

Chapter 6. Priority Action Plans

CHAPTER 6. PRIORITY ACTION PLANS

6.1 Definition of Priority Action Plans

6.1.1 General

105 action plans are identified through basic policy/ basic conceptual framework from 34 frameworks. Some action plans consist of several projects. The “long list” of all action plans is presented in this chapter.

All listed action plans in the long list are recommended for implementation in order to realize the full design of Metropolitan Manila earthquake impact reduction.

The action plans are to be implemented by 2012 based on the term of Mayor’s of the 17 cities and municipalities. The period for implementation will be divided into three terms as follows:

- Short term (3 years): 2004 – 2006
- Mid-term (up to 6 years): 2007 – 2009
- Long-term (up to 9 years): 2010 - 2012

6.1.2 Definition of High Priority Action Plans and Priority Action Plans

1) High Priority Action Plans (Short/ Medium List)

The high priority action plans are essential plans to be initiated as initial steps within 3 to 6 years, in accordance with the overall basic strategies to improve the existing situation.

2) Priority Action Plans (Long List)

Priority action plans are very important plans for the overall reduction of earthquake risk in Metropolitan Manila. Priority action plans should be selected for implementation in timeframes and sequences that complement the above very high and high priority action plans that have already been undertaken.

6.2 Selecting High Priority Action Plans

6.2.1 Areas of Focus

Five areas of focus, aside from the overall master plan prepared, were selected to narrow down the high priority action plans. There are imminent needs to select action plans which are being implemented as soon as possible among the 105. The chosen areas of focus, together with the aim and reason for being selected, are identified as follows:

1) **Area 1: Enhance legal framework and institutional capacity for disaster management**

Aim/Reason:

“By consolidating the legal background for disaster management from national to barangay level, the disaster management system of Metropolitan Manila will be strengthened.” Within this enhanced legal framework, ongoing capacity development programs will provide long term sustainability of disaster management strategies.

2) **Area 2: Build Basic Capacity for Relief and Recovery**

Aim/Reason:

For those who have survived the direct impacts of a major earthquake, the immediate survival needs of the people must be met through effective response and relief. **“Preparation for responding to the survival needs of the people”** is necessary.

3) **Area 3: Strengthen Community Preparedness for the Earthquake**

Aim/Reason:

The responding capacity of administrative bodies in support of the community members is limited in all stages of disaster management, i.e. before, during, or after the disaster strikes. Promote the strategy **“to survive by the community’s own capacity without relying on governmental institutions.”**

4) **Area 4: Reduce dangers of residential buildings**

Aim/Reason:

Earthquake damages and casualties in Metropolitan Manila will be caused directly by building collapse and secondarily by fire spread that will break out from residential buildings. **“Reducing the amount of damages to residential buildings will minimize the estimated losses.”**

5) **Area 5: Enhance National System Resistant to Earthquake**

Aim/Reason:

Metropolitan Manila is the only Metropolitan region of the Philippines so that once damage concentrates in this area, the national system may collapse. By **“Enhancing national systems resistant to earthquake damage and disruption,”** this possibility may be minimized.

6.2.2 Additional Criteria for Selection

Together with the areas of focus, some additional criteria were generally reviewed for further narrowing down the high priority action plans. These criteria are:

Contribution: Do the action plans contribute significantly to accomplishment of earthquake resistance goals and objectives?

Appeal: Do the action plans appeal to common sense? Do they obviously reduce earthquake risk?

Support: Are the action plans supported by the organization(s) required for their implementation?

Practicability: Are the action plans easy to implement? Do they appear to be cost-effective? Are they politically and technically practical to implement?

Sustainability: Are the action plans sustainable?

6.2.3 Selected Priority Action Plans

1) High Priority Action Plans (Short/ Medium List)

(1) List of High Priority Action Plans (Short/ Medium List)

Action plans selected by the criteria above are listed in Table 6.2.1. These action plans are the actual implementation plan to accomplish the goal through strategies, and frameworks. In the list below, frameworks set in the master plan are indicated along with the selected ones.

Table 6.2.1 List of High Priority Action Plans (Short/Medium List)

Framework RMS-3: Enhance legal basis for disaster management

- RMS-3: Strengthen legal basis for disaster management at the national level by updating/replacing PD1566
- RMS-3: Strengthen legal basis at the local level by adopting model city/municipal ordinance

Framework RMS-4, RMS6: Strengthen institutional capacity for mitigation, preparedness and response

- RMS-4: Promote the reorganization and revitalization of city/municipal and barangay Disaster Coordinating Councils
- RMS-4: Promote local government mitigation planning through implementation of the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide
- RMS-4: Conduct training needs assessment and develop capacity building programs for local and barangay DCCs
- RMS-6: Encourage local emergency response planning through use of the Earthquake Mitigation and Response Checklists---Local Planning Guide
- RMS-6 Encourage adoption and utilization of Emergency Response Pocket Guide

- RMS-16: Guide for Managing Information by agencies and LGUs

Framework RMS-5: Strengthen inter-institutional coordination

- RMS-5: Strengthen MMDCC by updating its structure and organizing and implementing a MMDCC Work Plan
- RMS-5: Encourage inter-local cooperation through zonation of LGUs and Mutual Aid Agreements

Framework RMS-11: Enhance emergency health and medical response system

- RMS-11: Enhance organizational response capacities
- RMS-11: Improve government hospital capacities
- RMS-11: Enhance logistics and medical supplies

Framework RMS-12: Establish emergency transportation system

- RMS-12: Establish emergency road network
- RMS-12: Secure road between Batangas Port to Metropolitan Manila south region
- RMS-12: Convert one portion of Manila port to earthquake resistant construction
- RMS-12: Secure road between Subic port/ Clark field to Metropolitan Manila North region
- RMS-12: Construct Laguna de Bay northern shore unloading facility
- RMS-12: Secure Ninoy Aquino airport functions

Framework RMS-10: Secure water

- RMS-10: Secure the large scaled water sources
- RMS-10: Formulate emergency supply system of water, food, and other necessities

Framework CRI-1: Enhance self-reliant and mutual help for efficient risk management capacity

- CRI-1: Knowledge development about earthquake hazards and vulnerabilities
- CRI-1: Enhance the community governance and linkage with LGUs
- CRI-1: Enhance potential emergency management capacities (Fire/ search & rescue, and information management)
- CRI-1: Enhance the administrative system supporting community activities

Framework CRI-2: Inculcate a disaster mitigation culture in future generations

- CRI-2: Enhance school risk management capacity
- CRI-2: Inculcate a disaster mitigation culture in future generations

Framework USI-1, USI-3: Strengthen buildings against earthquake

- USI-1: Promote subdivision development procedures
- USI-3: Promote disaster resistant urban development/ re-development
- USI-3: Enforce and develop laws and regulations related to urban planning and

building code

- USI-4: Research and development on strengthening buildings
- USI-4: Promote construction and improvement for earthquake resistant buildings

Framework USI-2: Avoid fire outbreaks from residential buildings

- USI-2: Tie down and stabilize propane cylinders against earthquake shaking
- USI-2: Promote replacement to unbreakable (plastic-bottled) gasoline vending

Framework R&D-1: Promote research and technology development on earthquake impact reduction

- R&D1: Evaluate activity of the valley fault system

Framework NSD-1: Protect stability of national government function

- NSD-1: Enhance security capability of national government function with the President's office
- NSD-1: Promote urban reform around nationally important facilities

Framework NSD-2: Protect stability of socio-economic system

- NSD-2: Enhance emergency measures by businesses
- NSD-2: Enhance safety of online financial services
- NSD-2: Enhance disaster finance system

(2) Description of High Priority Action Plans (Short/ Medium List)

In this section, outline of the action plan and implementing agencies are listed in the Table 6.2.2 for quick reference.

Table 6.2.2 Description of High Priority Action Plans

Area 1 : Enhance legal framework and institutional capacity for disaster management			
Strategy 1: Enhance legal basis for disaster management			
No.	Action Plan	Outline	Implementing Agency
RMS-3:	Strengthen legal basis for disaster management at the national level by updating/replacing PD1566	Request the President to certify that the bill “An Act Strengthening the Philippine Disaster Management Capability, appropriating funds therefore and other purposes” is urgent.	The President, acting on the request of stakeholders such as the NDCC and MMDCC
RMS-3:	Strengthen legal basis at the local level by adopting model city/municipal ordinance	The Metropolitan Manila Council, chaired by MMDA and comprised of the mayors of the cities and municipalities, is requested to endorse the model ordinance to each LGU for enactment.	MMDA, Metropolitan Manila Council, Mayors and Local Legislative Councils
Strategy 2: Strengthen institutional capacity for mitigation, preparedness and response			
No.	Action Plan	Outline	Implementing Agency
RMS-4:	Promote the reorganization and revitalization of city/municipal and barangay Disaster Coordinating Councils	MMDCC should (1) urge each city/municipal DCC to reorganize its membership and structure and launch a proactive program of disaster preparedness and mitigation, (2) request regular progress reports, (3) periodically consult with CDCCs/MDCCs together with their component BDCCs to create and sustain a proactive preparedness and mitigation strategy.	MMDCC, Mayors, City and Municipal DCCs
RMS-4:	Promote local government mitigation planning through implementation of the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide	Print and distribute widely the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide to local governments, agencies, schools, and others including NGOs as appropriate. Make guides available on the internet.	MMDCC to distribute the guides with endorsement and instructions; appropriate agencies to place guides on their websites.
RMS-4:	Conduct training needs assessment and develop capacity building programs for local and barangay DCCs	(1) Conduct training needs assessment of DCCs, (2) Develop a Metro Manila wide disaster management training and exercising plan, (3) Design specific training courses, exercises, and an implementation strategy including identifying resources, trainers, and specific audiences. Create a training cadre.	MMDCC, with assistance of DILG and OCD
RMS-6:	Encourage local emergency response planning through use of the Earthquake Mitigation and Response Checklists---Local Planning Guide	Print and distribute widely the Earthquake Mitigation and Response Checklists -- Local Planning Guide to local governments; MMDCC to endorse implementation of response planning by LGUs and others as appropriate. Make the guide available on the internet.	MMDCC to distribute the guide with endorsement and instructions; appropriate agencies to place on websites.
RMS-6 /RMS-16:	Encourage adoption and utilization of Emergency Response Pocket Guide and Guide for Managing Information by agencies and LGUs	Print and distribute widely the two draft guides to local governments; MMDCC to encourage LGUs to adapt the drafts to local needs and print them as city/municipal publications. MMDCC to recommend to cities, municipalities, and institutions that they adopt appropriate policies regarding release of information to the public regarding disaster risk and risk reduction measures they can take.	MMDCC, C/MDCCs MMDCC, MMDA, and LGUs

Strategy 3: Strengthen inter-institutional coordination			
No.	Action Plan	Outline	Implementing Agency
RMS-5:	Strengthen MMDCC by updating its structure and organizing and implementing a MMDCC Work Plan	MMDCC to form task group to recommend reorganization and develop an action agenda or work plan to implement MMDCC and LGU-related actions proposed in this study. Activate a core group to oversee progress.	MMDCC, MMDA
RMS-5:	Encourage inter-local cooperation through zonation of LGUs and Mutual Aid Agreements	Request MMDCC and Metropolitan Manila Council to endorse a zonation plan and encourage cities and municipalities to sign MoUs and Mutual Aid Agreements.	MMDCC, MMC, LGUs
Concept 2 : Build Basic Capacity for Relief and Recovery			
Strategy 1: Enhance emergency health and medical response system			
No.	Action Plan	Outline	Implementing Agency
RMS-11:	Enhance organizational response capacities	<ol style="list-style-type: none"> 1. Conclude an agreement among LGUs and/or Provincial Governments: available human and physical resources, procedures to request, financial compensation, etc. 2. Incident Command System, Communication Network among health facilities and personnel, SOP for emergency response. 3. Select and appoint core disaster hospitals in the zone, Structural reinforcement of hospitals, Expansion of temporarily receiving capacity and Strengthening ICU and ER. 	<ol style="list-style-type: none"> 1. Prime: LGU, Coordinator: MMDA and DOH 2. Prime: LGU, Coordinator: MMDA and DOH 3. Prime: DOH, some of LGUs and other governments' hospitals
RMS-11:	Improve government hospital capacities	Physical expansion and functional upgrading of existing provincial hospitals, Relocation/transfer of parts of major government hospitals in central MM areas.	Prime: DOH and Provincial Governments
RMS-11:	Enhance logistics and medical supplies	Make a list of essential medical supplies and consumables for disaster, Purchase and distribute them to medical institutions. Expansion of space to stock them in the institutions based on so-called "running-stock system".	Prime: LGU, DOH and other government's agency with hospitals
Strategy 2: Establish emergency transportation system			
No.	Action Plan	Outline	Implementing Agency
RMS-12:	Establish emergency road network	Emergency road network within the Metropolitan Manila will be established, to respond to the rescue, medical and fire fighting activities. Proposed network is based on the existing hierarchy road network proposed by MMDA, for environmental management purposes. Established emergency road network will be publicized for MMDCC members. At the same time, emergency road network operation will need to be arranged, for efficient response.	MMDA
RMS-12:	Secure road between Batangas Port to Metropolitan Manila south region	Since Metropolitan Manila has possibility to be separated into 4 zones, MM south region will need any access from the southern cities, such as Batangas. One road security from Batangas to MM south region is necessary.	DPWH

