The Disaster Risk Management Master Plan of Metro Manila

A member of the U.N. Global Platform for Disaster Risk Reduction
# Table of Contents

**Introduction**  
Situation Overview 1  
Moving from Analysis to Action 2  
**The Disaster Risk Management Master Plan of Metro Manila** 3  
Overarching Goals 3  
Elements 4  
Objectives 6  
Implementation Work Outputs 9  
The DRMMP Implementation Process 9  

Annex 1: A Chronology of the Metro Manila Field Trips 11  
Annex 2: List of 3cd Field Trip and Focus Group Activities 12  
Annex 3. Focus Group Member 14  
List of EMI Publications 18
Metro Manila’s Disaster Risk Management Master Plan

Introduction
Recognizing the high disaster risk faced by Metro Manila, various organizations and local stakeholders have initiated the development of a Disaster Risk Management Master Plan (DRMMP) to guide the integration of a risk reduction agenda into ongoing governance and economic processes in the capital region. This work, undertaken under Phase 1 of the Cross-Cutting Capacity Development (3cd) Program, incorporates previous risk assessments and study results as the basis for a cohesive, consensus-based disaster risk management instrument.

Situation Overview
Metro Manila, with a population of about 12 million, is one of the largest and most complex urban regions in Asia. It is an agglomeration of 17 cities and municipalities that are prone to several natural hazards such as earthquakes, landslides, floods, and tsunamis. Auspiciously, government organizations, with support from international institutions, conducted relevant studies focused on risk assessment and disaster management, specifically on earthquakes, viz:

- EqTAP (1999-2003), a multi-lateral research project for earthquake and tsunami disaster mitigation in the Asia-Pacific region, sponsored by the Government of Japan and executed by the Earthquake Disaster Mitigation Research Center (EdM-NIED); includes a detailed case study of Metro Manila to develop an understanding of how to operationalize the EqTAP approach and to develop a risk management framework\(^1\). The recommendations of this project have not been fully implemented.
• The Government of Japan, through the Japan International Cooperation Agency, in collaboration with the Metropolitan Manila Development Authority (MMDA) and the Philippine Institute of Volcanology and Seismology (PHIVOLCS) conducted the Metropolitan Manila Earthquake Impact Reduction Study or MMEIRS (2002-2004) to formulate a master plan for earthquake impact reduction for Metro Manila. The MMEIRS is comprehensive yet has been barely implemented.

• The Pacific Disaster Center completed the Multi-Hazard Urban Risk Assessment for Marikina City (2004) and Guidelines for Implementing Multi-Hazard Risk Reduction Strategies for an Urban Environment that provide Marikina City officials with a framework for assessing risk and mitigating the impacts from riverine flooding, urban flooding, and earthquakes.

Moving from Analysis to Action
In July 2004, the 3cd Program was introduced in Metro Manila by the Earthquakes and Megacities Initiative (EMI) in cooperation with EdM-NIED. It is a process-oriented, inter-disciplinary program conceived to engage and support local governments of complex urban areas in managing and reducing urban disaster vulnerabilities and risk through capacity and institutional building strategies, to wit:

• Empowerment of local governments, local institutions, and local communities to plan and implement disaster risk reduction (DRR).
• Mainstreaming of DRM as a regular management and planning process and integral part of local government functions, operations, and services.
These overall strategies guide the development of a consensus-based, sustainable Disaster Risk Management Master Plan (DRMMP).

In November 2004, the Pacific Disaster Center joined EMI in a collaborative effort to accelerate the implementation of Metro Manila’s DRMMP and shift the vision from response management to risk management.

The Disaster Risk Management Master Plan of Metro Manila
The DRMMP is both a process and a plan. As a process, it facilitates a cross-sectoral, inter-agency course of action that is highly participatory and collaborative, as DRM is a shared responsibility. It engages local stakeholders towards the elaboration of a disaster risk management agenda that is fleshed out into a DRM master plan consisting of legal, institutional, financial, social, and technical elements.

Overarching Goals of Metro Manila’s DRMMP
In the context of the 3cd Program for Metro Manila, the DRMMP generally aims to:

- Establish a sound institutional and legal framework for an effective DRM system, and
- Fully integrate DRM into the ongoing governance, business, and economic processes in the city.

