



Earthquakes and Megacities Initiative

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

Cities and Resilience: Progress and Challenge in Addressing Urban Adaptation in Asia

EMI Approach and Experience

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Chairman of the Board

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Bangkok

EMI is an international, not-for-profit, scientific organization dedicated to the reduction of disaster risk in the world's megacities and complex metropolises.

Mumbai Case Study

Project Title: Developing the Disaster Risk Management Master Plan (DRMMP) for Mumbai



A collaborative and joint effort between the MCGM and EMI to that provide a local action plan and a process for reducing the risk to the City of Mumbai



Project Objectives

1. Establish a competent emergency management system within Greater Mumbai
2. Institutionalize a sound disaster risk management (DRM) practice in MCGM
3. Propose a coherent set of policies and actions to reduce disaster risk within Greater Mumbai
4. Make this project a model to other cities in India through knowledge sharing and participation

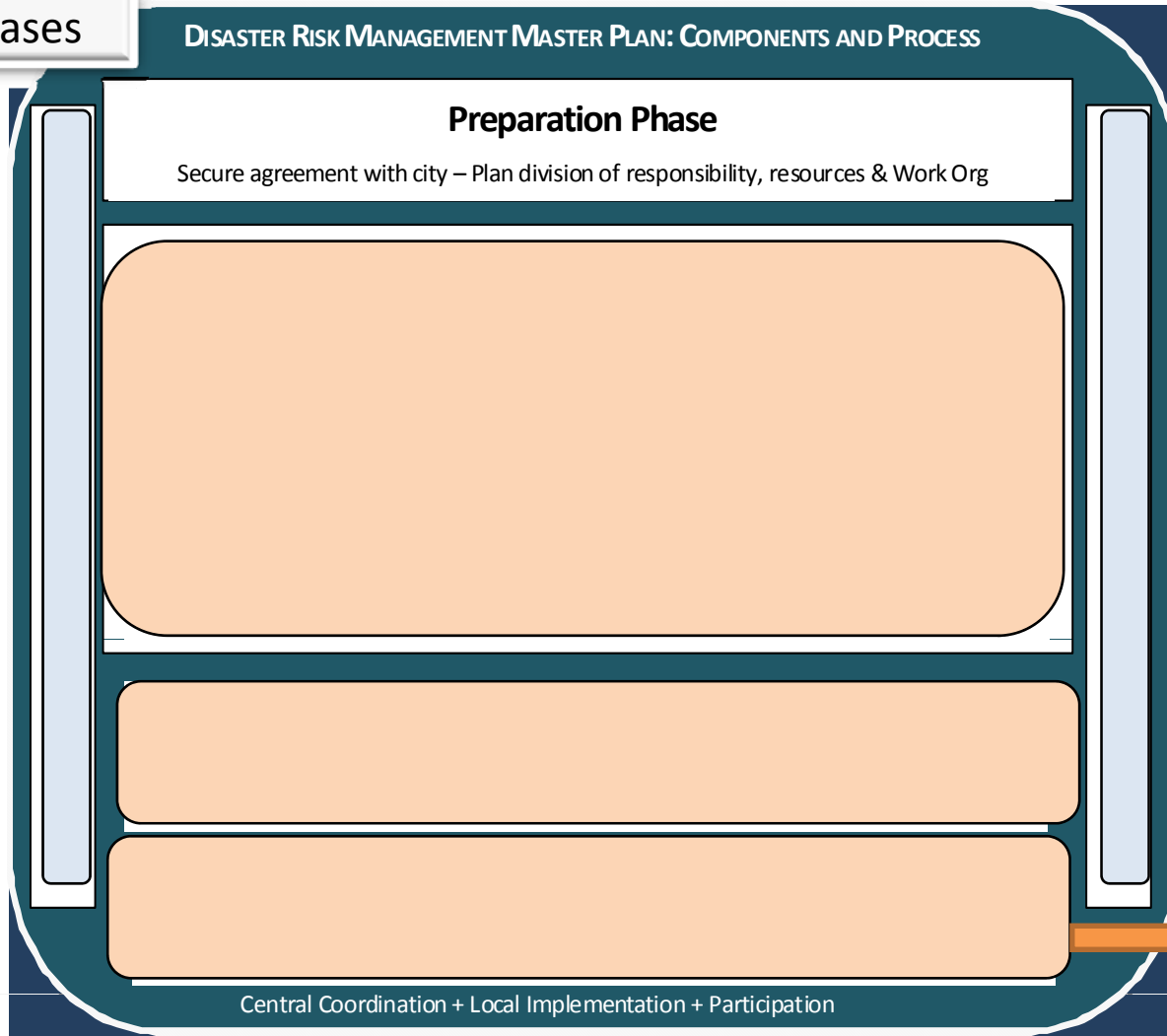
DISASTER RISK MANAGEMENT MASTER PLAN “DRMMP” MODEL