No.	Action Plan	Outline	Implementing Agency
RMS-12:	Convert one portion of Manila port to earthquake resistant construction	Manila port is vulnerable that the facility will be damaged and will be useless for landing goods in case of earthquake. Converting one portion of the port to earthquake resistant is important for making use in such condition, and will serve as the main transportation facility for MM west region.	PPA
RMS-12:	Secure road between Subic port/ Clark field to Metropolitan Manila North region	MM north region will be assisted from Subic port/ Clark field, in case of separation occurs. Road between those two areas needs to be secured.	DPWH
RMS-12:	Construct Laguna de bay northern shore unloading facility	MM east region will be separated from all other part of Metropolitan Manila by building collapses. Since this region does not have any transportation hub, it is important to construct new transportation which could act as the emergency transportation hub as well.	PPA
RMS-12:	Secure Ninoy Aquino airport function	Transportation route from air is essential to be protected, together with sea transportation. This function is rather easy to preserve than other functions, if prepared properly.	NAA
Strategy 3: Secure water			
No.	Action Plan	Outline	Implementing Agency
RMS-10:	Secure the large scaled water source for drinking	To secure the major water source which is very important to support and secure citizen's life in emergency situation. Alternate water source beside la mesa dam is needed.	MMDA, DSWD
RMS-10:	Formulate emergency supply system of water, (food, and other necessities)	According to the damage analysis by the JICA study, it is estimated that there will be more than 3 million refugees. In order to support such refugees' daily life, supply of water, food and other necessities is indispensable. Based on the damage analysis, basic strategy and methodology should be developed to cope with emergency supply for the refugees.	LGUs, MMDA, DSWD
Concept 3 : Strengthen community preparedness for the earthquake			
Strategy 1: Enhance self-reliant and mutual help risk management capacity			
No.	Action Plan	Outline	Implementing Agency
CRI-1:	Knowledge development about earthquake hazards and vulnerabilities	Enhancement of community's perception of their vulnerabilities with the help of experts such as earth scientists, structural engineers and urban planners. Participatory analysis of local capacities and vulnerabilities utilizing participatory tools.	PHIVOLCS, MMDA, LGUs
CRI-1:	Enhance the community governance and linkage with LGUs	Upgrading safer physical urban structure through participatory planning. Community governance system will be activated.	LGU, barangay (pilot)
CRI-1:	Enhance potential emergency management capacities (search & rescue, emergency medical, fire extinguish, information management, and evacuation)	Legitimizing local community unit and strengthening social cohesion, Familiarization of emergency tasks and capacity building for emergency response capacities.	MMDA, LGU, barangay

No.	Action Plan	Outline	Implementing Agency
CRI-1:	Enhance the administrative system supporting community activities	CBDM activities will be more effective if there is support from barangay and LGU levels in terms of technical assistance, information dissemination and sharing with other communities, etc.	Barangay, LGU
Strategy 2: Inculcate a disaster mitigation culture in future generations			
No.	Action Plan	Outline	Implementing Agency
CRI-2:	Enhance school risk management capacity	Conducting seminars and training of disaster management. Reviewing and updating disaster management plan	Dep Ed, LGU, schools
CRI-2:	Inculcate a disaster mitigation culture in future generations	Inclusion of disaster risk management education into school curriculum. Dissemination of earthquake damage estimation results. Conducting regular trainings and drills as a part of community activities.	Dep Ed, LGU, schools
Concept 4 : Reduce dangers of residential buildings			
Strategy 1: Strengthen buildings against earthquake			
No.	Action Plan	Outline	Implementing Agency
USI-1:	Promote subdivision development procedures	<ol style="list-style-type: none"> Disseminate the idea of promoting subdivision development procedures for uniform improvement throughout Metro Manila to all relevant agencies and organizations. Promote re-development of the high building collapse and flammable areas; illegal settlement areas, old manila city areas, old city areas in suburban areas by subdivision development procedure standards 	HUDCC, MMDA, Private
USI-3:	Promote disaster resistant urban development/ re-development	To secure the safety of vulnerable urban areas, areas highlighted in comprehensive regional vulnerability will primarily be targeted for this type of urban development. Key directions for this area are to: 1) develop the area for earthquake resistance and fire proofing, and 2) develop open areas for less damage.	LGUs (Monitored by HLURB)
USI-3:	Enforce and develop laws and regulations related to urban planning and building code	Present urban planning and building code for Metropolitan Manila are either loosely enforced or regulated. Strengthening the structure and enforcement is mandatory for appropriate development.	HUDCC, DPWH
USI-4:	Research and development on strengthening buildings	<ol style="list-style-type: none"> Structural design code on masonry type building is revised for fitting to actual building situation in the Philippines. Cheap and effective building strengthening technologies are developed. <p>Building construction related technologies and engineering are developed and diffused. Especially cheap and effective building materials are developed.</p>	DPWH, ASEP, PEIS and Researchers, Construction Industry

No.	Action Plan	Outline	Implementing Agency
USI-4:	Promote construction and improvement for earthquake resistant buildings	Building strengthening techniques are introduced to newly constructed buildings. Retrofitting techniques are introduced to existing buildings. In both cases, LGUs take initiative for promotion of the actions. System for tax exemption or subsidy for smooth introduction of these techniques is also introduced.	Residents, Housing developer, LGUs
Strategy 2: Avoid fire outbreaks from residential buildings			
No.	Action Plan	Outline	Implementing Agency
USI-2:	Tie down and stabilize propane cylinders against earthquake shaking	Teach community members on the importance to tie-down and stabilize propane cylinders against earthquake shaking. Distribute anti-slip and stabilize device by the LGU through barangays to the community.	LGU/ barangay
USI-2:	Promote replacement to unbreakable (plastic-bottled) gasoline vending	Promote use of pet-bottles instead of glass bottles, in order to reduce the risk of gasoline spreading and fire spreading by bottle breaking	BFP
Strategy 3: Promote research and technology development on earthquake impact reduction			
No.	Action Plan	Outline	Implementing Agency
R&D-1:	Evaluate activity of the valley fault system	To understand seismic activity information on the valley fault system, especially on recurrence interval and probability of occurrence.	PHIVOLCS
Concept 5 : Enhance National System Resistant to Earthquake			
Strategy 1: Protect stability of national government function			
No.	Action Plan	Outline	Implementing Agency
NSD-1:	Enhance continuity of national government function with the President's office	<p>1) The emergency management manual of national government will be reviewed based on the earthquake damage estimation by the JICA study to adjust and improve the procedures of disaster response by the Government of the Philippines.</p> <p>2) Telecommunication and transportation system for emergency management by National Government and Malacanang will be developed.</p> <p>3) Necessary staff preparation plan for emergency operation in Congress and Malacanang.</p> <p>4) Emergency transportation network is to be designated to secure minimum transportation to link the important government facilities; and vulnerable buildings along the road network that would block the road when collapsed should be retrofitted beforehand.</p>	LGUs, MMDA, Presidential Office
NSD-1:	Promote urban reform around the nationally important facilities	Malacanang is surrounded predominantly by the old wooden buildings, and with Pandacan oil depot base located on the other side of the Pasig River. The urban land use indicates the high possibility of fire spreading or explosions by oil stock. In order to protect the function of Malacanang, the existing land use should be changed in well-planned manner.	MMDA, Presidential Office

Strategy 2: Protect stability of socio-economic system			
No.	Action Plan	Outline	Implementing Agency
NSD-2:	Enhance emergency measures by businesses	The financial institutes like the central bank and the major private banks, whose shutdown has a tremendous negative impact on the nation's economic activities, should implement seismic assessment, and enhance the seismic resistance of the equipment such as computer system, communication system. The priority is put on those located in the more vulnerable areas due to the fault line locations, earthquake motion, building collapse risk, etc.	MMDA, Presidential Office, Chamber of Commerce
NSD-2:	Enhance safety of online financial services	It enhances the safety of the online financial services by the back-up of the system, in order to secure the system operation even in emergencies.	MMDA, Presidential Office, Chamber of Commerce
NSD-2:	Enhance disaster finance system	The international finance system for emergency situation should be studied in cooperation with International financial institutions.	Presidential Office, Chamber of Commerce, NEDA

2) Priority Action Plans (Long list)

The list of overall action plans is shown in Table 6.2.3. These action plans, which were not selected for the high priority action plans, need to be prioritized based on the criteria and policies described above. Selection process will be undertaken with the organization relative to disaster management in Metropolitan Manila (such as members of NDCC and MMDCC) through coordination by MMDA.

Table 6.2.3 List of Priority Action Plans (Long List)

Development of National System Resistant to Earthquake Impact

NSD-1: Protect stability of national government function

- 1) Enhance security capability of national government function with the Office of the President
- 2) Promote urban reform around important national facilities

NSD-2: Protect stability of socio-economic system

- 1) Enhancing emergency measures of businesses
- 2) Enhance safety of online financial services
- 3) Create a safer business environment
- 4) Enhance emergency finance system

Improvement of Metropolitan Manila's Urban Structure Resistant to Earthquake

USI-1: Promote earthquake resistant urban development

- 1) Improve resistance of residential buildings
- 2) Promote subdivision development procedures
- 3) Enhance social housing policy for Illegal Settlement and Poverty Areas

- 4) Revise comprehensive land use plan

USI-2: Promote flameproof urban development

- 1) Tie down and stabilize propane cylinders against earthquake shaking
- 2) Enforce disaster mitigation measures for possible fire breakout facilities
- 3) Promote replacement to unbreakable (plastic-bottled) gasoline vending
- 4) Promote vulnerability reduction measures for urban industrial zones
- 5) Introduce urban fireproof development method

USI-3: Promote spatial urban development

- 1) Enforce further development of existing open spaces and parks
- 2) Promote disaster resistant urban development/ re-development
- 3) Enforce and develop laws and regulations related to urban planning and building code

USI-4: Promote earthquake-resistant buildings

- 1) Research and develop on strengthening buildings
- 2) Promote construction and improvement for earthquake resistant building
- 3) Develop building engineering related human resources/ Improve building construction permission system

USI-5: Promote earthquake-resistant public facilities

- 1) Strengthen public facilities
- 2) Research and develop for strengthening public buildings
- 3) Develop building engineering related human resources

USI-6: Promote earthquake-resistant infrastructure

- 1) Retrofit bridge structure
- 2) Secure safety of airport facilities
- 3) Secure safety of harbor facilities

USI-7: Promote earthquake-resistant lifeline

- 1) Prepare organizational system among lifeline companies
- 2) Assess Detail Risk of Each Lifeline
- 3) Strengthen emergency operation ability
- 4) Strengthen water distribution function
- 5) Strengthen electricity supply function
- 6) Strengthen telecommunications function

