

3cd Program
Proposal for the Kathmandu Valley
Disaster Risk Management Master Plan (DRMMP)
Discussion Draft 4 February 2006

I. Purpose

The purpose of this document is to present a draft 3cd Program proposal to establish a cooperative agenda on disaster risk reduction for the Kathmandu Valley. It is intended to serve as the basis for discussions with program partners the National Society of Earthquake Technology (NSET-Nepal) and Kathmandu Metropolitan City (KMC) both prior to and during the second field visit to be undertaken by 3cd Program Implementation Team members in May 2006.

II. Background of 3cd Program in Kathmandu

Kathmandu Metropolitan City (KMC) and the Kathmandu Valley encompass a seismically vulnerable society of over 1.5 million inhabitants. In the past, a number of seismic and other hazard and risk assessment studies have been completed, and at least two disaster management planning activities have been undertaken to lay out needed risk reduction actions. Due to these plus the sustained awareness raising work accomplished in the last decade by local organizations in partnership with international initiatives, it is evident that national, regional and local government leaders possess a clear understanding of the earthquake hazard and the need for disaster risk management (DRM).

There is a strong desire by KMC's Chief Executive Officer, the urban development and planning department, the social welfare department and other units of the municipality to take steps to reduce disaster risk and strengthen the city's resilience, so in January 2005 an EMI-KMC Memorandum of Cooperation was signed in Kobe, Japan, opening the door to the 3cd Program and DRMMP planning process.

Throughout the year 2005 and through the combined efforts of 3cd Program Local Investigator the National Society of Earthquake Technology (NSET-Nepal), city officials and administrators, and the international 3cd Program team, a working City Profile of Kathmandu has been developed. The profile presents a synthesis of information regarding hazards and risk factors, governance and other elements of the socio-political and economic context for DRM, and the characteristics of the current DRM system within the greater urban area. This City Profile establishes baseline information which will be continuously validated and updated through consultations with stakeholders. The Profile is placed on 3cd Program websites to facilitate access by researchers and practitioners within Kathmandu as well as in other cities.

Under the auspices of the EMI-KMC MoC, two members of the 3cd Program Implementation Team (PIT), Jim Buika and Jeannette Fernández of the Pacific Disaster Center (PDC), traveled to Kathmandu and successfully completed a Program Definition Field Trip in September 2005. With the support and assistance of the Local Investigator (LI)--the National Society of Earthquake Technology (NSET-Nepal)--the team

conducted 14 interviews and meetings, a half-day city stakeholders' workshop, a city vulnerability tour, and a radio and television interview.

From the interaction with local stakeholders and the local investigator, it was clear that the best approach for a realistic implementation of the 3cd program in the Kathmandu Valley is to have KMC as a pilot city, while the lessons learned and experiences gained in the capital city will serve as guidance so that the rest of the municipalities will be progressively incorporated. The National Society for Earthquake Technology – Nepal will act as the Local Investigator. Mr. Ram Chandra Kandell has been appointed project manager for this program and will work in close collaboration with the Director Amod Dixit and other staff members of the organization. A 3cd Program Working Group will be formed of delegates from KMC and NSET and will meet on a regular basis, while a Program Advisory Group will be constituted from representatives from different national and regional organizations and delegates from the private sector, NGOs, the Red Cross, and other organized community-based groups.

III. The Kathmandu Valley Context

The Kathmandu Valley (KV) is the most urbanized region of Nepal and it includes 5 municipalities: Kathmandu, Lalitpur, Bhaktapur, Kirtipur and Thimi. The capital city, Kathmandu Metropolitan City, is home to more than 700.000 inhabitants (Cens. 2001).

Geological, topographical and climatic conditions expose the KV to multiple hazards, most prominently floods, debris flows, landslides and fires, which hit this region on yearly basis. While earthquakes are not so frequent, should a severe earthquake hit the city, it would cause a considerable death toll and heavy economic losses, according to recent earthquake scenarios and loss estimates carried out for the KV (JICA 2002). The last major earthquake to affect the Valley was in 1934, and the last locally damaging earthquake was in 1988. There exists a significant seismic gap, a major earthquake on which could significantly impact Kathmandu at any time.