In January 2005, a Memorandum of Cooperation (MOC) was signed between EMI and MMDA towards the development and implementation of a Disaster Risk Management Master Plan of Metro Manila. The project is undertaken in partnership with PHIVOLCS as the Local Investigator. An agreement was also reached with three cities in Metro Manila—Quezon, Makati and Marikina—to serve as pilot cities for the DRMMP implementation.

After a highly inclusive and participatory process, a consensus-based DRMMP of Metro Manila was crafted by all partners and stakeholders in a workshop held in August 2005. Metro Manila’s DRMMP builds on the significant work already accomplished by various local, national, and international initiatives, in particular the MMEIRS. To implement the DRMMP, field trips, stakeholders’ consultation workshops, seminars-workshops, and focus group discussions have been undertaken by the partnership under the auspices of the 3cd Program (See Annexes).
**Elements of Metro Manila’s DRMMP**

A 10-point DRMMP was formulated in order to flesh out the vision and goals of the DRMMP of Metro Manila.

<table>
<thead>
<tr>
<th>DRMMP Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strengthen the Metro Manila Disaster Coordinating Council (MMDCC).</td>
</tr>
<tr>
<td>2. Promote the adoption of disaster management ordinances by each city and municipality.</td>
</tr>
<tr>
<td>3. Promote the revitalization of city/municipal barangay disaster coordinating councils.</td>
</tr>
<tr>
<td>4. Institutionalize disaster risk management within local government framework and financing.</td>
</tr>
<tr>
<td>5. Enhance lateral and vertical inter-agency and inter-governmental communication and coordination.</td>
</tr>
<tr>
<td>6. Enhance legal basis for disaster risk management at national level by updating/replacing PD1556.</td>
</tr>
<tr>
<td>7. Promote policies that encourage implementation of DRR and develop mechanisms for mainstreaming DRR within local government functions.</td>
</tr>
<tr>
<td>8. Promote local government mitigation planning through existing planning tools.</td>
</tr>
<tr>
<td>9. Conduct training needs assessments and develop capacity building programs.</td>
</tr>
<tr>
<td>10. Strengthen barangay preparedness level for disaster response and relief.</td>
</tr>
</tbody>
</table>

Initially, a DRM framework and agenda were developed based on the MMEIRS. In particular, the basis used for this framework was the first of MMEIRS’ five Areas of Focus for Prioritization: Enhance legal framework and institutional capacity for disaster [risk] management. Under this Area of Focus, the relevant priorities in the context of the Cross-Cutting Capacity Development (3cd) Program are: (1) strengthening of institutional capacity for mitigation, preparedness
and response, (2) strengthening of inter-institutional coordination and institutional framework, (3) enhancing legal basis for disaster management and policy environment for DRM, and (4) strengthen community preparedness.

Through a participatory process of review and prioritization given the local context, with inputs from EMI and its international partners based on their collective experiences around the world, a DRMMP consisting of 10 elements was further crystallized by local partner organizations and stakeholders in a series of consultation and stakeholders’ workshops held in April 2005. Objectives that correspond to each element in the table above were ranked based on the following criteria: relevance and viability, importance, resources and constraints, implementation process, timeframe and ownership. Most of these elements represent actions to be taken by MMDA, Metropolitan Manila Council, and the cities and municipalities comprising Metro Manila with support from relevant national government agencies. Some of these elements have also been prioritized by the Metro Manila Council through MMDA Resolution No. 04-03, Series of 2004, issued on 29 January 2004.

“A highly responsive and resilient community for a safe and protected built and natural environment.”