Enhancement of Effective Risk Management System

RMS-1: Promote fire preparedness and mitigation including hazardous materials

- 1) Revise the emergency plan and manuals of the relevant organizations

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- 2) Enhance information and communication system
 - 3) Enhance the emergency response operations of the public organization, LGUs, and the establishments of hazardous materials
 - 4) Establish the support request system and conclude mutual aid agreements

RMS-2: Take measures against tsunami

- 1) Promote Research and development for Tsunami mechanism and damages
- 2) Promote tsunami damage preventive measures

RMS-3: Enhance legal basis for disaster management

- 1) Strengthen legal basis for disaster management at the national level by updating/replacing PD1566
- 2) Strengthen legal basis at the local level by adopting model city/municipal ordinance
- 3) Institutionalize local government framework and financing for disaster management
- 4) Promote policies that encourage implementation of disaster risk reduction measures

RMS-4: Strengthen institutional capacity for implementing preparedness and mitigation measures

- 1) Promote the reorganization and revitalization of city/municipal and barangay Disaster Coordinating Councils
- 2) Promote local government mitigation planning through implementation of the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide
- 3) Conduct training needs assessment and develop capacity building programs for local and barangay Disaster Coordinating Council members and institutions
- 4) Strengthen barangay level preparedness for disaster response and relief

RMS-5: Strengthen inter-institutional coordination

- 1) Strengthen MMDCC by updating its structure and organizing and implementing a MMDCC Work Plan
- 2) Strengthen and update national and Metropolitan Manila level disaster preparedness plans
- 3) Strengthen Incident Command System (ICS) and response decision-making systems
- 4) Encourage inter-local cooperation through zonation of LGUs and Master Mutual Aid Agreement

RMS-6: Strengthening of institutional disaster response capability

- 1) Encourage local emergency response planning through use of the Earthquake Mitigation and Response Checklists -- Local Planning Guide
- 2) Encourage adoption and utilization of emergency response pocket guide by agencies and LGUs
- 3) Encourage agencies and local governments to inventory response and relief resources and sources and identify needed disaster management tools and equipment
- 4) Enhance capacity for training emergency response personnel in response and relief functions

RMS-7: Develop operation systems and procedures

- 1) Develop and institutionalize Standard Operating Procedures (SOPs) for key response functions.
- 2) Develop MMDA Metro Base capabilities for Disaster Operations Center (DOC) operations
- 3) Establish functional Disaster Operations Centers (DOCs) at city/municipal and barangay levels.

RMS-8: Enhance capability of fire suppression and hazardous material abatement

- 1) Revise the emergency plan and manuals of the relevant organizations
- 2) Enhance information and communication system
- 3) Enhance the emergency response operations of the public organizations, LGUs, and the establishments of hazardous materials
- 4) Establish the support request system and conclude mutual aid agreements

RMS-9: Secure evacuation route and evacuation sites

- 1) Formulate evacuation site and plan for the LGUs
- 2) Enhance resources for evacuation

RMS-10: Secure Water, Food, and Other Necessaries

- 1) Secure the large scaled water source
- 2) Formulate emergency supply system of water, food, and other necessities
- 3) Formulate emergency aid agreement

RMS-11: Enhance emergency health and medical response system

- 1) Enhance organizational response capacities
- 2) Improve government hospital capacities
- 3) Enforce logistics
- 4) Expand training programs

RMS-12: Establish emergency transportation system

- 1) Establish emergency road network
- 2) Arrange machineries to DPWH for emergency road response
- 3) Secure road between Batangas Port to Metropolitan Manila south region
- 4) Convert one portion of Manila port to earthquake resistant construction
- 5) Construct Laguna de Bay northern shore unloading facility
- 6) Secure road between Subic port/ Clark field to Metropolitan Manila North region
- 7) Secure Ninoy Aquino airport functions

RMS-13: Establish search and rescue system

- 1) Develop capacity on search and rescue for refugees
- 2) Enhance community search and rescue system
- 3) Establish the system to accept international emergency aid

RMS-14: Establish information and communication system

- 1) Develop disaster information collection and dissemination system in MMDA, LGUs and Barangays
- 2) Establish a disaster management center

RMS-15: Establish geographic information system

- 1) Develop geographic database development for disaster management
- 2) Train LGU staffs on GIS database and information/ communication system

RMS-16: Manage emergency public information

- 1) Promote adoption and implementation by local governments and agencies of the Guide for Managing Information concerning disasters
- 2) Establish partnerships with the media for awareness raising and emergency public information

Increase of Community Resilience**CRI-1: Enhance self-reliant and mutual help for efficient risk management capacity**

- 1) Knowledge development about earthquake hazards and vulnerabilities
- 2) Increase community resistance to earthquake
- 3) Enhance the community governance and linkage with LGUs
- 4) Enhance potential emergency management capacities (Fire/ search & rescue, and information management)
- 5) Enhance the administrative system supporting community activities

CRI-2: Inculcate a disaster mitigation culture in future generations

- 1) Enhance school risk management capacity

- 2) Inculcate a disaster mitigation culture in future generations

Formulation of Reconstruction Systems

RSF-1: Supply temporary refugee housings

- 1) Formulate temporary refugee housing plan

RSF-2: Prepare emergency assistance for everyday life

- 1) Formulate basic policy for emergency assistance for everyday life.

RSF-3: Establish debris clearance and management system

- 1) Formulate debris clearance plan for the LGUs

RSF-4: Restore public and social services

- 1) Formulation of basic policy for post-disaster peace and order keeping activities

RSF-5: Establish post-disaster reconstruction system

- 1) Formulate basic reconstruction policies for living, housing, employment and economic activities.
- 2) Formulate guidelines to urban reconstruction and make a scheme of finances and credits.

RSF-6: Enhance institutional aspect of recovery planning

- 1) Establish pre-disaster policies and institutional arrangements for post-disaster reconstruction and mitigation
- 2) Prepare pre-disaster recovery plans and procedures to ease post-disaster human and physical recovery and rehabilitation

Research and Technology Propulsion for Earthquake Impact Reduction Measures

R&D-1: Promote sustained research and development on earthquake

- 1) Evaluate activity of the Valley Fault System
- 2) Expand of basic inventory on buildings and population for detail damage estimation purpose
- 3) Promote detail study on comprehensive earthquake disaster estimation

3) Summary of Action Plans

Followings are the summary of action plans. Details of the 105 action plans are described hereinafter.

Development of National System Resistant to Earthquake Impact

NSD-1: Protect stability of national government function

Action plan (Program Package) :	Enhance security capability of National Government Function with the Office of the President
Project:	<ol style="list-style-type: none"> 1) Up-date the emergency management manual to protect national government functions and the president office 2) Develop telecommunication and transportation system for emergency management. 3) Secure staff members for emergency management 4) Secure the emergency transportation network
Aim:	To make necessary disaster management orders for national stability and take quick disaster mitigation measures by means of protection of national government function and Malacanang.
Outline:	<ol style="list-style-type: none"> 1) The emergency management manual of national government will be reviewed based on the earthquake damage estimation by the JICA study to adjust and improve the procedures of disaster response by the Government of the Philippines. 2) Telecommunication and transportation system for emergency management by National Government and Malacanang will be developed. 3) Necessary staff preparation plan for emergency operation in Congress and Malacanang. 4) Emergency transportation network are to be designated to secure minimum transportation to link the important government facilities; and vulnerable buildings along the road network that would block the road when collapsed should be retrofitted beforehand
Implementing agency:	LGUs, MMDA, Presidential Office
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Promote urban reform around the important national facilities
Project:	Promote urban reform around the important national facilities
Aim:	To minimize the impact of the disasters on the nationally important facilities by reforming the disaster vulnerable area
Outline:	Malacanang is surrounded predominantly by the old wooden buildings, and with Pandacan oil depot base located on the other side of the Pasig River. The urban land use indicates the high possibility of fire spreading or explosions by oil stock. In order to protect the function of Malacanang, the existing land use should be changed in well-planned manner.
Implementing agency:	MMDA, Presidential Office
Priority:	High
Time frame:	Short, Medium-term

NSD-2: Protect stability of socio-economic system

Action plan (Program Package) :	Enhance emergency measures of businesses
Project:	Develop emergency measures by businesses
Aim:	To secure the social stability and protect economic systems from earthquake disaster in Metropolitan Manila
Outline:	The financial institutes like the central bank and the major private banks, whose shutdown has a tremendous negative impact on the nation's economic activities, should implement seismic assessment, and enhance the seismic resistance of the equipment such as computer system, communication system. The priority is put on those located on the more vulnerable area due to the fault line locations, earthquake motion, building collapse risk, etc.
Implementing agency:	MMDA, Presidential Office, Chamber of Commerce
Priority:	Medium to High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Enhance safety of online financial services
Project:	Introduce back-up of the system
Aim:	To secure the system operation under emergency circumstances
Outline:	It enhances the safety of the online financial services by back-up of the system, in order to secure the system operation even in emergencies.
Implementing agency:	MMDA, Presidential Office, Chamber of Commerce
Priority:	Medium to High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Create a safer business environment
Project:	<ol style="list-style-type: none"> 1) Promote strengthening of office buildings and information facilities against strong earthquake 2) Develop safe network of telecommunication system, private power generation and water supply system to secure business environment 3) Develop satellite offices, relocation of factories and re-distribution of staff to secure business operations
Aim:	To secure the social stability and protect economic systems from earthquake disaster in Metropolitan Manila
Outline:	<ol style="list-style-type: none"> 1) Safety of office buildings and information facilities for business use against strong earthquakes should be checked and necessary strengthening measures should be taken to protect a business function. 2) Computers and telecommunication systems should have a safety backup system for emergency situation. Private power generation and water supply system should also be installed for maintaining usual business. 3) Relocation of factories and satellite office development should be promoted to secure a safer business environment.
Implementing agency:	MMDA, Presidential Office, Chamber of Commerce
Priority:	Medium to High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Enhance emergency finance system
Project:	Study international finance system for emergency situations
Aim:	To establish a finance system in the Philippines which is resistant to the emergency situations, such as large earthquake occurrence.
Outline:	The international finance system for emergency situation should be studied in cooperation with International financial institutions
Implementing agency:	Presidential Office, Chamber of Commerce, NEDA
Priority:	Medium to High
Time frame:	Medium, Long-term

Improvement of Metropolitan Manila's Urban Structure Resistant to Earthquake

USI-1: Promote earthquake resistant urban development

Action plan (Program Package) :	Improve resistance of residential buildings
Project:	<ol style="list-style-type: none"> 1. Retrofitting and Strengthening of Residential Buildings 2. Awareness Promotion and Enlightenment of Residential Houses Retrofitting and Strengthening 3. System Development on Retrofitting of Residential Buildings to make Earthquake Resistant
Aim:	To reduce the numbers of building collapse which gives the largest impact/damage to the Metropolitan Manila
Outline:	<ol style="list-style-type: none"> 1. Retrofit or strength residential buildings by the residents to improve the earthquake resistance. Newly constructed buildings will meet the standard for building code, while existing buildings need to be strengthened by certain retrofitting. Cities and municipalities close to fault, such as Marikina city, Pasig city, Muntinlupa city, and old metropolitan manila areas with vulnerable buildings are the high priority areas. 2. To bring out the sense of danger and incentives of individual residents to retrofit/ strengthen their homes, awareness promotion on building collapse and distribution of the measures are important. 3. Improve the existing systems such as "Unified home lending program" by the national home mortgage finance corporation, to give loan priorities to the one following earthquake resistance. Develop new loan system to assist residential building owners for building retrofitting.
Implementing agency:	<ol style="list-style-type: none"> 1. Residents/ Communities 2. LGU 3. HUDCC/NHMFC
Priority:	High
Time frame:	Short, Medium, Long-term

Action plan (Program Package) :	Promote subdivision development procedures
Project:	<ol style="list-style-type: none"> 1. Promote subdivision development procedures for the new residential development 2. Promote conversion to subdivisions in high building collapse and flammable areas
Aim:	Develop new and high building collapse and flammable residential area with the subdivision development procedure standards, so that the quality of residential buildings will be uniform.
Outline:	<ol style="list-style-type: none"> 1. Disseminate the idea on promoting subdivision development procedures for uniform improvement throughout Metro Manila to all relevant agencies and organizations. 2. Promote re-development of the high building collapse and flammable areas; illegal settlement areas, old manila city areas, old city areas in suburban, by subdivision development procedure standards
Implementing agency:	HUDCC/ MMDA
Priority:	High
Time frame:	Short, Long