Major sources of vulnerability are related to social fragility, lack of resilience and structural vulnerability. On the socio-economic side, political instability, high mortality rate, illiteracy and extended poverty (80% living on less than US\$2 a day) are the main components. Exposure is increasing as an influx of people from neighboring areas into the Valley is creating an overwhelming demand for housing. Rapid construction of apartment buildings, not always complying with seismic standards, is occurring, along with slums being created with narrow roads and no access for emergency vehicles. Weak emergency preparedness and response capacity, limited hospital and health resources, and troubles with land use and planning have also been identified along with structural vulnerability as the most significant components that contribute to a limited resilient capacity. High structural vulnerability of the building stock due to inappropriate use of materials and construction techniques and unplanned urban development that allows the use of landslide prone areas in the periphery of the Valley and a number of informal settlements contribute further to increased exposure to earthquake, fire, landslide, and flooding hazards and thus, increased risk.

Other Risk Reduction Studies and Programs

The study on Earthquake Disaster Mitigation in the Kathmandu Valley-Kingdom of Nepal, carried out from January 2001 to March 2002 by the Japan International Cooperation Agency (JICA) in collaboration with the Ministry of Home Affairs, is one of the most comprehensive disaster risk related documents available for the KV. It includes a plan for earthquake disaster mitigation based on a damage assessment of three plausible events in the valley. The document suggests mechanisms for sustainable disaster management, alternatives to maintain governance in case of a severe event and about 90 potential programs to improve disaster risk management in KV.

USAID/OFDA carries out a regional training program for the Enhancement of Emergency Response, PEER Program, and phase 2 is being implemented during the period 2003-2008.

UNDP has been working in participatory programs aiming to reducing water-induced disasters within the communities. WHO/PAHO has already supported some studies for hospital vulnerability reduction and is interested in working on hospital safety. The Asian Disaster Reduction Center (ADRC) is also working in Nepal on the implementation of disaster mitigation programs.

Considering the important work already done by various national and international initiatives in the Kathmandu Valley and the 3CD program philosophy of building on what is already available in the cities, it is important to incorporate the work already completed, identify issues that have impeded the implementation of previous recommendations, and build synergy with currently ongoing programs.

IV. The 3cd Program Approach

The Cross-Cutting Capacity Development (3cd) Program exists to assist partnering megacities to implement sound disaster risk management practices. 3cd is a partnership of the Earthquakes and Megacities Initiative (EMI), the Pacific Disaster Center (PDC), the Earthquake Disaster Mitigation Research Center Team 4, Kobe University, the United Nations Development Program (UNDP), the ProVention Consortium, the Hazard Management Unit of the World Bank, and academic institutions and city administrations in participating megacities. The approach is built around the concept of a ***Disaster Risk Management Master Plan (DRMMP)***, which provides a framework for integrating disaster risk reduction into long term planning and everyday life.

The DRMMP is a tool which enables local governments to systematically and systemically implement a disaster risk management (DRM) agenda for their city, consisting of legal, institutional, financial, social and technical elements. The aim of the DRMMP is to provide the institutional and legal framework for a sound disaster risk management (DRM) system as well as the process for integrating or ***mainstreaming*** sound risk management practices into the city's ongoing governance, business, and economic practices.

DRMMP is simultaneously a process, framework, and plan. It also creates a social contract committing various social and governmental entities to undertake planned DRM activities in furtherance of common objectives.

Figure 1. Mainstreaming Disaster Risk Management (DRM) at the local level and integrating central government policies with local level implementation and stakeholders' participation



This approach recognizes that everything in the disaster risk management equation is dynamic, not static: the risk, actors, means and technology for dealing with risk, socioeconomic and political context, and many other factors. It is a moving target, requiring vision, attentiveness, and flexibility.

V. The DRMMP Process

Concept

The DRMMP process will result in the development of a “menu” of actions to be prioritized and organized in a DRMMP framework consisting of the essential components of a sound DRM system and related implementation processes. These actions will need to be undertaken at various functional and organizational levels of the local government as well as by other entities not under local government authority, such as regional/provincial or central government entities, utilities, health care providers, and others, in a holistic, integrated approach to dealing with disaster risk.