- Vision of local stakeholders for Metro Manila, 2004
The table below lists the corresponding objectives and action items of each of the 10 elements of the DRMMP ranked according to priorities set by local partners and stakeholders.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Objectives</th>
<th>Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To reorganize, institutionalize and activate the MDCC as a vital body</td>
<td>1.1. Establish a new interagency/inter-sectoral task group to complement existing MDCC.</td>
</tr>
<tr>
<td></td>
<td>pursuing an action agenda</td>
<td>1.2. Develop the task group to focus on implementation, action stemming from the MMDCC strategic policy initiatives.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3. Take steps to implement MMDA Chairman’s instructions regarding priority areas.</td>
</tr>
<tr>
<td>2</td>
<td>To provide a stronger legal basis and regular department status and budget</td>
<td>2.1. Find out by survey/workshops what is currently in place and/or intended.</td>
</tr>
<tr>
<td></td>
<td>for local disaster management offices or organizations that now exist on</td>
<td>2.2. Seek alternatives in order to institutionalize DRM in LGUs through legal instruments.</td>
</tr>
<tr>
<td></td>
<td>the basis of executive orders and to provide legal basis for mitigation</td>
<td>2.3. As a start, MMDA revisit the resolution to strengthen local DRM offices and re-emphasize significance of DRM.</td>
</tr>
<tr>
<td></td>
<td>policies and support of DRM programs.</td>
<td>2.4. Increase awareness of local elected officials about DRM through improved training sessions, metropolitan wide conferences, better access to DRM Sound Practices (i.e. Internet).</td>
</tr>
<tr>
<td>3</td>
<td>To create more viable DRM organizations and to sustain awareness of the</td>
<td>3.1. Oblige LGUs to ensure adoption and implementation of proactive measures to promote DRM including reorganization of DCCs, implementation and monitoring of action plans.</td>
</tr>
<tr>
<td></td>
<td>need for proactive disaster preparedness and mitigation strategies.</td>
<td>3.2. Increase commitment to DRM by politicians through ways and means that enable them to own their constituents’ hazards-related problems.</td>
</tr>
<tr>
<td>Rank</td>
<td>Objectives</td>
<td>Action Items</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>To improve the financial viability of local DRM programs by institutionalizing regular funding for pre-disaster mitigation and preparedness.</td>
<td>4.1. Explore different sources of funding for DRM activities of LGUs, including local private as well as international sources.</td>
</tr>
<tr>
<td>5</td>
<td>To establish city clusters for DRM within Metro Manila through MoUs authorizing inter-city cooperation and mutual aid for disaster preparedness planning, mitigation strategies, and response assistance.</td>
<td>5.1. Seek instruments and mechanisms that reduce risk among clusters of LGUs based on existing risk and vulnerabilities (i.e. MOU, agreements, etc.).</td>
</tr>
<tr>
<td>6</td>
<td>To update and strengthen the legal basis for the Philippines disaster management system to reflect the current holistic approach to disaster risk management and its relation with urban planning and development.</td>
<td>6.1. Review drafts of proposed legislation (amendments/new) to ensure concerns of LGUs, NGOs, and other stakeholders in MM are addressed properly. 6.2. Enhance legal framework for DRM. 6.3. Identify other laws, regulations and/or ordinances that have a link to DRM and which should also be reviewed.</td>
</tr>
<tr>
<td>8</td>
<td>To facilitate local government implementation of earthquake mitigation programs and preparedness for emergency response and relief.</td>
<td>8.1. Improve access to planning tools, i.e. Earthquake. Mitigation Handbook and Planning Guide through internet. 8.2. Use various delivery mechanisms to disseminate existing and future DRM knowledge and skills development resources (barangay-level interventions, social services extension work).</td>
</tr>
</tbody>
</table>
The action items designed to achieve the objectives are spread over a 5-year period (2005-2010). Some of the action items can be done immediately while some others require more resources in order to start them. Therefore, the objectives were classified in terms of the time perspective defined by resource requirements. Short-term objectives (Objectives 1, 2, 6 and 9) and action items are do-able with existing financial and human resources within existing framework; lasting from weeks to a few months. Mid-term objective (Objective 5) requires coordination within existing arrangements; lasting from months to a few years. Mid- to long-term objectives (Objectives 3, 7 and 10) need additional resources and major legal and institutional changes; lasting for 2-3 years or more. Finally, long-term objectives (Objectives 8 and 4) require up to 5 years or more.
Implementation Work Outputs of Metro Manila’s DRMMP

The elements and objectives of Metro Manila’s DRMMP were further processed and distilled into an implementation work output. This was done by first identifying the five thematic areas of cooperation with MMDA and followed by a large gathering of stakeholders in August 2005 to fast-track the implementation of the DRMMP. The implementation work output also integrates the areas of facilitation in which the 3cd Program can substantially contribute.