Action plan (Program Package) :	Enhance Social Housing Policy for Illegal Settlement and Poverty Areas
Project:	Social Housing Policy Enhancement for Illegal Settlement and Poverty Areas
Aim:	To enhance and develop social housing programs targeting informal settled and poverty areas for better resistance to the earthquake.
Outline:	Estimated building collapse is concentrated in the informal settled and poverty areas. For these types of areas, improvement will be done through area re-development. To carry out the program, social housing policy will be reviewed and enhanced. Major review will be on 1) Community mortgage program, and 2) Relocation and resettlement program.
Implementing agency:	NHA
Priority:	Medium
Time frame:	Medium-term

Action plan (Program Package) :	Revise Comprehensive Land Use Plan
Project:	Comprehensive Land Use Plan Revision
Aim:	To incorporate seismic hazards to land use plan for all LGUs.
Outline:	Update all CLUPs with new information on damage estimation and urban vulnerability analysis done by MMEIRS project. Ensure that all CLUPs will be updated within on year of the date that the above information is published. Include the restriction of land use close to faults.
Implementing agency:	HLURB/ MMDA/ LGUs
Priority:	High
Time frame:	Short-term

USI-2: Promote flameproof urban development

Action plan (Program Package) :	Tie down and stabilize propane cylinders against earthquake shaking
Project:	
Aim:	To reduce fire outbreak from residences in case of earthquake.
Outline:	Teach community members on the importance of using anti-slip devices for the hose connecting propane cylinder and cooking stoves. Distribute anti-slip device by the LGU through barangays to the community.
Implementing agency:	LGU/ barangay
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Enforce disaster mitigation measures for possible fire breakout facilities
Project:	
Aim:	To reduce fire outbreak and spreading possibility from hazardous materials treating facilities, in case of earthquake
Outline:	Promote retrofitting of facilities such as restaurants, hospitals, universities, and factories by private sector, together with preparation of emergency response systems, to reduce fire breakout and spreading possibilities.
Implementing agency:	BFP/ LGU
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Promote replacement to unbreakable (plastic-bottled) gasoline vending
Project:	
Aim:	To reduce the risk of gasoline spreading by prohibiting the use of glass bottling for gasoline vending.
Outline:	Promote use of pet-bottles instead of glass bottles, in order to reduce the risk of gasoline spreading and fire spreading by bottle breaking.
Implementing agency:	BFP
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Promote vulnerability reduction measures for urban industrial zones
Project:	
Aim:	To reduce fire breakout risks of urban industrial zones.
Outline:	Relocation of the urban industrial zones will be promoted by MMDCC. Since relocation is the most effective measure to reduce impact, this will be considered as the primary measure to take. Primary targeted areas will be the Pandacan area of Manila city, industrial areas in Pasig city and Northwestern part of Metropolitan Manila. Alternate less prioritized measures to be taken are the diagnosis and retrofitting of the important facilities, and construction of the buffer zones. However, those alternate measures will be considered only if the relocation is decided not feasible.
Implementing agency:	MMDCC members. Core members are MMDA and HUDCC
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Introduce urban fire proof development method
Project:	
Aim:	To develop urban fire proof districts for constructing fire resistant built up areas.
Outline:	Introduce the method of urban fire proof development to the high flammable area. Primarily targeted areas are the northeastern portion of Metropolitan Manila and old Manila city areas.
Implementing agency:	HLURB/MMDA
Priority:	Medium
Time frame:	Short-term

USI-3: Promote spatial urban development

Action plan (Program Package) :	Enforce further development of existing open spaces and parks
Project:	
Aim:	To prevent further land conversion from open spaces and parks to build up areas.
Outline:	Many LGUs has plans to convert open spaces and parks to build up areas to accommodate increasing population and services. However, abridgement of open spaces and parks increases the area vulnerability to earthquake. This aspect will also be incorporated into CLUP.
Implementing agency:	HLURB/ MMDA/ LGUs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Promote Disaster Resistant Urban Development/ re-development
Project:	
Aim:	To increase security for the area lacking open spaces and parks for evacuation purposes.
Outline:	To secure the evacuating safeties, areas highlighted in figures of evacuation difficulty and flammability will primarily be targeted for this type of urban development. Key directions for this area are to 1) develop parks for the use of evacuation center under emergency situation, and 2) improve/widen roads, river catchments, and pedestrians, for securing evacuation routes.
Implementing agency:	LGUs (Monitored by HLURB)
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Enforce and develop laws and regulations related to urban planning and building code
Project:	
Aim:	To enforce and develop laws and regulation appropriately so that the plan will be reflected to the development of actual urban development.
Outline:	Present urban planning and building code for Metropolitan Manila are either loosely enforced or regulated. Strengthening the structure and enforcement is mandatory for appropriate development.
Implementing agency:	HUDCC, DPWH
Priority:	High
Time frame:	Medium-term

USI-4: Promote earthquake-resistant buildings

Action plan (Program Package) :	Research and develop on strengthening buildings
Project:	1. Improvement of structural design code 2. Development and diffusion of building strengthening technologies
Aim:	Technologies on building strengthening and retrofitting are researched and developed. These are defined as building code. Also cost-effective building materials are developed and diffused.
Outline:	1. Structural design code on masonry type building is revised for fitting to actual building situation in the Philippines. 2. Cheap and effective building strengthening technologies are developed. Building construction related technologies and engineering are developed and diffused. Especially Cheap and effective building materials are developed.
Implementing agency:	DPWH, ASEP, PICE and Researchers, Construction Industry
Priority:	High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Promote construction and improvement for earthquake resistant building
Project:	Promotion of earthquake resistant building
Aim:	Acceleration of individual building owner for improving building quality
Outline:	Building strengthening techniques are introduced to newly constructed buildings. Retrofitting techniques are introduced to existing buildings. In both cases, LGU take initiative for promotion of the actions. System for tax exemption or subsidy for smooth introduction of these techniques is also introduced.
Implementing agency:	Residents, Housing developer, LGUs
Priority:	High
Time frame:	Short, Medium, Long-term

Action plan (Program Package) :	Develop building engineering related human resources Improve building construction permission system
Project:	1. Education and training of administrative staffs 2. Education and training of building engineer, workers 3. Improvement of building permission system
Aim:	Promotion of framework for promotion of earthquake-resistant building propagation
Outline:	1. Training system to raise skill of individual workers, supervisors are developed. Also researchers and administrative staff on building engineering are developed comprehensively. 2. Introduction of registered building engineer for the designing, checking and supervising are considered to cope with a number of building permission in each LGU.
Implementing agency:	DPWH, ASEP, PICE and LGUs
Priority:	High
Time frame:	Medium, Long-term

USI-5: Promote earthquake-resistant public facilities

Action plan (Program Package) :	Strengthen public facilities
Project:	1. Framework preparation for strengthening public building 2. Strengthening work of public buildings
Aim:	Public buildings serve for center facility during disaster. Framework of strengthening of the public buildings is discussed under coordination of NDCC and MMDCC, not by each related departments or agencies.
Outline:	Framework of strengthening is defined. Function as facility for emergency activity for each building is defined at first. Next detail inventory is set up through seismic performance diagnosis. The framework includes contents, schedule, prioritization, preparation of budget and others.
Implementing agency:	NDCC and MMDCC organizing body and LGUs under NDCC management Technical assistance by DPWH, ASEP and PICE
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Research and develop for strengthening public buildings
Project:	Improvement of structural design code
Aim:	Technologies on building strengthening and retrofitting are researched and developed. These are defined as building code.
Outline:	<ol style="list-style-type: none"> 1. Current structural design code is upgraded. Especially design earthquake forces, method of construction for masonry type building are developed and introduced in the code. And ground properties evaluation items are defined according to importance of the structures. Cheap and effective building strengthening technologies are also developed. 2. Building engineering related technologies and engineering are developed and diffused. Especially building seismic performance diagnosis procedure and rapid assessment after earthquake damage are defined.
Implementing agency:	DPWH, ASEP, PICE and Researchers, Construction Industry
Priority:	High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Development of building engineering related human resources
Project:	<ol style="list-style-type: none"> 1. Education and training of administrative staffs 2. Education and training of building engineer, workers
Aim:	Improve and develop construction related officials, engineers, supervisors and workers.
Outline:	Training system to raise skill of individual workers, supervisors are developed. Also researchers and administrative staff on building engineering are developed comprehensively.
Implementing agency:	DPWH, ASEP, PICE, LGUs
Priority:	High
Time frame:	Medium, Long-term

USI-6: Promote earthquake-resistant infrastructure

Action plan (Program Package) :	Retrofit Bridge Structure
Project:	Retrofitting Project of Existing Bridges
Aim:	To secure safety of road network, maintaining of bridge structure useable is indispensable. Recent trend of retrofitting project along major road by DPWH increases the strength of bridge structures, however, still this effort must be continued. On the other hand, retrofitting of local roads is not yet started.
Outline:	Retrofitting of bridges is indispensable. However, considering cost effectiveness, prioritization of bridges within MM should be considered. Result of Bridge Damage Estimation should be utilized effectively and bridges, which were estimated as Large and Moderate Vulnerability should be investigated in detail.
Implementing agency:	DPWH, DILG, PICE
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Secure Safety of Airport Facility
Project:	1. Reinforcement of Important Airport Facilities 2. Establishment of Airport Back Up System
Aim:	1. To secure role of airport functional to accept incoming air freights from both domestic and international. 2. To avoid dysfunction of gateway airport of capital, back up system must be prepared in case of damage to airport control facilities.
Outline:	1. To avoid dysfunction of airport facility, strengthening measures especially important facility such as control tower must be investigated. Seismic Diagnosis of such facilities must be undertaken and necessary measures must be taken. 2. Preparation of back up system for central tower is necessary and in case of dysfunction, coordination with other airport such as Clark Airport. Proactive program to reduce risk in airport facilities to secure the safety must be prepared in advance.
Implementing agency:	1. DOTC, MIAA
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Secure Safety of Harbor Facility
Project:	Strengthening of Harbor Facility
Aim:	To secure the function of harbor in case of earthquake disaster
Outline:	Liquefaction potential of Harbor area is high and certain scale of damages to port facilities cannot be avoided. At present, appropriate measures against earthquake do not exist within related agencies and companies, therefore, prompt action to reduce damages should be taken. Retrofitting or rehabilitation of pier and preventing cranes falling off should be considered.
Implementing agency:	DOTC, PPA, ATI, ICTSI, PICE
Priority:	High
Time frame:	Medium-term

USI-7: Promote earthquake-resistant lifeline

Action plan (Program Package) :	Prepare Organizational System among Lifeline Companies
Project:	Establishment of Lifeline Sub-Committee in MMDCC
Aim:	Information sharing, coordination and communication among lifeline companies are important. To pursue emergency activities promptly and effectively as possible, periodical meetings within lifeline companies are necessary to prepare for earthquake event.
Outline:	Each lifeline companies assign responsible personal for disaster management and share the idea to reduce risks against earthquake, also this committee will act as countermeasures headquarter for lifeline after earthquake occurrence.
Implementing agency:	All Lifeline Companies, PICE
Priority:	high
Time frame:	Short-term

Action plan (Program Package) :	Assess Detail Risk of Each Lifeline
Project:	Implementation of Detail Risk Assessment of each Lifeline
Aim:	To recognize weakness of their facilities. Therefore, it is necessary to promote implementation of research project in risk assessment of each facility.
Outline:	In detail risk assessment, both node such as buildings, and network such as pipelines and cables must be evaluated against earthquake in detail. In order to evaluate vulnerability, database of each facility and network must be updated.
Implementing agency:	All Lifeline Companies
Priority:	high
Time frame:	Short-term