4 Phases

DISASTER RISK MANAGEMENT MASTER PLAN: COMPONENTS AND PROCESS

Preparation Phase

Secure agreement with city – Plan division of responsibility, resources & Work Org



DRMMP is EMI's analytical model for mainstreaming DRR to a city's core functional and governance processes

Adapted from AS/NS Standard 4360 (ISO 31000)

Move to Project Definition (PWO)

Phase 1: Preparatory Activities

Agreements and Project Organization

Phase 1 - Division of Responsibilities

EMI

- Technical Assistance
- Managerial Experience
- Analysis and Integration
- Coherent execution
- Project performance

MCGM

- Local Coordination
- Data Collection
- Stakeholders' Mobilization
- Local experts procurement
- Risk Assessment
- Promotion and Public Relations
- Institutionalization
- Logistical Support

Phase 1 -Expert Co-sharing Arrangement

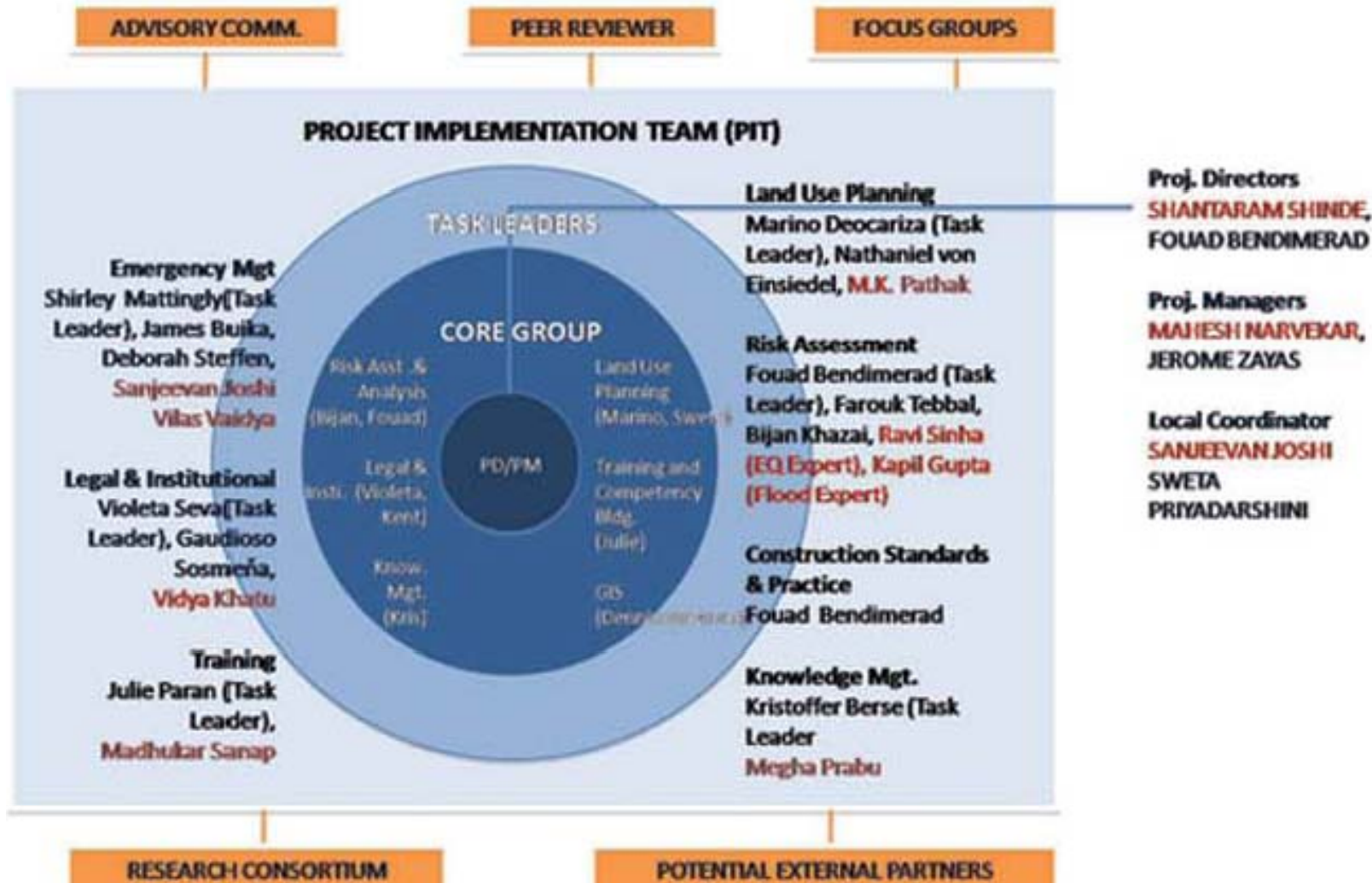
EMI expertise

- Legal, institutional arrangements
- Emergency and crisis management
- Disaster risk management
- Disaster resiliency
- Hazards, vulnerability and risk assessment
- Social and institutional vulnerability assessment
- Construction standards and practice
- Land use planning and urban development
- Information and communication technology
- Training and capacity building
- Resource and project management

