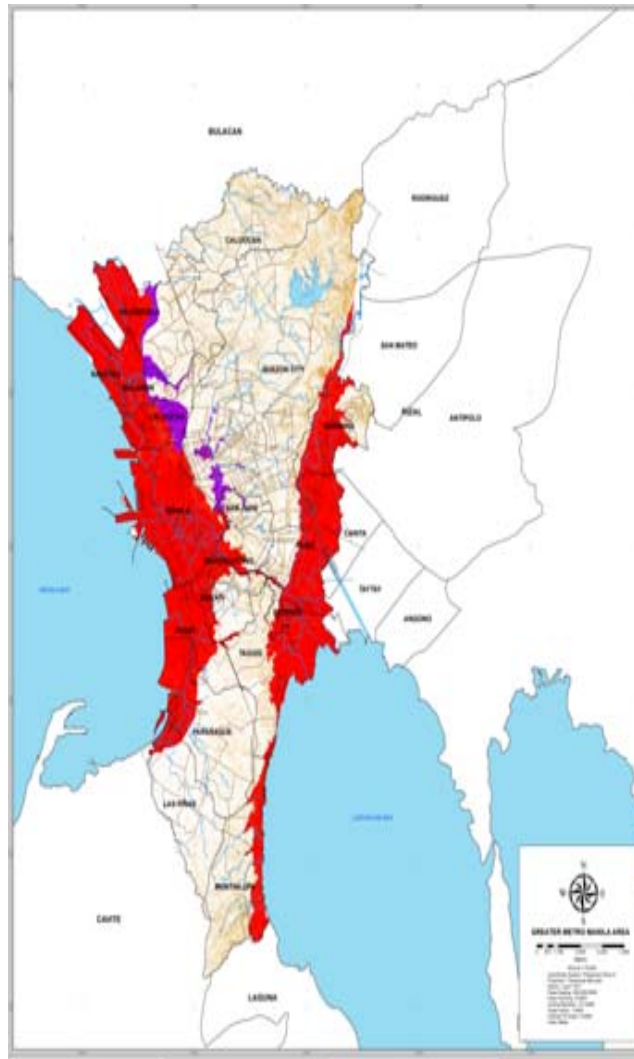


# The “Big One”

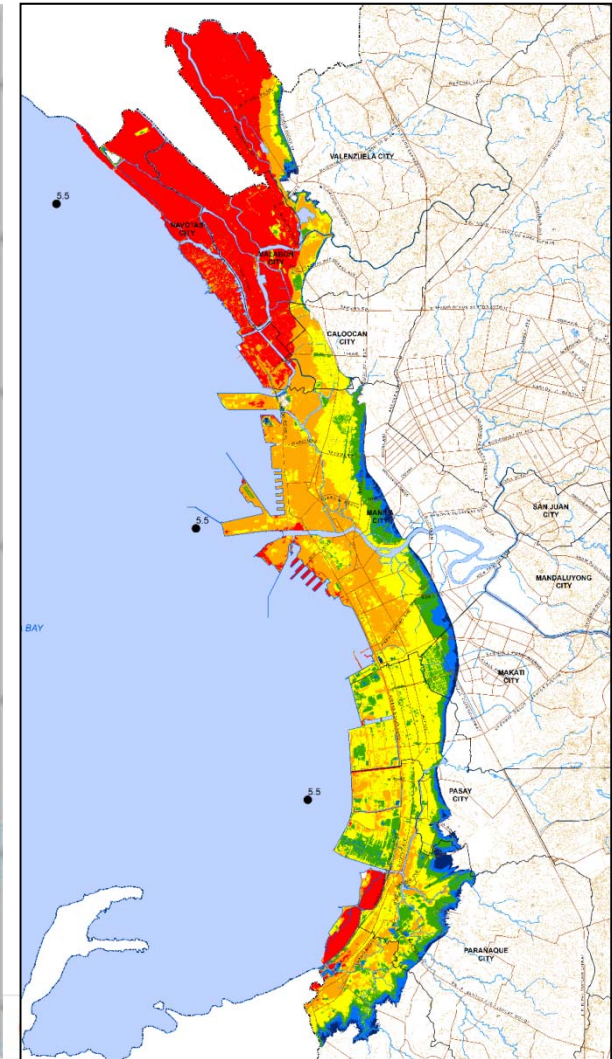
West and East Fault Lines



Liquefaction Potential



Tsunami Scenario



# Risk Analysis Results for GMMA

(Metro Manila + 5 LGUs of Rizal – Rodriguez, San Mateo, Antipolo, Cainta, Taytay)

Total Floor Area in Collapsed Damage (sqm)		11,053,000	8,169,000
Total Floor Area in Complete Damage (sqm)		89,089,000	66,646,000
Total Floor Area in Extensive Damage (sqm)		70,490,000	57,082,000
Total Floor Area in Moderate Damage (sqm)		76,704,000	73,819,000
Total Floor Area in Slight Damage (sqm)		44,804,000	50,218,000
Total Fatalities		37,000	27,000
Total Injuries	Very Serious	16,000	12,000
	Serious	132,000	102,000
	Slight	456,000	359,000
Total Economic Losses (millions of PhP)		2,473,000	1,940,000