<table>
<thead>
<tr>
<th>Implementation Work Output (IWO)</th>
<th>Description</th>
<th>Local Lead Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWO No. 1</td>
<td>Develop and Institutionalize technologies for Risk Communication and Preparedness</td>
<td>PHIVOLCS; MMDA</td>
</tr>
<tr>
<td>IWO No. 2</td>
<td>Incorporate risk reduction criteria in land-use and urban planning</td>
<td>MMDA Planning Office; Marikina</td>
</tr>
<tr>
<td>IWO No. 3</td>
<td>Training Needs Assessment and Capacity Building for DRM</td>
<td>OCD; MMDA</td>
</tr>
<tr>
<td>IWO No. 4</td>
<td>Mobilizing Resources among NGO’s, professional Organizations and Private Sectors in DRM Agenda</td>
<td>PHIVOLCS; MMDA; PICE</td>
</tr>
<tr>
<td>IWO No. 5</td>
<td>Improving legal and institutional arrangements for improved DRM Delivery</td>
<td>MMDA; NDCC</td>
</tr>
</tbody>
</table>

The DRMMP Implementation Process

For the implementation of the DRMMP, five Focus Groups have been created, one for each of the Implementation Work Outputs of the DRMMP. These are:

Focus Group No. 1 (FG1) – Information and Communication Technology
Focus Group No. 2 (FG2) – Land Use and Urban Planning
Focus Group No. 3 (FG3) – Training Needs Assessment and Capacity Building
Focus Group No. 4 (FG4) – Mobilization through Non-Government Organizations and other Civil Society Groups
Focus Group No. 5 (FG5) – Legal and Institutional Arrangements

The implementation process of the DRMMP is based on a two-pronged strategy:

a) Sustained involvement of the 3cd Program Implementation Team through field trips, consultations, workshops, and strategic planning.

b) Creation of ownership and sustainability mechanisms by anchoring the process of implementation to local and national stakeholders through the involvement of the Local Investigator, local partner organizations, partner cities, and focus groups.

The Local Investigator supervises and coordinates the implementation of the DRMMP. The Focus Groups play an essential role in DRR mainstreaming and DRMMP implementation. This implementation approach conforms to the 3cd Program principle that institutionalization and sustainability can only be achieved if implementation is carried out by concerned local institutions, national government agencies and organizations, with a broad involvement of stakeholders representing the local government units and communities. In this context, the Focus Groups are the mechanisms for ownership building, for mainstreaming and for sustainability. (See Annex1 for the list of field trips and Annex 2 for the list of focus group discussions and meetings.)
Annex 1

A Chronology of the Metro Manila Field Trips

1st Field Trip – August 2004, city workshops in Quezon City and Makati City

2nd Field Trip – April 2005, stakeholders’ workshop introducing the concept of DRMMP; formal discussions with MMDA; incorporation of three pilot cities

3rd Field Trip – August 2005, stakeholders’ workshop in Makati City; identification of five areas of cooperation and establishment of five focus groups

4th Field Trip – December 2005, seminar-workshop for MMDA officials and staff on mainstreaming DDR in metropolitan planning and functions; seminar-workshop for Metro Manila planning officers on land use planning for DRR; focus groups workshop

5th Field Trip – May 2006, workshop on the Megacity Indicators System (MEGA-Index); seminar-workshop for Metro Manila planning officers on mainstreaming DRR in land use planning; training workshop on the Metro Manila Map Viewer (MEGA-View)

6th Field Trip – October 2006, consultative forum on the consolidated DRM bill; validation workshop on the risk-sensitive land use planning eLearning course (MEGA-Plan); and round-table discussion on MEGA-Index.
## Annex 2

### List of 3cd Field Trip and Focus Group Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Venue</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field Trips</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08/16/04</td>
<td>MM 1st FT: City Workshop</td>
<td>Quezon City</td>
<td>LWG</td>
</tr>
<tr>
<td>04/20/05</td>
<td>MM 2nd FT: Stakeholder’s Workshop</td>
<td>MMDA</td>
<td></td>
</tr>
<tr>
<td>08/02/05</td>
<td>MM 3rd FT: Focus Group Workshop</td>
<td>Makati City</td>
<td>101</td>
</tr>
<tr>
<td>12/01/05</td>
<td>MM 4th FT: Seminar-Workshop on Mainstreaming Disaster Risk Reduction in</td>
<td>Conference Rm, MMDA</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Metropolis Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/02/05</td>
<td>MM 4th FT: 3cd City Disaster Risk Management Master Plan: Implementation</td>
<td>Marikina Hotel, Marikina</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>in Metro Manila, Focus Groups Workshop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/05/05</td>
<td>MM 4th FT: 3cd Land Use and Urban Planning Tools for Disaster Reduction</td>
<td>Auditorium, PHIVOLCS</td>
<td>75</td>
</tr>
<tr>
<td>05/22/06</td>
<td>MM 5th FT: The First Seismic Risk Reduction and Risk Management Indicators</td>
<td>Auditorium, PHIVOLCS</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Workshop in Metro Manila</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/23/06</td>
<td>MM 5th FT: Mainstreaming Disaster Risk Reduction in Land Use Planning</td>
<td>Auditorium, PHIVOLCS</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Seminar-Workshop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/25/06</td>
<td>MM 5th FT: MMEIRS Map Viewer User’s Training</td>
<td>ICT Lab, NDCP</td>
<td>57</td>
</tr>
<tr>
<td>05/26/06</td>
<td>MM 5th FT: MMEIRS Map Viewer User’s Training</td>
<td>ICT Lab, NDCP</td>
<td>58</td>
</tr>
<tr>
<td>10/13/06</td>
<td>MM 6th FT: Consultative Forum on the Consolidated DRM Bill</td>
<td>Auditorium, PHIVOLCS</td>
<td>109</td>
</tr>
<tr>
<td>10/16/06</td>
<td>MM 6th FT: Round-Table Discussion on MEGA-Index</td>
<td>Auditorium, PHIVOLCS</td>
<td>22</td>
</tr>
<tr>
<td>10/16/06</td>
<td>MM 6th FT: MEGA-Plan Validation Workshop</td>
<td>Auditorium, PHIVOLCS</td>
<td>40</td>
</tr>
</tbody>
</table>
## Annex 2