Since implementation of the actions will require efforts and collaboration by various organizations and elements of society as well as government, the DRMMP process needs to be highly inclusive and interactive, involving all interested parties and stakeholders.

Process

The basic DRMMP process includes the following actions:

- Capturing the knowledge gained through previous projects
- Consolidating risk information related to major hazards
- Determining current practices, gaps and deficiencies, and sound practices
- Communicating risk in meaningful ways
- Identifying legal and institutional arrangements, administrative structures; resources, constraints and timelines
- Engaging in a participatory planning process to develop consensus on priority actions
- Developing ownership and commitment among stakeholders to take action
- Establishing the implementation structure, procedure and processes
- Instituting monitoring and updating processes

Most of these steps are already underway to some extent in Kathmandu. We believe that international and local experts can act as a catalyst to promote the discussion among local authorities, researchers and practitioners to decide where to allocate scarce resources and to prioritize specific areas for the implementation process, for example to strengthen land use practices, investigate risk transfer mechanisms, etc.

VI. Foundation for DRMMP Planning in Kathmandu

The initial framework proposed by the 3rd Team is anchored in the findings and recommendations of previous field work by the team as well as other completed risk studies and disaster management planning activities undertaken in the Valley, in particular the Kathmandu Valley Earthquake Risk Management Project and Action Plan and the JICA Study on Earthquake Disaster Mitigation. Both of these studies developed a wide range of recommendations which still possess validity.

The KVERMP established eight long term objectives which comprised a comprehensive program for risk reduction:

- Improve emergency response planning and capability
- Improve awareness of issues relating to earthquake risk
- Integrate seismic resistance into the process of new construction
- Improve the safety of school children and school buildings
- Improve the seismic performance of existing buildings
- Improve the seismic performance of utility and transportation systems
- Increase experts' knowledge of the earthquake phenomenon, vulnerability, consequences and mitigation techniques
- Prepare for long-term community recovery following damaging earthquakes

Ten highly important individual “initiatives to start now” were linked to the objectives. This Action Plan was developed through an open, transparent process involving many stakeholders as well as international and local experts; this plan has guided much subsequent work, and notable progress has been made in regard to some of these objectives since the plan’s development in 1998.

The JICA Study developed over 90 recommended programs to:

- Improve the capacity for earthquake risk and disaster assessment (13 programs for earth science data, infrastructure database, damage estimation, education and research)
- Improve the capacity for disaster management (16 programs including legal foundation, institutional framework, disaster management plan, and integration of DRM in National 5 Year Plan)
- Improve the capacity to maintain governance (25 programs, including establishment of emergency communications, empowerment of the media, preparation for emergency response and recovery)
- Protect life and property of the people (19 programs for search and rescue, shelter and evacuation, medical, transportation and other emergency functions)
- Strengthen the socio-economic system (18 programs for urban planning, transportation facilities, improving building construction, strengthening infrastructure – power, telecommunications, water and sewage systems)

Both of the above studies provide a strong foundation for DRMMP planning and implementation.

In addition, during the August 2005 3cd program field work in Kathmandu, several key areas were identified as potential high priority areas for 3cd program collaboration:

- DRMMP planning (includes response planning)
- Disaster risk management framework for KMC
- Building code enforcement
- Map Viewer and other risk communication options for KMC

VII. Possible DRMMP Framework and Implementation Actions

The final DRMMP framework and action items will be developed through consultation with local stakeholders and collaborative DRM planning processes. Since the DRMMP planning process is intended to produce a holistic, integrated guide for disaster risk reduction in Kathmandu, it is clear that many good ideas will be proposed, and they will exceed the ability of 3cd program partners and other stakeholders to undertake all at once. All proposed actions will need to be discussed, evaluated, and prioritized, and implementation will have to be phased in over time.