# Philippines - Accomplishments Needed



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1. Complete and reliable data (i.e. people, inventory of private buildings, informal settlers/structures, critical infrastructure) for vulnerability assessment and sustainable action plan
2. Cohesive Policy Framework on Seismic Resilience, Response & Rehabilitation
3. Networked Communications System for Early Warning and Pre and Post Earthquake Scenarios
4. Develop funding and resource base pre-disaster (\$ sources, evacuation centers, pre-positioned goods, disaster risk financing and insurance strategy)
5. Develop and Implement an Integrated Seismic Risk and Resilience Program (strengthening of schools, hospitals, public buildings, and critical infrastructure, networked communications and emergency management system, capacity building for government personnel)



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# Disaster-Resilient Framework (Philippines)

	Resilient Communities	Resilient Infrastructure	Government and Business Continuity	Financial Resiliency
<b>Short-term</b>	<ul style="list-style-type: none"> <li>• Information and education campaign</li> <li>• Purchase of emergency response vehicles and equipment</li> <li>• First batch of LGUs that will undergo capacity building</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt a Building Regulatory Reform Agenda</li> <li>• Prioritization criteria for retrofitting/ reconstruction of infrastructure</li> <li>• 1st phase of retrofitting/ reconstruction of government buildings, schools, and hospitals</li> <li>• Pursue the adoption of a Philippine Conservation Guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Command and control center</li> <li>• Secure information systems</li> </ul>	<ul style="list-style-type: none"> <li>• Establish Disaster Resilience Financing Facility</li> <li>• City level exposure database</li> <li>• Inventory of all government assets</li> <li>• Insurance of retrofitted infrastructure</li> <li>• Microinsurance</li> </ul>
<b>Medium-term</b>	<ul style="list-style-type: none"> <li>• Volunteer system</li> <li>• Second batch of LGUs that will undergo capacity building</li> </ul>	<ul style="list-style-type: none"> <li>• 2nd phase of retrofitting/ reconstruction of abovementioned infrastructure</li> <li>• 1st phase of retrofitting/ reconstruction of bridges and utilities infrastructure (power and water)</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency/ Contingency Management for government continuity</li> <li>• Redundancy of critical processes</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a city level risk pooling</li> <li>• Insurance of retrofitted infrastructure</li> <li>• Capacitate GSIS to take on growing needs for insurance of government assets</li> </ul>
<b>Long-term</b>	<ul style="list-style-type: none"> <li>• Third batch of LGUs that will undergo capacity building</li> <li>• Emergency communication networks</li> <li>• Search and rescue certification</li> </ul>	<ul style="list-style-type: none"> <li>• 3rd phase of retrofitting/ reconstruction of abovementioned infrastructure</li> <li>• 2nd phase of retrofitting/ reconstruction of transport and utilities infrastructure (power and water)</li> <li>• 1st phase of retrofitting/ reconstruction of public housing</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency/ Contingency Management</li> </ul>	<ul style="list-style-type: none"> <li>• Insurance of retrofitted infrastructure</li> <li>• Involvement of private insurance companies</li> </ul>

# Philippines - Actions to be Taken



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- **Short-term:**
  - Community Resilience Programs – Department of Interior and Local Government
  - Rapid Vulnerability Assessment of public buildings and critical infrastructure – DPWH, DEPED, DOH, DOST, PHIVOLCS
  - Awareness Campaign – Philippine Information Agency, Presidential Communications Office
- **Medium-term:**
  - Passage of Philippine Building Act and other enabling laws – DPWH, Congress, Academe, Professional Organizations
  - Strengthening/Retrofitting of public buildings and critical infrastructure – DPWH, DEPED, DOH
  - Establishment of a Command Center, Government Redundancies – NDRRMC, BCDA, OP
  - Develop and Implement Disaster Risk Financing and other Financial Arrangements (loans, contingent credit, insurance)
- **Long-term:**
  - Well-established Information Campaign – PIA, Local Government Units, National Agencies
  - Institutionalized systems, standards and protocols for seismic risk response



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# Barrier/Challenge of Implementation of Plan



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1. Lack of enabling policies and laws to allow full implementation of proposed program  
– *Creation of inter-agency TWG to focus on harmonization of policies*
2. Lack of financial and other resources (\$ and technical capacity) – *Inventory of existing resources and gaps, Department of Finance to prepare a DRFI strategy*
3. Lack of a strong agency to lead and manage the seismic risk and resilience programs – *Creation of a Department for Disaster Resilience and Emergency Management (Sub-unit dedicated for Seismic Risk and Resilience)*
4. High poverty rate – *Create special programs to capacitate poor people for community-based programs*
5. “Politicking” and Term Limits – *Lodge decision-making authority on head of DREM agency; Provide security of tenure; Impose mandatory strategic plans at the national and local levels*



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# Philippines Support Needed



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- World Bank:
  - Technical Assistance to develop the Seismic Risk and Resilience Program
  - Viable financing option to implement the program (parametric insurance, cat-ppo2)
  - Foreign financing for expensive seismic technology (simulators, dampers, base isolators)
- DRM Hub
  - Informal Working Group Post-TDD to continue engaging with other countries
  - Just-in-Time Advisory Services, deployment of experts, “lease” of the shaking tables, etc. for testing of key infrastructure projects
- Knowledge Products (Case Studies, Policy Notes, etc.)
  - Share ToRs, Case Studies, and Policy Notes, Existing Regulations from different countries (global good practice)
  - Materials on risk communication and establishing “memorials/museums” post-disaster (for people to remember and share lessons learned), IEC materials on earthquake preparedness



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