Local expertise

- Project Management
- Legal, institutional Arrangements
- Earthquake and Flood risk assessment
- Man-Made Risk
- GIS and Information Technology
- Training and capacity building

The Project Implementation Team



Phase 1 - Organization of Focus Groups

Focus Groups in Mumbai

The Focus Groups (5) are the main mechanisms for getting various stakeholders participate and take ownership in the DRMMP Process. They include a wide range of institutions and organizations

FG1- Legal and Institutional Arrangement

FG2- Hazard, Vulnerability, and Risk Assessment

FG3- Shelter, Livelihoods and Disaster Resilience

FG4- Land Use Planning and Construction Standards and Practice

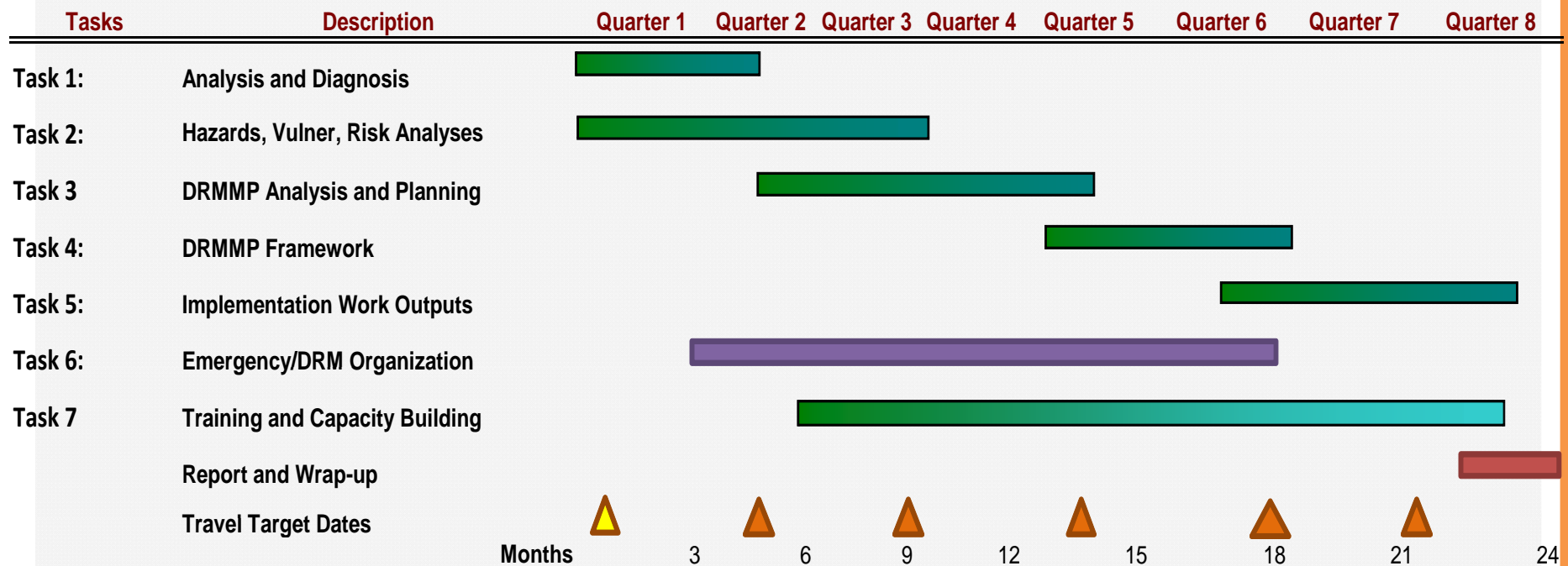
FG5- Emergency Management, Social Mobilization, and Education