We are viewing 2006 as the Preparatory Phase of this 3cd Program in Kathmandu, the major output of which will be development of an initial guide or plan (DRMMP) and its accompanying blueprint for implementation, or work plan. To facilitate the

development of the DRMMP and in order to provide a starting point for stakeholder discussions, we can identify several potential areas of focus and some suggested possible actions to address these areas of focus, as follows:

- 1. Strengthen risk management system (legal and institutional arrangements)**
 - 1.1 DRMMP action planning through a participatory planning process
- 2. Develop and implement new DRM framework for KMC**
 - 2.1 Create a task group to recommend a reorganization proposal for KMC
 - 2.2 Develop a work plan or action agenda for the DRM entity and inter-departmental mechanism
 - 2.3 Conduct a review of the legal basis for current and potential DRR policies and programs
 - 2.4 Conduct a training needs assessment of KMC officials and staff
 - 2.5 Develop guidelines for the disaster management committees (DMCs) at the ward level
- 3. Develop city-level emergency response plan and guidance for planning, testing and exercising the plans**
 - 3.1 Develop city emergency response plan and guidance for planning, testing and exercising the plans
- 4. Community preparedness and livelihood enhancement**
 - 4.1 Strengthen ward-level preparedness through emergency response and evacuation planning
- 5. Develop mechanism and capability for building code implementation and enforcement and construction quality control**
 - 5.1 Review implementation and enforcement mechanisms operating in other cities
 - 5.2 Evaluate social, political, and economic context in Kathmandu, capabilities and constraints
 - 5.3 Conduct a workshop to seek stakeholder input
 - 5.4 Develop guidance and outline a simple, feasible process and implementation strategy
 - 5.5 Assess training and education needs for proper implementation
 - 5.6 Develop, deliver, and evaluate training programs
 - 5.7 Publicize the code and enforcement mechanism
 - 5.8 Evaluate and make adjustments as indicated to enforcement program
- 6. Land use planning and control and incorporating risk reduction in development plans**

- 6.1 Conduct training needs assessment of urban planners and develop capacity building programs
- 6.2 Identify mechanisms for mainstreaming DRM into key city functions including land use planning, urban planning, urban development

7. Knowledge and technology (risk assessment, warning systems, research and education)

- 7.1 Develop Map Viewer for KMC
- 7.2 Train 1 KMC technical staff on GIS

See the attached **Annex 1 DRMMP – Matrix of Possible Actions – Kathmandu Valley**.

These ideas are suggested as a means to help structure the discussions during the May 2006 field work and the remainder of the 3cd program Preparatory Phase (2006). It is not intended that all of these actions will be undertaken under the existing agreements with KMC and NSET-Nepal. Priorities must be set and resources secured. Also, some actions will be better undertaken through other partnerships.

VIII. Next Steps

The field trip of May 15-19, 2006 is the event to: (1) hold detailed discussions with NSET-Nepal and KMC on the specific areas of cooperation and actions to be undertaken jointly by KMC, NSET, and 3cd, (2) begin to expand the consultation process with additional stakeholders, (3) discuss options and priorities for the DRMMP, and (4) survey the current ICT capabilities at KMC and other key institutions.

Our detailed discussions will focus on setting priorities, timeframes, and responsibilities related to the specific areas of KMC-NSET-3cd cooperation, i.e. establishing a 3cd program work plan for 2007 and beyond. It is expected that 3cd, KMC, and NSET-Nepal will collaborate on developing joint proposals for funding the implementation of the agreed-upon high priority action items.

Consultations with additional stakeholders will contribute to the DRMMP planning process by discussing options and contributing input on priorities. This will allow the team to improve the proposed DRMMP framework outlined above, understand constraints, and begin to develop a realistic and comprehensive implementation plan that is anchored in the realities of Kathmandu and Nepal but benefits from the experience and expertise of the 3cd Team.

A specific proposed agenda for the May 15-19, 2006 field work is currently being developed for distribution. Through the feedback already received on this proposal, we are adjusting some of the original plans so as to better accommodate local needs. Currently we anticipate proposing that the week's activities include:

- (1) the detailed discussions noted in the first and second paragraphs above
- (2) an initial activity in area #5, building code implementation
- (3) initial discussions with KMC regarding #2, new DRM framework for KMC

- (4) information and communication technology (ICT) survey based on PDC's standard survey questionnaire as an initial step for area #7, knowledge and technology
- (5) *if time permits*, a KMC/ward planning session focused on #4, community/ward-level response preparedness.

We look forward to your input and comments; please convey them to Shirley Mattingly (abovethebay@earthlink.net), Jim Buika (jbuika@pdc.org), or Jeannette Fernández (jfernandez@pdc.org).

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