Action plan (Program Package) :	Strengthen Emergency Operation Ability
Project:	1. Preparation of Emergency Operation Manual 2. Strengthening of Emergency Operation Team
Aim:	1. To implement emergency operation for quick recovery of damaged points, emergency operation plan including manual must be prepared in advance and widely read by each staff. 2. To implement recovery work of damaged points, necessary capacity increase of Emergency Operation Team is necessary.
Outline:	1. Manual shall include name of assigned personal, in case of disaster, how to gather, define damaged points, dispatch operation team promptly. 2. Based on prepared manual, periodical drills to dispatch and implement recovery work smoothly, emergency team shall prepare in advance. And utilizing damage estimation of lifeline, certain number of personals, vehicles, equipments, and materials shall be prepared and listed to make appropriate planning for quick recovery. In addition, it is necessary to make agreement with related regional companies and contractors to support in case of catastrophic disaster, which can not be dealt within the resources in each company.
Implementing agency:	All Lifeline Companies
Priority:	high
Time frame:	Short-term

Action plan (Program Package) :	Strengthen Water Distribution Function
Project:	Strengthening of Water Distribution Facilities
Aim:	To reduce damage of water distribution facilities against earthquake
Outline:	Generally, high priority facility is near to water resource such as dams. Especially in MM, Angat Dam is major water source and secure safety is indispensable. For network safety, more than 25% of pipes are cast iron which many damages were observed in the past earthquakes, gradual upgrading of pipes to seismic resistant pipes, such as Ductile Iron pipes, is necessary.
Implementing agency:	MWSS, Manila Water, Maynilat Water
Priority:	high
Time frame:	Medium-term

Action plan (Program Package) :	Strengthen Electricity Supply Function
Project:	1. Strengthening of Electric Supply Facilities 2. Regulation of Illegal connection of electricity to Squatter Area
Aim:	1. To reduce damage of electric supply facilities against earthquake 2. To reduce risk of fire caused by short circuit.
Outline:	1. Ideal way of avoiding cut of electricity, changing aerial line to underground line is effective, however, considering cost and social condition, it is not distant to change the network. Most of damages are caused by utility pole break down and damage to porcelain bars in sub stations. Necessary strengthening is expected together with considering installation of central control system to support safety of electric supply. 2. Illegal connection of electricity in squatter area will cause outbreak of fire causing by short circuit, since connection of cables are not sufficient and cut off of lines occurs easily. Regulating such illegal connection may decrease risk of fire outbreak.
Implementing agency:	1. NPC, Meralco 2. Meralco
Priority:	high
Time frame:	1. Medium-term 2. Short-term

Action plan (Program Package) :	Strengthen Telecommunications Function
Project:	Strengthening of Telecommunications Service Facilities
Aim:	To reduce damage of telecommunication facilities against earthquake
Outline:	Interruption of telephone communication will cause delay of emergency activities. Maintaining continuous connection especially among disaster management organization, it is at least necessary to keep connection all the time. Seismic Diagnosis of exchange stations is also necessary.
Implementing agency:	All Telephone Service Companies
Priority:	high
Time frame:	Medium-term

Enhancement of Effective Risk Management System

RMS-1: Promote fire preparedness and mitigation including hazardous materials

Action plan (Program Package) :	Revise the emergency plan and manuals of the relevant organizations
Project:	
Aim:	To enhance response operations of the relevant organizations more effective to cope with the emergency situation
Outline:	Review the existing emergency response plan if any, or if not establish an emergency response plan based on MMEIRS's risk maps and vulnerability analyses; at the same time, operation manuals to be revised or established
Implementing agency:	NDCC, MMDC, BPF, police, LGUs, and the other relevant organizations
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Enhance information and communication system
Project:	
Aim:	To ensure the speedy and accurate collection and delivery of the necessary information for response operations, among the related organizations
Outline:	Design the information and communication system, including GIS of the map data of Metro Manila, based on the quantities and contents of the necessary information following the emergency response plan and manual; Staff to be trained on the usage of the system and to have drills;
Implementing agency:	BPF, LGUs
Priority:	High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Enhance the emergency response operations of the public organizations, LGUs, and the establishments of hazardous materials
Project:	<ul style="list-style-type: none"> - Enhance emergency response operations of fire services and the other public organizations against the disaster caused by hazardous materials - Enhance emergency response operations of business establishments of hazardous materials
Aim:	To respond properly to the disasters caused by hazardous materials
Outline:	Based on the emergency plans and manuals, the emergency staff to have training and drills on how to respond to the disaster caused by hazardous materials; to maintain staff's morale to be prepared to the disaster events; enforce properly the Fire Code on the duty of the establishments of hazardous materials in order to make them to comply with the rule and prepare the emergency response by training and drills
Implementing agency:	BPF, LGUs, business establishments of hazardous materials
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Establish the support request system and conclude mutual aid agreements
Project:	
Aim:	To respond the disaster damage surpassing the response capability by enhancing the total response capability by using resources efficiently
Outline:	BPF to establish the request procedure for support from outside with the related organizations and the LGUs; BP and the LGUs to advance conclusion of the mutual aid agreement
Implementing agency:	BPF, LGUs
Priority:	Mid
Time frame:	Long-term

RMS-2: Take measures against tsunami

Action plan (Program Package) :	Promote research and development for Tsunami mechanism and damages
Project:	Study on tsunami mechanism and tsunami damage
Aim:	Tsunami damage effect is studied in detail. This result is basis for any consideration on preventive measure of tsunami damages.
Outline:	<ol style="list-style-type: none"> 1. Support ongoing research work by PHIVOLCS on mechanism of Tsunami and its damages. 2. Evaluate tsunami damage and its effect to society and infrastructure 3. Examine tsunami damage preventive measures
Implementing agency:	PHIVOLCS, DPWH, DOTC, NDCC, MMDCC
Priority:	Medium
Time frame:	Medium, Long-term

Action plan (Program Package) :	Promote tsunami damages preventive measures
Project:	<ol style="list-style-type: none"> 1. Promotion of public awareness on tsunami effects 2. Establishment of tsunami information dissemination system
Aim:	Preventing tsunami damage measures are propagate to public
Outline:	<ol style="list-style-type: none"> 1. Tsunami damage characteristics are disseminated to the public through NDCC, MMDCC and LGUs. And evacuation procedure, route, site are defied in each LGUs. 2. Tsunami information after earthquake occurrence are immediately disseminated to public through available information sources. The system are developed.
Implementing agency:	PHIVOLCS, NDCC, MMDCC, DOTC, LGUs, Residents, Public media agencies, Telecommunication agencies
Priority:	Medium
Time frame:	Medium, Long-term

RMS-3: Enhance legal basis for disaster management

Action plan (Program Package) :	Strengthen Legal Basis at National Level by Updating/Replacing PD1566
Project:	Support and Promote NDCC Proposed Legislation
Aim:	To update and strengthen the legal basis for the Philippines disaster management system; to reflect the current holistic approach to disaster management and its relation with urban planning and development.
Outline:	Request the President to certify that the bill “An Act Strengthening the Philippine Disaster Management Capability, appropriating funds therefore and other purposes” is urgent.
Implementing agency:	The President, acting on the request of stakeholders such as the NDCC and MMDCC
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Strengthen Legal Basis at Local Level by Adopting City/Municipal Disaster Management Ordinance
Project:	Promote Adoption of Disaster Management Ordinance by Each City and Municipality
Aim:	A city/municipal ordinance is needed to strengthen the legal framework and institutionalize disaster mitigation programs at the local level. City/municipal authorities can also strengthen their Disaster Coordinating Council's effectiveness by the local legislative councils enacting a comprehensive ordinance on disaster management.
Outline:	The Metropolitan Manila Council, chaired by MMDA and comprised of the mayors of the cities and municipalities, is requested to endorse the model ordinance to each LGU for enactment.
Implementing agency:	MMDA, Metropolitan Manila Council, Mayors and Local Legislative Councils
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Institutionalize Local Government Framework and Financing for Disaster Management
Project:	Improve financial viability of local disaster management programs and councils
Aim:	To institutionalize regular funding for pre-disaster mitigation and preparedness programs
Outline:	MMDCC should policy guidance to the CDCCs and MDCCs in the optimal use of the 5% Calamity Fund, such policy to be based on a MMDCC master plan on disaster mitigation and on the needs of specific local jurisdictions. Also, MMDCC should urge each local DCC to: (1) set priorities for urgent disaster preparedness activities to be undertaken with funding from the 5% calamity fund, (2) identify resources (equipment, supplies, funds, and personnel time) included in departmental budgets which can be utilized in furtherance of disaster preparedness and mitigation, and (3) identify other resources within the community which can be accessed to support community (barangay level) preparedness and mitigation activities.
Implementing agency:	City/municipal DCCs with assistance from MMDA and DILG
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Promote Policies that Encourage Implementation of Disaster Risk Reduction Measures
Project:	Institutionalize the integration of disaster mitigation in urban land use and development plans
Aim:	To ensure that earthquake and other disaster risk is taken into account in future land use, urban planning, and urban development
Outline:	DCCs at each level should request their legislative bodies to adopt disaster risk reduction policies and ensure that disaster mitigation measures are included in national, regional, and local development and land use plans.
Implementing agency:	NDCC, MMDCC, MMC, and legislative bodies
Priority:	High
Time frame:	Short-term

RMS-4: Strengthen institutional capacity for implementing preparedness and mitigation measures

Action plan (Program Package) :	Promote the reorganization and revitalization of city/municipal and barangay Disaster Coordinating Councils
Project:	Reorganize all DCCs in the cities and municipalities
Aim:	To revitalize and strengthen the capabilities of the DCCs
Outline:	MMDCC should urge each city/municipal DCC to reorganize its membership and structure and launch a proactive program of disaster preparedness and mitigation, with progress reported regularly to MMDCC. MMDCC should undertake periodic consultations and dialogues with CDCCs and MDCCs together with their component BDCCs. These horizontal and vertical consultations should be "regularized" to create and sustain awareness of the need for a proactive disaster preparedness and mitigation strategy.
Implementing agency:	MMDCC, Mayors, City and Municipal DCCs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Promote local government mitigation planning through implementation of the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide.
Project:	Implementation of planning tools for earthquake mitigation and preparedness by local governments
Aim:	To facilitate local government implementation of earthquake mitigation programs and preparedness for emergency response and relief
Outline:	Print and distribute widely the Earthquake Mitigation Handbook and the Earthquake Mitigation and Response Checklists -- Local Planning Guide to local governments, agencies, schools, and others including NGOs as appropriate.
Implementing agency:	MMDCC to distribute the guides with endorsement and any instructions as appropriate.
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Conduct training needs assessment and develop capacity building programs for local and barangay Disaster Coordinating Council members and institutions.
Project:	Develop a Metro Manila wide training and exercising plan setting forth basic government policy and direction in pursuit of the vision for a safe Metro Manila.
Aim:	To capacitate both individuals and institutions, as an anticipatory move in preparation for an earthquake or other disaster, to protect lives and properties.
Outline:	(1) Conduct training needs assessment of DCCs, (2) Develop a Metro Manila wide disaster management training and exercising plan, (3) Design specific training courses, exercises, and an implementation strategy including identifying resources, trainers, and specific audiences.
Implementing agency:	MMDCC, with assistance of DILG and OCD
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Strengthen barangay level preparedness for disaster response and relief
Project:	Update barangay level disaster planning guidance and barangay response readiness, plans, and networking with community based organizations
Aim:	To enhance barangay-level planning and preparedness for response and relief to victims as well as reducing disaster impacts
Outline:	MMDCC should (1) request OCD, in cooperation with DILG and BDCC representatives, to revise and update the 1988 Barangay Disaster Manual; (2) request each city/municipal DCC to coordinate and oversee the preparation or revision of existing barangay level emergency plans in each of its barangays, based on the new guidance. MMDCC should request Local DCCs to: (1) Provide BDCC adequate communication facilities and assist them to establish an effective disaster monitoring system useful in inter-barangay aid agreements and other arrangements; (2) Request BDCCs to strengthen their networking with community based organizations in order to assure high community participation in the event of disaster or emergency.
Implementing agency:	MMDCC, OCD, DILG, C/MDCCs, BDCCs
Priority:	High
Time frame:	Short-term