Phase 1 – Agreement on deliverables

Inception Report	Semester 1 Report	Semester 2 Report	Semester 3 Report	Semester 4 Report
One Month After Signature of Contract	Six Months After Signature of Contract	One year After Signature of Contract	18 Months After Signature of Contract	24 Months After Signature of Contract
Target date April 30, 2009	By October 31, 2009	By May 31, 2010	By October 31, 2010	By May 31 2011
Deliverables under the Responsibility of EMI				
Work Plan	DRMMP Definition Handbook	Final Legal and Institutional Handbook	Draft DRMMP Framework	Final DRMMP
Methodology	Final Approval of City Profile	Review and Approval of Hazard, Vulnerability and Risk Handbook	Emergency Management Basic Plan	Emergency Operations Plan
Project Organization	Draft Legal and Institutional Handbook	Risk Indicators	Draft Emergency Operations Plan	Implementation Work Outputs
Project Execution Scheme	Emergency Management Framework	Draft Emergency Management Basic plan	Emergency Management Training (Part 2)	Emergency Management Training (Part 3)
	Training Agenda	Emergency Management Training (Part 1)	Training Needs Assessment	Formulation of Competency Building Schedule
Deliverables under the Responsibility of MCGM and its Consultants				
No Later than Sept 30, 2009		No Later than April 30, 2009		
Complete City Profile		Hazard, Vulnerability and Risk Manual		
Draft Legal and Institutional Manual				
Earthquake Risk Assessment				
Flood Risk Assessment				
Assessment of other Relevant Hazards (e.g., man-made or Climate Change)				

Phase 1 – Agreement on project work plan

Two year timeframe (2009-2011), with 9 field investigations by EMI



Phase 2: Analysis and Diagnosis

Three Components

1. Analysis and diagnosis
 - Legal, Institutional, and Organizational arrangements
 - Capacity Evaluation
 - Situational / Consequential Analyses
 - Data Collection
2. Risk identification, assessment and analysis
3. Emergency Mgmt

Major Deliverables

1. City Risk Profile
2. Legal and Institutional Handbook
3. DRMMP Handbook
4. Risk Asst & Analysis
5. Indicators
6. Emergency Mgmt Framework

Phase 3: DRMMP Planning

Major Output: DRMMP Framework

Visioning

Goals Formulation

Policy Formulation

Risk Communication

Validation

Master Planning



Phase 3 - DRMMP Framework

Policy Formulation and Recommendations covering the following areas:

1. Legal, Institutional and Organizational Aspect
2. Emergency Management and Social Mobilization
3. Construction Standards and Practice
4. Shelter, Livelihoods and Disaster Resiliency
5. Land-Use Planning and Environmental Management
6. Training and Capacity Building
7. Research and Development, Knowledge Management, ICT and Human Resources
8. Project Management

Phase 4: Implementation Work Outputs

- **Constraints Formulation**
- **Prioritization**
- **Validation**

Consensus priority actions in the short- to medium-term to reduce the city's disaster risk

Provides the road map for implementing risk reduction projects



From Analysis– to Planning – to Project Definition(PWO's)

PWO 1.1: Kathmandu – Development of Risk Sensitive Land Use Plan

PWO 1.2: Kathmandu – Structuring and Empowering a Disaster Management Unit at KMC

PWO 1.3: Makati City, Metro Manila –Risk Reduction through Urban Redevelopment

PWO 2: Training on a) Risk-Sensitive Land-Use Planning and b) Local-Level Disaster Management.

.... But, it took almost 5 years in Kathmandu and Metro Manila

Problems to resolve

- ✓ Sorting out the legal, institutional and organizational arrangements (i.e., Governance)
- ✓ Sustainability and ownership building (i.e., mainstreaming)
- ✓ Detailed integrated planning (i.e., feasibility)
- ✓ Competency building

Difficult Issues

- Reducing existing physical and social vulnerabilities
- Poor and highly vulnerable neighborhoods
- Informal housing, land tenure, property ownership
- Inter-institutional arrangements

Taking the DRMMP Forward

Istanbul, Turkey

In the aftermath of the 1999 Marmara Earthquake, the DRMMP provided a way for the city to plan and adopt an Integrated Emergency Management Plan (IEMP) which was instrumental in implementing reforms in legal and institutional arrangements justifying major investments in the city.



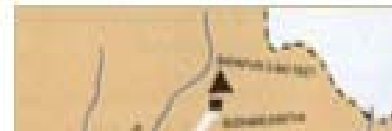
Metro Manila, Philippines

The DRMMP implementation in Metro Manila, Philippines, through the Makati Risk-Sensitive Urban Redevelopment Planning project, seeks to provide a framework for redevelopment that will reduce disaster risk for the residents of the city, while providing the community and its residents with greater opportunities for economic advancement.



Kathmandu, Nepal

The DRMMP recommendations for Kathmandu aimed at updating the city's use plan, and establishing the city's DRM office with a mandate to coordinate and implement programs related to disaster risk reduction and management.



Amman, Jordan

The DRMMP Framework for Amman has provided 47 recommendations for the city, covering legal and institutional arrangements, emergency management, construction standards and practice, land use planning and environmental management, capacity development, knowledge management, and project management, among others.



Thank you!

For more information, visit

<http://www.emi-megacities.org>