### List of 3rd Field Trip and Focus Group Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
<th>Venue</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/11/05</td>
<td>FG 2 Mtg</td>
<td>Conf Rm, PHIVOLCS</td>
<td>12</td>
</tr>
<tr>
<td>01/03/06</td>
<td>FG 1 Mtg</td>
<td>Conf Rm, PHIVOLCS</td>
<td>16</td>
</tr>
<tr>
<td>01/11/06</td>
<td>FG 3 Mtg</td>
<td>Makati City Hall</td>
<td></td>
</tr>
<tr>
<td>01/20/06</td>
<td>FG 4 Mtg</td>
<td>Conf Rm, Makati City Hall</td>
<td>16</td>
</tr>
<tr>
<td>02/03/06</td>
<td>FG 2 Mtg</td>
<td>Shoe Hall, Marikina City</td>
<td>7</td>
</tr>
<tr>
<td>03/13/06</td>
<td>FG 5 Mtg: Creating a Disaster Risk Management Bill: What are the essential components?</td>
<td>Conf Rm, Makati City Hall</td>
<td>9</td>
</tr>
<tr>
<td>03/14/06</td>
<td>FG 3 Mtg</td>
<td>Conf Rm, PHIVOLCS</td>
<td></td>
</tr>
<tr>
<td>03/14/06</td>
<td>Indicators FG</td>
<td>Conf Rm, PHIVOLCS</td>
<td></td>
</tr>
<tr>
<td>03/20/06</td>
<td>FG 4 Mtg</td>
<td>Power Plant, Makati City</td>
<td>4</td>
</tr>
<tr>
<td>03/24/06</td>
<td>FG 2 Mtg</td>
<td>Conference Room, Quezon City</td>
<td>10</td>
</tr>
<tr>
<td>05/02/06</td>
<td>FG 2 Mtg</td>
<td>UDD, Makati City Hall</td>
<td>9</td>
</tr>
<tr>
<td>06/28/06</td>
<td>FG 5 Mtg: DRM Forum Organizing Committee</td>
<td>EMI</td>
<td>5</td>
</tr>
<tr>
<td>07/19/06</td>
<td>FG 5 Mtg: DRM Forum Organizing Committee</td>
<td>EMI</td>
<td>7</td>
</tr>
<tr>
<td>08/10/06</td>
<td>FG 5 Mtg: DRM Forum Organizing Committee</td>
<td>Conf Rm, PHIVOLCS</td>
<td>6</td>
</tr>
<tr>
<td>09/01/06</td>
<td>FG 5 Mtg: DRM Forum Organizing Committee</td>
<td>OCD</td>
<td>4</td>
</tr>
<tr>
<td>09/18/06</td>
<td>FG 5 Mtg: DRM Forum Organizing Committee</td>
<td>EMI</td>
<td>5</td>
</tr>
</tbody>
</table>
# Annex 3