RMS-5: Strengthen inter-institutional coordination

Action plan (Program Package) :	Strengthen MMDCC by updating its structure and organizing and implementing a MMDCC Work Plan
Project:	Reorganization and rebirth of MMDCC as an effective inter-institutional policy and coordinating council
Aim:	To reorganize, institutionalize, and activate MMDCC as a vital body pursuing an action agenda
Outline:	MMDCC should: (1) Request a task group to recommend a reorganization proposal to streamline MMDCC structure, (2) Review MMDCC-related recommendations in this Study and develop a work plan or action agenda for implementing its highest priority actions over time, (3) Request MMDA (and other agencies such as DILG, if appropriate) to allocate a core group of personnel to act as permanent staff to MMDCC to assist MMDCC in monitoring progress in meeting work plan goals and objectives.
Implementing agency:	MMDCC, MMDA
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Strengthen and update national and Metropolitan Manila level disaster preparedness plans
Project:	Promote the revision and updating of national and Metro Manila plans for earthquake and disaster preparedness
Aim:	To ensure clarity and appropriateness of policies, responsibilities, and duties outlined in the plans and familiarity of concerned agencies and LGUs with each plan's contents
Outline:	MMDCC should (1) Support efforts of the NDCC to update the National Calamities and Disaster Preparedness Plan (1988) and the Valley Faultline Contingency Plan (1991), and (2) Support efforts of MMDA to update the Metro Manila Calamities and Disaster Preparedness Plan (or Emergency Preparedness Plan), and the Metro Manila Earthquake Disaster Preparedness and Response Plan (or Earthquake Preparedness Plan, 1999). Upon completion of the revisions, the NDCC and MMDCC should circulate each plan to all concerned agencies and LGUs and coordinate a tabletop exercise to test the revised plans.
Implementing agency:	MMDCC, NDCC, MMDA, LGUs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Strengthen Incident Command System (ICS) and response decision-making systems
Project:	Implement the Incident Command System (ICS) as the standard framework for managing emergencies and disasters
Aim:	To improve decision-making by providing a clear hierarchy of command or management of a disaster situation regardless of its size or complexity, with appropriate limits in span-of-control.
Outline:	MMDCC to request the NDCC and local DCCs to endorse the Metro Manila wide adoption and application of the Incident Command System for managing emergencies and disasters in single jurisdictions and in Mutual Aid situations; MMDCC to seek funding from national or international sources for Metro Manila-wide training in ICS
Implementing agency:	MMDCC, NDCC, OCD, C/MDCCs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Encourage inter-local cooperation through zonation of LGUs and Mutual Aid Agreements
Project:	Adopt a zonation plan through Memoranda of Understanding authorizing inter-city cooperation for disaster preparedness planning, mitigation strategies, and response assistance.
Aim:	To facilitate response coordination and to provide adequate resources, facilities, and other support to jurisdictions whenever their own resources prove to be inadequate to cope with a disaster.
Outline:	Request MMDCC and Metropolitan Manila Council to endorse a zonation plan and encourage cities and municipalities to sign MoUs and Mutual Aid Agreements
Implementing agency:	MMDCC, MMC, LGUs
Priority:	High
Time frame:	Short-term

RMS-6: Strengthening of institutional disaster response capability

Action plan (Program Package) :	Encourage local emergency response planning through use of the Earthquake Mitigation and Response Checklists -- Local Planning Guide
Project:	Implementation of response planning and preparedness by local governments
Aim:	To facilitate local government preparedness for emergency response and relief
Outline:	Print and distribute widely the Earthquake Mitigation and Response Checklists -- Local Planning Guide to local governments; MMDCC to endorse implementation of response planning by LGUs and others as appropriate.
Implementing agency:	MMDCC to distribute the guide with endorsement and any instructions as appropriate.
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Encourage adoption and utilization of Emergency Response Pocket Guide by agencies and LGUs
Project:	Dissemination of the Emergency Response Pocket Guide for adaptation to local needs by LGUs
Aim:	To enhance emergency response readiness by local DCCs and agencies
Outline:	Print and distribute widely the draft Emergency Response Pocket Guide to local governments; MMDCC to encourage LGUs to adapt the draft to local needs and print it as a city/municipal publication.
Implementing agency:	MMDCC, C/MDCCs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Encourage agencies and local governments to inventory response and relief resources and sources and identify needed disaster management tools and equipment
Project:	Identify existing and needed resources for response and relief
Aim:	To ensure adequate resources to meet the immediate needs of responding agencies and victims in case of a major disaster
Outline:	MMDCC to request agencies and C/MDCCs to inventory existing resources and how to access them, and identify additional needs to ensure adequate response and meeting the needs of victims; MMDCC to consolidate such resource listings for use in the Metro Base DOC and such needs listings for seeking internal and external funding sources.
Implementing agency:	MMDCC, C/MDCCs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Enhance capacity for training emergency response personnel in response and relief functions
Project:	Develop and maintain training and exercising coordination cadre for capacity building for response and relief functions
Aim:	To ensure adequate capacity for consistent, Metro Manila wide delivery of standard training for response and relief
Outline:	MMDCC to request assistance from MMDA, DILG, and OCD in (1) forming a cadre of trainers to conduct Metro Manila wide training for emergency response personnel in key response and relief functions, and (2) establishing and implementing a master training plan for emergency responders (see also Action Plan for "Conduct training needs assessment and develop capacity building programs").
Implementing agency:	MMDCC, MMDA, DILG, OCD
Priority:	High
Time frame:	Short-term

RMS-7: Develop operation systems and procedures

Action plan (Program Package) :	Develop and institutionalize Standard Operating Procedures (SOPs) for key response functions
Project:	Develop Standard Operating Procedures, training, and exercising for high priority response functions
Aim:	To provide guidance to city/municipality and barangay DCCs regarding key response functions
Outline:	MMDCC to: (1) Urge the NDCC to accelerate its development of a standard damage assessment process and its institutionalization; (2) Request NDCC to undertake or assist MMDCC in undertaking development and institutionalization of Standard Operating Procedures for other key response and/or relief functions.
Implementing agency:	MMDCC, NDCC, C/MDCCs, BDCCs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Develop MMDA Metro Base capabilities for Disaster Operations Center operations
Project:	Identify and secure needed equipment, training and other resources for MMDA Metro Base operations as a DOC
Aim:	To provide effective capacity to coordinate inter-agency and inter-local disaster response and relief operations
Outline:	MMDCC to request MMDA to: (1) Identify equipment, training, and other resource needs to optimize the functionality of Metro Base as a DOC, (2) Prepare a DOC development plan and budget, and (3) MMDCC to support MMDA in implementation of the plan.
Implementing agency:	MMDCC, MMDA
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Establish functional Disaster Operations Centers (DOCs) at city/municipal and barangay levels.
Project:	Provide for Standard Operating Procedures, equipping, and staff training for Disaster Operations Centers
Aim:	To provide for inter-institutional coordination of response activities and gathering, analyzing, and disseminating of critical information during disasters
Outline:	Develop and test Standard Operating Procedures for Disaster Operations Centers. Identify needed equipment, including communications equipment, for DOCs. Train personnel in DOC operations and test DOC functions and procedures through exercises.
Implementing agency:	LGUs with assistance of OCD, DILG, and MMDCC
Priority:	High
Time frame:	Short-term

RMS-8: Enhance capability of fire suppression and hazardous material abatement

Action plan (Program Package) :	Revise the emergency plan and manuals of the relevant organizations
Project:	
Aim:	To enhance response operations of the relevant organizations more effective to cope with the emergency situation
Outline:	Review the existing emergency response plan if any, or if not establish an emergency response plan based on MMEIRS's risk maps and vulnerability analyses; at the same time, operation manuals to be revised or established
Implementing agency:	NDCC, MMDC, BPF, police, LGUs, and the other relevant organizations
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Enhance information and communication system
Project:	
Aim:	To ensure the speedy and accurate collection and delivery of the necessary information for response operations, among the related organizations
Outline:	Design the information and communication system, including GIS of the map data of Metro Manila, based on the quantities and contents of the necessary information following the emergency response plan and manual; Staff to be trained on the usage of the system and to have drills;
Implementing agency:	BPF, LGUs
Priority:	High
Time frame:	Medium, Long-term

Action plan (Program Package) :	Enhance the emergency response operations of the public organizations, LGUs, and the establishments of hazardous materials
Project:	<ul style="list-style-type: none"> • Enhance emergency response operations of fire services and the other public organizations against the disaster caused by hazardous materials • Enhance emergency response operations of business establishments of hazardous materials
Aim:	To respond properly to the disasters caused by hazardous materials
Outline:	Based on the emergency plans and manuals, the emergency staff to have training and drills on how to respond to the disaster caused by hazardous materials; to maintain staff's morale to be prepared to the disaster events; enforce properly the Fire Code on the duty of the establishments of hazardous materials in order to make them to comply with the rule and prepare the emergency response by training and drills
Implementing agency:	BPF, LGUs, business establishments of hazardous materials
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Establish the support request system and conclude mutual aid agreements
Project:	
Aim:	To respond the disaster damage surpassing the response capability by enhancing the total response capability by using resources efficiently
Outline:	BPF to establish the request procedure for support from outside with the related organizations and the LGUs; BP and the LGUs to advance conclusion of the mutual aid agreement
Implementing agency:	BPF, LGUs
Priority:	Mid
Time frame:	Long-term

RMS-9: Secure evacuation route and evacuation sites

Action plan (Program Package) :	Formulate evacuation sites and plans for the LGUs
Project:	<ol style="list-style-type: none"> 1) Identify and designate evacuation routes and sites at emergency situation 2) Check potential evacuation sites such as public school buildings and facilities in earthquake resistance. 3) Conduct detailed LGU-wise surveys on emergency evacuation routes and sites.
Aim:	To secure safe evacuation routes and sites for refugees in emergency situation
Outline:	<ol style="list-style-type: none"> 1) Safe emergency evacuation routes and sites should be identified and designated mainly for heavy damage expecting area such as high density of wooden houses. 2) Identified routes and sites for emergency evacuation should be noticed to the citizens through the public relations. Signs of evacuation routes and sites should also be prepared.
Implementing agency:	LGUs, MMDA
Priority:	High
Time frame:	Short, Medium, Long-term

Action plan (Program Package) :	Enhance resources for evacuation
Project:	<ol style="list-style-type: none"> 1) Develop urban parks and green areas 2) Formulate the evacuation site plan
Aim:	To secure additional safe evacuation routes and sites for refugees in emergency situation
Outline:	<ol style="list-style-type: none"> 1) LGUs will review the land use plan, and discuss the possibility of development of urban parks and green areas from standpoint of emergency evacuation in case of earthquakes 2) LGUs formulate evacuation site plan with adjacent LGUs, especially for
Implementing agency:	LGUs
Priority:	Medium
Time frame:	Short, Medium, Long-term

RMS-10: Secure Water, Food, and Other Necessaries

Action plan (Program Package) :	Secure the large scaled water source
Project:	1) Strengthen Angat Dam by the seismic-resistance of conduit tube 2) Develop the alternate large-scaled water resources
Aim:	To secure the major water source which is very important to support and secure citizen's life in emergency situation
Outline:	1) Angat Dam will be checked in seismic resistance and if necessary the Dam is to be retrofitted 2) Alternate large-scaled water resources other than Angat dam should be studied to ensure the redundancy of water supply system
Implementing agency:	MMDA, DSWD
Priority:	High
Time frame:	Short, Medium, Long-term

Action plan (Program Package) :	Formulate emergency supply system of water, food, and other necessities
Project:	1) Conduct basic study of available water resources, treatment and supply system for emergency situation 2) Emergency supply system of food and other necessities including stockpiles should be studied
Aim:	To support and secure citizen's life in emergency situation
Outline:	According to the damage analysis by the JICA study, it is estimated that there will be more than 3 million refugees. In order to support such refugee's daily life, supply of water, food and other necessities is indispensable. Based on the damage analysis, basic strategy and methodology should be developed to cope with emergency supply for the refugees
Implementing agency:	LGUs, MMDA, DSWD
Priority:	High
Time frame:	Short, Medium, Long-term

Action plan (Program Package) :	Formulate emergency aid agreement
Project:	Draw up emergency aid agreement with the LGUs outside Metropolitan Manila
Aim:	To secure more reliable aid from outside Metropolitan Manila in case of emergency
Outline:	In order to secure the citizens' life in emergency situation emergency aid agreement with LGUs outside Metropolitan Manila for food, and other daily necessities is to be established.
Implementing agency:	LGUs
Priority:	High
Time frame:	Short-term

RMS-11: Enhance emergency health and medical response system

Action plan (Program Package) :	Enhance Organizational Response Capacities
Project:	<ol style="list-style-type: none"> 1. Strengthening response capacity through formulating mutually assisting zones 2. Formulation of Disaster Management Plan for LGUs and all hospitals at tertiary level based on the prepared format/proformas 3. Establish "Disaster Medical Centers" in the proposes zones
Aim:	<ol style="list-style-type: none"> 1. To increase LGU's capacity for self-help/self-contained through establishing mechanism to utilize limited health resources maximally by accommodating them mutually within a local zone 2. To homogenize the contents of LGUs' and hospitals disaster management plans and to guarantee the quality of them <p>To strengthen and increase treatment capacities of selected important hospitals at tertiary level in order to support self-sustained zones by positioning them in the center of local emergency network</p>
Outline:	<ol style="list-style-type: none"> 1. Concluding an agreement among LGUs and/or Provincial Governments: Available human and physical resources, procedures to request, financial compensation, etc.) 2. Incident Command System, Communication Network among health facilities and personnel, SOP for emergency response must be included. 3. Selection and appointment of core disaster hospitals in the zone, Structural reinforcement of hospitals, Expansion of temporarily receiving capacity and Strengthening ICU and ER
Implementing agency:	<ol style="list-style-type: none"> 1. Prime: LGU, Coordinator: MMDA and DOH 2. Prime: LGU, Coordinator: MMDA and DOH 3. Prime: DOH, some of LGUs and other governments' hospitals
Priority:	<ol style="list-style-type: none"> 1. High 2. High 3. High
Time frame:	<ol style="list-style-type: none"> 1. Short-term 2. Short-term 3. Medium-term

Action plan (Program Package) :	Improve Government Hospital Capacities
Project:	Expansion and empowerment of major hospitals in four provinces surrounding Metropolitan Manila
Aim:	Not only to meet the local needs but also to increase the capacity to receive disaster victims from LGUs in MM, since surrounding provinces are only places to flee for safety
Outline:	Physical expansion and functional upgrading of existing provincial hospitals, Relocation/transfer of parts of major government hospitals in central MM areas
Implementing agency:	Prime: DOH and Provincial Governments
Priority:	Medium
Time frame:	Long-term

Action plan (Program Package) :	Enforce logistics
Project:	Increasing stocks of drug and medical supplies at all government health institutions for treating mass casualties
Aim:	To increase the self-contained capacity for EMS, health centers and government's hospitals in MM in order to sustain their activities for first 3 days minimally after the incident
Outline:	Making a list of essential medical supplies and consumables for disaster, Purchase and distribution of them to medical institutions and Expansion of space to stock them in the institutions based on so-called "running-stock system".
Implementing agency:	Prime: LGU, DOH and other government's agency with hospitals
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Expand training programs
Project:	Execution of training programs on disaster health activities and first aids based on planned training module
Aim:	To increase the knowledge and skills of health personnel and community people about disaster response activities, medical skills of triage and BLS
Outline:	Holding seminars, technical workshops and community participatory meetings, from professional education to community awareness level
Implementing agency:	Prime: LGU and DOH
Priority:	High
Time frame:	Long-term

RMS-12: Establish emergency transportation system

Action plan (Program Package) :	Establish Emergency Road Network
Project:	Emergency Road Network Establishment
Aim:	To primarily respond to the emergency situations, for rescue, medical, and fire fighting within the Metropolitan Manila region
Outline:	Emergency road network within the Metropolitan Manila will be established, to respond to the rescue, medical and fire fighting activities. Proposed emergency road network is based on the existing hierarchy road network proposed by MMDA, for environmental management purposes. Established emergency road network will be publicized for MMDCC members. At the same time, emergency road network operation will need to be arranged, for efficient
Implementing agency:	MMDA
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Arrange Machineries to DPWH for emergency road response
Project:	Emergency road response machineries procurement
Aim:	To remove the debris from the emergency roads for quick response, DPWH will need to have machineries to do the operation.
Outline:	Investigate the equipments and machineries needed for the emergency removal of debris, together with the prioritization.
Implementing agency:	DPWH
Priority:	Medium
Time frame:	Medium-term

Action plan (Program Package) :	Secure road between Bagangas Port to Metropolitan Manila south region
Project:	Road function strengthening project
Aim:	To secure the emergency route from Batangas to MM south region
Outline:	Since Metropolitan Manila has possibility to be separated into 4 zones, MM south region will need any access from the southern cities, such as Batangas. One road security from Batangas to MM south region is necessary.
Implementing agency:	DPWH
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Convert one portion of Manila port to earthquake resistant construction
Project:	Port anti-resistant re-development project
Aim:	To preserve at least one portion of Manila Port so that the sea transportation to Manila, especially to allocate goods and commodities to Metropolitan Manila west region will be protected.
Outline:	Manila port is vulnerable that the facility will be damaged and will be useless for landing goods in case of earthquake. Converting one portion of the port to earthquake resistant is important for making use in such condition, and will serve as the main transportation facility for MM west region.
Implementing agency:	PPA
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Secure road between Subic port/ Clark field to Metropolitan Manila North Region
Project:	Road function strengthening project
Aim:	To secure the road between Subic port/ Clark field to MM North region, if Metropolitan Manila is heavily damaged with regional separation
Outline:	MM north region will be assisted from Subic port/ Clark field, in case if separation occurs. Road between those two areas needs to be secured.
Implementing agency:	DPWH
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Construct Laguna de bay northern shore unloading facility
Project:	Unloading facility construction project
Aim:	To secure the emergency transportation route to MM East region
Outline:	MM east region will be separated from all other part of Metropolitan Manila by the building collapse. Since this region does not have any transportation hub, it is important to construct new transportation which could act as the emergency transportation hub as well.
Implementing agency:	MMDA/PPA
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Secure Ninoy Aquino Airport Functions
Project:	Ninoy Aquino function strengthening project
Aim:	To secure the function of the airport
Outline:	Transportation route from air is essential to be protected, together with sea transportation. This function is rather easy to preserve than other functions, if prepared properly.
Implementing agency:	DOTC
Priority:	High
Time frame:	Medium-term

RMS-13: Establish search and rescue system

Action plan (Program Package) :	Develop capacity of search and rescue system
Project:	Develop and enhance the search and rescue system of BFP, MMDA and the LGUs, including staff training and procurement of equipment and tools
Aim:	To improve the capacity of existing institution and organization to minimize the possible human and social losses during the emergency responding stage.
Outline:	Existing system of search and rescue operation of BFP, MMDA and LGUs is limited in both human resources and equipments. To cope with emergency situation like a big earthquake, enhancement of capability of search and rescue operation is indispensable. Therefore, staff training and updating of equipments should be promoted.
Implementing agency:	LGUs, MMDA, BFP, DPWH
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Enhance community search and rescue system
Project:	Establish and enhance communities' capability of search and rescue
Aim:	To reduce the number of human casualties by prompt search and rescue activities of community members at the initial stage of emergency response
Outline:	The LGUs will train community people on usage of the equipment and tools, and search and rescue operations, and facilitate partnership between community and the organized rescue teams at ordinary time.
Implementing agency:	LGUs
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Establish the system to accept international emergency aid
Project:	1) Identify roles of international emergency aid 2) Identify the necessary accommodation infrastructures
Aim:	To accept international emergency aid smoothly and establish cooperation with the international donors in case of large disasters.
Outline:	1) Role of the related organizations in accepting the international donors are to be studied and the acceptance system will be established 2) Necessary infrastructures and buildings to accommodate the international assistance should be studied and identified.
Implementing agency:	NEDA/ MMDA, President Office
Priority:	High
Time frame:	Short, Medium-term

RMS-14: Establish information and communication system

Action plan (Program Package) :	Develop disaster information and communication system connecting MMDA, LGUs and barangays
Project:	<ol style="list-style-type: none"> 1) Develop disaster information collection and delivery system including networking with MMDA, LGUs and Barangays through independent telecommunication system for the emergency 2) Develop airborne disaster information collection system 3) Prepare a basic plan for emergency information dissemination
Aim:	To ensure the necessary disaster information and communication among MMDA, the LGUs, and the barangays through independent telecommunication system linking MMDA, LGUs, and barangays; to collect disaster information timely and effectively for timely and effective dispatch of necessary resources to the damaged sites
Outline:	<ol style="list-style-type: none"> 1) Integrated disaster management information system should be developed, including disaster information collection and dissemination system. These disaster management information system should be installed to each LGUs, barangays and the disaster management center of MMDA. Each disaster information system must be networked by independent telecommunication system which is operational in emergency situation. 2) Airborne disaster information collection system by helicopters or aircrafts should be developed to cover the wide area and inaccessible sites by terrestrial approach. 3) A basic plan for disseminating emergency information to the public is to be formulated. The information to disseminate includes the situation of the disaster damage, the safety of the affected peoples, etc.
Implementing agency:	MMDA, LGUs, BFP, OCD, PHIVOLCS
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Establish a disaster management center
Project:	Establish a disaster management center in MMDA
Aim:	To enhance the disaster management system for the emergency situation for 24 hours in Metropolitan Manila
Outline:	A disaster management center in MMDA that can operate for 24 hours should be established and at the same time the institutional arrangement to cope with an emergency situation should be made. In addition, the function of the existing system of OCD should be strengthened and be linked with MMDA disaster management center.
Implementing agency:	MMDA, OCD
Priority:	High
Time frame:	Short, Medium-term

RMS-15: Establish geographic information system

Action plan (Program Package) :	Develop geographic information database for disaster management
Project:	Develop disaster management information system based on GIS for the LGUs
Aim:	To provide basic information for disaster management to the LGUs to formulate disaster prevention planning and to run emergency operations
Outline:	Basic data for disaster management should be collected and digitized. Large-scaled map data such as buildings, existing land use, road network, hazardous stocks, topography, geology, distribution of public facility, administrative boundary, population etc., should be digitized and integrated into the GIS database. The GIS system should be fully utilized for disaster prevention planning and emergency operation.
Implementing agency:	LGUs, MMDA, OCD, BFP, PHIVOLCS
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Train LGU staffs on GIS database and information & communication system
Project:	Conduct GIS and information & communication system training program for LGU staff
Aim:	To enhance the LGU staff's capability to operate the GIS database and information/communication system both in ordinary and emergency situations
Outline:	1) MMEIRS database will be transferred to the LGUs. And database utilization training will be conducted to the LGU staff, thereby the disaster management plan will be formulated by using the database with the presently available data; the necessary software and hardware for each LGU will be procured and human resources will be developed. 2) Training on the actual use of the information and communication system should be carried out based on the damage estimation in the case of the scenario earthquake
Implementing agency:	MMDA, OCD, PHIVOLCS, LGUs
Priority:	High
Time frame:	Short, Medium-term

RMS-16: Manage emergency public information

Action plan (Program Package) :	Promote adoption and implementation by local governments and agencies of the Guide for Managing Information concerning Disasters
Project:	Disseminate the Guide for Managing Information concerning Disasters
Aim:	To facilitate communication and coordination among public entities, the media, and the public; To provide for dissemination of accurate and timely information to the public during a disaster in order to persuade the public to take appropriate actions
Outline:	Publish, disseminate to local governments and agencies in the NCR, and encourage the adoption and use of the prepared Guide. Recommend to cities, municipalities, and institutions that they adopt appropriate policies regarding release of information to the public regarding disaster risk and risk reduction measures they can take.
Implementing agency:	MMDCC, MMDA, and LGUs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Establish partnerships with the media for awareness raising and emergency public information
Project:	Encourage ongoing involvement by the media in educating the public about reducing disaster risk.
Aim:	To enhance public awareness of disaster mitigation by establishing a positive working relationship between public officials, institutions and the media
Outline:	Recommend to cities, municipalities, and institutions that they adopt a policy of proactive, ongoing partnership with the media to ensure collaboration for information dissemination during emergency and non-emergency times.
Implementing agency:	MMDA, MMDCC, LGUs
Priority:	High
Time frame:	Short-term