## Focus Group Members

### Focus Group 1
1. Almonte, Kathleen (Makati City)
2. Bautista, Bart (PHIVOLCS)
3. Bosse, Todd (PDC)
4. Buika, Jim (PDC)
5. Castro, Ninoy (OCD)
6. Daag, Arturo (PHIVOLCS)
7. Daroy, Mhel (Marikina City)
8. Doroy, Nelson (Makati City)
9. Jajalla, Joseph (MMDA)
10. Ledesma, Tara (EMI)
11. Lorenzo, Nonoy (OCD)
12. Maximo, Raymond (PHIVOLCS)
13. Palomar, Lisa (Marikina City)
14. Reyes, Marqueza (EMI)
15. Santiago, Ramon (MMDA)
16. Serrana, Jorge Jr. (Quezon City)
17. Seva, Violeta (EMI/Makati City)
18. Solidum, Renato Jr. (PHIVOLCS)
19. Sy, Josie (MMDA)
20. Villena, Edgar (Makati City)

### Focus Group 2
1. Aguilar, Jun (Marikina City)
2. Alampay, Ma. Lourdes B. (PIEP)
3. Alcala, Dolores (HLURB)
4. Ang, Grace (HLURB)
5. Borje, Julie (Marikina City)
6. Cabantog, Shane (Marikina City)
7. Cueto, Visitacion (Makati City)
8. De Castro, Erwin (MMDA)
9. Dela Cruz, Ma. Cristina (HLURB)
10. Fernandez, Jeanette (EMI/PDC)
11. Gatchalian, Evelyn (HLURB)
12. Gil, Sharon (UNDP)
13. Lanuza, Angelito (PHIVOLCS)
14. Lopez, Wilredo (DPWH)
15. Ledesma, Tara (EMI)
16. Mantego, Annabelle (Makati City)
17. Medallo, Cora (MMDA)
18. Moleta, Russelle (MMDA)
19. Panganiban, Merlina (Makati City)
20. Panol, Myla (PHIVOLCS)
21. Reyes, Marqueza (EMI)
22. Salapare, Marilyn (Makati City)
Annex 3
Focus Group Members

23. Samudio, Milagros (Makati City)
24. Sese, Rodolfo (Makati City)
25. Sese, William (NEDA)
26. Tena, Cherry Rose (Quezon City)
27. Villamor, Veronica (MMDA)
28. Villarino, Kristine (NEDA)
29. Walde, Xenon L. (Makati City)
30. Yumul, Rosemarie (Makati City)
13. Patalinghog, Carol (Quezon City)
14. Razal, Tony (Marikina City)
15. Reyes, Hector C. (Makati City)
16. Reyes, Marqueza (EMI)
17. Santos, Geraldine (Makati City)
18. Torres, Amaryllis (EMI/UP)
19. Verzonilla, Reynaldo (Quezon City)
20. Villegas, Mylene (PHIVOLCS)

Focus Group 3
1. Aguila, Bong (Quezon City)
2. Borje, Julie (Marikina City)
3. Cabalza, Chester (NDCP)
4. Candelario, Mary Joy (Marikina City)
5. Cruz, Susan (OCD)
6. Dela Rosa, Wilfredo (Marikina City)
7. Divina, Roel (MMDA)
8. Fernandez, Antonio (EMI)
9. Go, Marilyn M.D. (DOH)
10. Ledesma, Tara (EMI)
11. Macasieb, Ma. Corazon (MMDA)
12. Malacad, Mario (MMDA)

Focus Group 4
1. Abat, Crispina (OCD)
2. Almonte, Kathleen (Makati City)
3. Amarillo, Ma. Teresa (MMDA)
4. Bautista, Ma. Leonila (PHIVOLCS)
5. Briones, Ferdie (PIEC)
6. Caliao, Sabeniano Jr. (DPWH)
7. Cruz, Milosil (DSWD)
8. Doroy, Nelson B. (Makati City)
9. Espiritu, Alfonso (Marikina City)
10. Genota, Jorge (ASEP)
11. Ledesma, Tara (EMI)
12. Libang, Ronaldo (CDRC)
Annex 3
Focus Group Members

13. Maghacot, Pacifico (Quezon City)
14. Mina, Rogelio (Makati City)
15. Munoz, Albert (PNRC)
16. Pacheco, Benito (Vibrmetrics)
17. Pagulayan, Col. Victor R. (Makati City)
18. Pino, Jose Manuel (UAP)
19. Reyes, Hector C. (Makati City)
20. Reyes, Marqueza (EMI)
21. San Pablo, Jojie (CNDR)
22. Serion Margeline (MMDA)
23. Seva, Violeta (EMI/Makati City)
24. Simon, Floreen (CNDR)
25. Sira, Warren (Marikina City)
26. Tiglao, Robert (PHIVOLCS)
27. Valdes, Mario (PIRA/MAFSAFI)
28. Villena, Edgar (Makati City)