Increase of Community Resilience

CRI-1: Enhance self-reliant and mutual help for efficient risk management capacity

Action plan (Program Package) :	Knowledge development about earthquake hazards and vulnerabilities
Project:	
Aim:	To motivate citizens in Metro Manila to take actions for disaster risk management.
Outline:	Enhancement of community's perception of their vulnerabilities with the help of experts such as earth scientists, structural engineers and urban planners. Participatory analysis of local capacities and vulnerabilities utilizing participatory tools
Implementing agency:	PHIVOLCS, MMDA, LGUs
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Increase community resistance to earthquake
Project:	
Aim:	To increase fundamental resistance to earthquake disaster
Outline:	Socializing private building safer measures into community practice by visual demonstration.
Implementing agency:	DPWH, LGU
Priority:	High
Time frame:	Long-term

Action plan (Program Package) :	Enhance the community governance and linkage with LGUs
Project:	
Aim:	Institutionalizing physical development planning as a part of community governance system
Outline:	Upgrading safer physical urban structure through participatory planning. Community governance system will be activated.
Implementing agency:	LGU, barangay (pilot)
Priority:	High
Time frame:	Short , Medium-term

Action plan (Program Package) :	Enhance potential emergency management capacities (Fire/ search & rescue, and information management)
Project:	
Aim:	Enhancement of social capital of the community that can be mobilized in case of emergency
Outline:	Legitimizing local community unit and strengthening social cohesion, Familiarization of emergency tasks and capacity buildings for emergency response capacities
Implementing agency:	MMDA, LGU, barangay
Priority:	High
Time frame:	Short , Medium-term

Action plan (Program Package) :	Enhance the administrative system supporting community activities
Project:	
Aim:	Some administrative system needs to be developed, to sustain and guide the community to continuously be active. Also, the administrative system needs to secure the expansion of the appropriate CBDM activities.
Outline:	CBDM activities will be more effective if there is support from barangay and LGU levels in terms of technical assistance, information dissemination and sharing with other communities, etc.
Implementing agency:	Barangay, LGU
Priority:	High
Time frame:	Short, Medium, Long-term

CRI-2: Inculcate a disaster mitigation culture in future generations

Action plan (Program Package) :	Enhance school risk management capacity
Project:	
Aim:	To respond effectively to calamity, response capacities will be enhanced
Outline:	Conducting seminars and trainings of disaster management. Reviewing and updating disaster management plan
Implementing agency:	Dep Ed, LGU, schools
Priority:	High
Time frame:	Short, Medium-term

Action plan (Program Package) :	Inculcate a disaster mitigation culture in future generations
Project:	
Aim:	Disaster prevention and preparedness will become culture to consider among young generation
Outline:	Inclusion of disaster risk management education into school curriculum. Dissemination of earthquake damage estimation results. Conducting regular trainings and drills as a part of community
Implementing agency:	Dep Ed, LGU, schools
Priority:	Medium
Time frame:	Short, Medium, Long-term

Formulation of Reconstruction Systems

RSF-1: Supply temporary refugee housings

Action plan (Program Package) :	Formulate temporary refugee housing plan
Project:	1) Develop standard unit for temporary housing and assessment of existing local production capacity, cost and time for necessary production. 2) Assess preliminarily temporary housing sites in emergency situation, including their possible supply of power, water, gas, sewage system, etc.
Aim:	To provide the refugees with temporary housing until the restoration and reconstruction of their ordinary life.
Outline:	More than 3 million refugees are estimated and half of these refugees will require a temporary housing unit. Assuming at least 7 persons per one temporary housing unit, more than 220 thousands units must be provided. Therefore, preliminary assessment for temporary housing supply and possible housing sites by each LGUs should be conducted. The availability of lifelines (power, gas, water, and telecommunication) and sewage system should be checked. Furthermore, in case that a LGU cannot provide the necessary land, land in the adjacent LGUs within or outside Metropolitan Manila should be secured. From the emergency management point of view, basic policy and strategy for temporary housing supply should be discussed among the related agencies.
Implementing agency:	LGUs, MMDA, HUDCC, DPWH
Priority:	High
Time frame:	Short, Medium, Long-term

RSF-2: Prepare emergency assistance for everyday life

Action plan (Program Package) :	Formulate basic policy for emergency assistance for daily life
Project:	Assessment and formulation of necessary assistance plan for everyday life of refugee.
Aim:	To support refugee's everyday life, necessary policy and measures for assistance should be developed and formulate a basic plan.
Outline:	Based on damage estimation by JICA study, each LGUs government should assess necessary assistance to refugee's daily life. Basic policy and measures for assistance should be formulated. Mental care for refugees by medical expert should also be included.
Implementing agency:	LGUs, DSWD, DOH
Priority:	Medium
Time frame:	Medium, Long-term

RSF-3: Establish debris clearance and management system

Action plan (Program Package) :	Formulate debris clearance plan for the LGUs
Project:	Estimate total debris volume and formulate debris clearance plan including disposal plan.
Aim:	To dispose the debris of concrete and waste materials created by collapse, burnt-down, and dismantle of buildings in order to facilitate the emergency measures at the damaged area and the smooth implementation of recovery and reconstruction
Outline:	Due to the strong earthquake in Metropolitan Manila, estimated volume of debris will be 30 million tons or more. Clearance of the debris is a big issue for emergency operation and reconstruction of the buildings and infrastructures. Necessary plans for possible disposal sites and procedures should be discussed by the related agencies and the LGUs.
Implementing agency:	MMDA, LGUs, DPWH
Priority:	High
Time frame:	Medium, Long-term

RSF-4: Restore public and social services

Action plan (Program Package) :	Formulation of basic policy for post-disaster peace and order keeping activities.
Project:	Basic study for the formulation of post-disaster peace and order keeping activities and restoration of public services including determination of roles and functions of the related agencies.
Aim:	To sustain the social stability immediately after a big earthquake disaster.
Outline:	Basic study for a policy formulation and methodology to keep a social stability after a big earthquake disaster by national and local government agencies. Measures for smooth and quick restoration of social services should be discussed.
Implementing agency:	Presidential office, DILG, OCD, MMDA, LGUs
Priority:	Medium
Time frame:	Medium, Long-term

RSF-5: Establish post-disaster reconstruction system

Action plan (Program Package) :	Formulate basic reconstruction policies for living, housing, employment and economic activities
Project:	Study and formulate polices for post-disaster reconstruction of living, housing, employment and economic activities.
Aim:	To facilitate the smooth and proper recovery and reconstruction of the damaged Metropolitan Manila and to quickly regain people’s normal life, education, and social and economic activities
Outline:	Necessary policies and measures for post-disaster urban reconstruction should be discussed and formulated including living, housing, employment, education, and economic activities. The policies and measures include various financial schemes and guidelines to help people and businesses.
Implementing agency:	MMDA, LGUs, NEDA, DOF, DILG, HUDCC
Priority:	Medium
Time frame:	Medium-term

Action plan (Program Package) :	Formulate guidelines on urban reconstruction and make a scheme of finances and credits
Project:	1) Formulation of guidelines to urban reconstruction 2) Enhance financial and credit schemes
Aim:	To reconstruct the damaged area quickly and to create a safer and better living environment in Metropolitan Manila than before the earthquake disaster
Outline:	1) Taking advantage of the disaster, guidelines, based on which the damaged area should be reconstructed, should be formulated before disaster. The guidelines include: model area developments for various urbanized areas of high vulnerability, minimum quality of houses, restriction on possible construction period, etc. And the guidelines should be made in a participatory approach. 2) To advance the reconstruction process, finance and credit scheme for supporting reconstruction needs to be enhanced. The scheme will be prepared for various types of needs such as reconstruction of buildings (detached or collective houses), repair of partly damaged buildings, etc.
Implementing agency:	MMDA, LGUs, NEDA, DOF, DILG, HUDCC
Priority:	Medium
Time frame:	Medium-term

RSF-6: Enhance institutional aspect of recovery planning

Action plan (Program Package) :	Establish pre-disaster policies and institutional arrangements for post-disaster reconstruction and mitigation
Project:	Draft recovery-related policies and create an organizational model assigning clear responsibilities for managing recovery challenges
Aim:	To provide for better recovery decisions a more complete recovery after a major disaster; to ensure reconstruction creates a safer environment
Outline:	MMDCC to: (1) Request the NDCC to ask its Committee on Rehabilitation to brief MMDCC and the heads of all C/MDCCs on its project to finalize the national Rehabilitation and Recovery Plan, (2) Create a subcommittee or task force with DILG and other key agency and C/MDCC members to develop guidance to LGUs on establishing pre-disaster policies and institutional arrangements for post-disaster reconstruction and mitigation.
Implementing agency:	MMDCC, NDCC, C/MDCCs
Priority:	High
Time frame:	Medium-term

Action plan (Program Package) :	Prepare pre-disaster recovery plans and procedures to ease post-disaster human and physical recovery and rehabilitation
Project:	Draft a recovery plan and procedures to coordinate the short-term recovery of government services, businesses, and housing and long-term reconstruction
Aim:	To provide for a faster and more complete recovery; To result in a safer, more livable community with enhanced economic opportunities for residents
Outline:	MMDCC to: (1) Request the NDCC to ask its Committee on Rehabilitation to brief MMDCC and the heads of all C/MDCCs on its project to finalize the national Rehabilitation and Recovery Plan, (2) Create a subcommittee or task force with DILG and other key agency and C/MDCC members to develop guidance to LGUs on drafting pre-disaster recovery plans and procedures to ease post-disaster human and physical recovery and rehabilitation.
Implementing agency:	MMDCC, NDCC, C/MDCCs
Priority:	High
Time frame:	Medium-term

Research and Technology Propulsion for Earthquake Impact Reduction Measures

R&D-1: Promote sustained research and development on earthquake

Action plan (Program Package) :	Evaluate activity of the Valley Fault System
Project:	Detail survey on activity of the valley fault system
Aim:	Seismic activity information on the Valley Fault System, especially on recurrence interval and probability of occurrence, is basis for consideration and introduction of earthquake damage mitigation measures. These are studied in detail.
Outline:	Major study items include 1) fault location and distribution survey, 2) evaluation of fault segmentation, 3) fault trench excavation survey, 4) micro-earthquake activity monitoring, 5) ground movement monitoring and 6) estimation of magnitude, on recurrence interval and probability of occurrence to the next event. Through the study, geosciences information is integrated together as unique database system.
Implementing agency:	PHIVOLCS, research institutions, DPWH, DOTC
Priority:	High
Time frame:	Short-term

Action plan (Program Package) :	Expand of basic inventory on buildings and population for detail damage estimation purpose
Project:	Promotion of comprehensive census survey
Aim:	Detail damage estimation is required for detail consideration of disaster management planning. Building and population inventories are to be improved through National Census survey.
Outline:	Information on number of stories and main structure element of each building, commercial building inventory, information on daytime and nighttime population are collected.
Implementing agency:	NSO, DPWH, ASEP, PHIVOLCS
Priority:	Medium
Time frame:	Medium, Long-term

Action plan (Program Package) :	Promote detail study on comprehensive earthquake disaster estimation.
Project:	Study on consequence earthquake disaster
Aim:	Earthquake disaster situation are examined in detail from occurrence to rehabilitation process.
Outline:	In actual damage situation, secondary damages lead to difficulty in response to emergency activities and expansion of further damages. Administrative response, water supply limitation and electric power supply limitation through emergency from emergency situation to rehabilitation process are altogether considered.
Implementing agency:	NDCC, MMDCC, and those organizing department and agencies
Priority:	High
Time frame:	Medium, Long-term