4. Britton, Neil (EDM-NIED)
5. Carlos, Clarita (UP)
6. De Leon, Corazon Alma (PNRC)
7. Duque, Atty. Priscilla (OCD)
8. Espiritu, Alfonso (Marikina City)
9. Giron, Restituto Sr. (Makati City)
10. Lansang, Noel L. (Quezon City)
11. Pagulayan, Col. Victor R. (Makati City)
12. Penano, Cherrie (Makati City)
13. Pilar, Nestor L. (NDCP)
15. Reyes, Hector C. (Makati City)
16. Santiago, Asteya M. (EMI/UP/PLANADES)
17. Seva, Violeta (Makati City)
18. Sosmena, Gaudioso (UPI/LOGODEV)
19. Villarino, Kristine (NEDA)

Focus Group 5

1. Amante, Salvador (MMDA)
2. Amparo, Neri G. (OCD)
3. Brien, Madeline C. (Quezon City)
Annex 3
Focus Group Members

Indicators Focus Group

1. Abdulrahman, Thelma (DILG)
2. Ablay, Joey (DILG)
3. Bautista, Ma. Leonila (PHIVOLCS)
4. Diaz, Nora (HLURB)
5. Fernandez, Antonio (EMI)
6. Go, Matilde (DILG)
7. Ledesma, Tara (EMI)
8. Macasieb, Ma. Corazon (MMDA)
9. Oninones, Jose (Makati City)
10. Pagulayan, Col. Victor R. (Makati City)
11. Panol, Myla (PHIVOLCS)
12. Reyes, Hector C. (Makati City)
13. Sandoval, Gerardo (SWS)
14. Taningco, Runel (HLURB)
15. Villegas, Ma. Mylene (PHIVOLCS)
List of EMI Publications

Proceedings Report

**PR-07-01**: Stakeholders’ Evaluation of the Cross-Cutting Capacity Development Program in Metro Manila, Philippines, Phase 1, 2005-2006
**PR-06-01**: Mainstreaming Disaster Risk Reduction through Land Use Planning and Enhancing Risk Management Practices
**PR-06-02**: Enhancing Local Partnership and Stakeholders’ Ownership: Implementing the Disaster Risk Management Master Plan in Metro Manila
**PR-06-03**: Disaster Risk Reduction of Mega-Urban Regions

Topical Report

**TR-07-01**: Application of Indicators in Urban and Megacities Disaster Risk Management: A Case Study of Metro Manila
**TR-07-02**: Urban and Megacities Disaster Risk Reduction: Manual of Sound Practices

Brochure

**BR-07-01**: EMI Promotional Brochure, 2nd ed.
**BR-07-02**: The Disaster Risk Management Master Plan of Metro Manila
**BR-06-01**: EMI Promotional Brochure, 1st ed.
**BR-06-02**: Megacities Disaster Risk Management Sound Practices in East and South-Central Asia
3cd Implementation Team - Metro Manila

Earthquakes and Megacities Initiative, EMI
Dr. Fouad Bendimerad, Chairman
Mr. Kristoffer Berse, Knowledge Management Coordinator
Dr. Khalid Bouzina, Project Manager
Ms. Jeannette Fernandez, Component 1 Coordinator
Ms. Tara Ledesma, Program Assistant
Ms. Aubrey Lo, Finance and Administrative Assistant
Mr. Irwin Gabriel Lopez, Research Assistant I
Ms. Shirley Mattingly, 3cd Program Director
Ms. Nadia Pulmano, Research Assistant III
Dr. Marqueza Reyes, Urban Disaster Risk Reduction Specialist
Atty. Violeta Seva, General Secretary and Treasurer
Ms. Rhea Rose Victoria, Operations Coordinator

Philippine Institute of Volcanology and Seismology
Dr. Renato U. Solidum Jr., PHIVOLCS Director and 3cd Local Investigator

Metro Manila Development Authority
Mr. Ramon Santiago, Director for Special Operations

Makati City
Hon. Jejomar Binay, City Mayor

Marikina City
Hon. Ma. Lourdes Fernando, City Mayor

Quezon City
Hon. Feliciano Belmonte, City Mayor