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**Scaling up urban resilience and disaster risk reduction:
preparing for a major earthquake in Kathmandu**

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This dissertation is submitted in partial fulfilment of the MA degree in
Development and Emergency Practice, Oxford Brookes University.

Statement of Originality

This thesis is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by explicit references.

Signed..... (candidate) Date

I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loan, and for the title and summary to be made available to outside organisations.

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This dissertation was supervised by Professor David Sanderson, BA (HONS), Dip Arch, MSc, PhD.

Abstract

This desk study reviews literature on the subject of the Nepal Risk Reduction Consortium and urban risk reduction in Nepal's capital city, Kathmandu. It explores links between the scaling up of disaster risk reduction work in Nepal in the last three years by the Consortium and wider changes in the international humanitarian system. More specifically, it relates urban risk reduction led by the Consortium in Kathmandu to three contextual themes: a recognised urgency to adapt humanitarian response to the challenge of urban disasters; the rise of 'resilience' in policy and programming; and changing dynamics in the international aid system's relationship with states. Key themes throughout this study are governance, the policy and legislative context for disaster risk reduction, and urban disaster preparedness.

This study aims to gain an understanding of the dimensions of urban resilience and risk reduction in the context of the Nepal Risk Reduction Consortium's preparation for a major earthquake in Kathmandu. It explores the Consortium's multi-stakeholder approach to risk reduction in Nepal, including its partnerships with those not formally part of the 'aid architecture' but who are nevertheless key stakeholders in urban response. These include the military, the private sector, vulnerable populations, and the media. It reviews the specific short and medium term priority actions of the Consortium's five Flagship programmes and some of the successes and implementation challenges of these to date. Ways in which preparedness, response and recovery can be integrated into longer-term urban resilience through the mitigation and prevention of risk are also discussed. Finally, the study explores the links between the urban disaster context, the rise of 'resilience' in policy and programming, and the relationship between development and humanitarian actors.

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List of Acronyms

ADB	Asian Development Bank
APF	Armed Police Force
CBDRR	Community based disaster risk reduction
CENDEP	Centre for Development and Emergency Practice
CNDRC	Central Natural Disaster Rescue Committee
CRPP	City Resilience Profiling Programme
DDRC	District Disaster Relief Committee
DEC	Disasters Emergency Committee
DFID	Department for International Development
DI	Development Initiatives
DPR	Disaster Preparedness and Response
DRR	Disaster risk reduction
ECHO	European Community Humanitarian Office
EOC	Emergency Operations Centre
GFDRR	Global Facility for Disaster Risk Reduction
GoN	Government of Nepal
HERR	Humanitarian Emergency Response Review
HF	High frequency
HFA	Hyogo Framework for Action
HPN	Humanitarian Practice Network
ICVA	International Council of Voluntary Agencies
IDRL	International Disaster Response Laws, Rules and Principles Programme
IFI	International Finance Institutions
IFRC	International Federation of Red Cross and Red Crescent Societies
IIED	International Institute for Environment and Development
INGO	International non-governmental organisation
INSARAG	International Search and Rescue Advisory Group
IOM	International Organization for Migration
JICA	Japan International Cooperation Agency
MCR	Making Cities Resilient
MOFALD	Ministry of Federal Affairs and Local Development

MOHA	Ministry of Home Affairs
NA	Nepal Army
NDMA	National Disaster Management Authority
NEOC	National Emergency Operations Centre
NGO	Non-governmental organisation
NP	Nepal Police
NRC	Nepal Red Cross
NRRC	Nepal Risk Reduction Consortium
NSDRM	National Strategy for Disaster Risk Management
NSET	National Society for Earthquake Technology
ODI	Overseas Development Institute
PTCF	Primary Trauma Care Foundation
RSLUP	Risk Sensitive Land Use Planning
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
UN	United Nations
UN HABITAT	United Nations Human Settlements Programme
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISDR	UN International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNRCHC	UN Resident and Humanitarian Coordinator
USAR	Urban Search And Rescue
VCA	Vulnerability and Capacity Assessment
VDC	Village District Committee
WASH	Water, sanitation and hygiene
WB	World Bank
WFP	World Food Programme
WHO	World Health Organisation

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Figure 1: Female Masons Training organised by UNDP and Kathmandu Metropolitan City, 13 September 2012, Nepal Risk Reduction Consortium

1. Introduction

Research aims and objectives

Recent major urban disasters have highlighted the complex challenges of coordinating effective urban disaster response and recovery operations in ways that increase the resilience of cities to future disasters. With the very high likelihood that Nepal's capital city, Kathmandu, will soon face another major earthquake, increased understanding of urban disaster response, vulnerability, and resilience in the context of Kathmandu is urgently needed. The aim of this qualitative study is to gain a deeper understanding of the Nepal Risk Reduction Consortium (NRRC)'s multi-stakeholder approach to urban risk reduction in Kathmandu, its strategic objectives, and its progress and implementation challenges to date. Though this study focuses on the NRRC's approach to risk reduction at a specific stage in its implementation, the objective is that it both challenges and contributes to our understanding of short and longer term urban resilience strategies, particularly in densely populated seismic zones.

Conceptual and thematic framework

The study relates the conceptual and operational framework of disaster risk reduction (DRR) in Kathmandu to the wider context of fast-evolving changes in development and emergency policy and practice, particularly in the last two years. It explores three specific contextual themes:

- the changing dynamics in the international humanitarian system's engagement with national and local governments;
- the challenge that urban disasters presents to humanitarian and development actors;
- and the increase in 'resilience' in policy, programming and the post-2015 development agenda.

Research questions

Four research questions are posed:

- How prepared is Kathmandu for a major earthquake?
- How have the NRRC strategically engaged with multiple stakeholders to mitigate known risks and prevent the creation of new risk in Kathmandu?
- How can disaster risk reduction initiatives in Kathmandu both benefit from lessons learned from previous urban relief and recovery operations, and contribute to our understanding of urban resilience?
- Does the 'resilience agenda' offer a new operational paradigm for development and humanitarian actors?

Methodology

The research is based on a literature review of current trends and debate in these areas, lessons learned from previous urban disasters, and documentation relating to risk reduction in Nepal and the NRRC in particular. The study also uses data collected from conversations and correspondence with key informants and experts engaged in urban resilience.

Organisation of study

The structure for this study is:

- Research methodology;
- Outline of the key contextual concepts and themes;

- Urban risk and vulnerability dimensions of a major earthquake in Kathmandu;
- Overview of the model, function and strategy of the Nepal Risk Reduction Consortium;
- A focus on the progress and challenges in the NRRC's priority areas for risk reduction in Kathmandu;
- Discussion of development and humanitarian actors' roles in building urban resilience.

Scope

While there are many diverse actors involved in disaster risk reduction in Kathmandu, this study focuses on the actions and partnerships of the Nepal Risk Reduction Consortium. Although longer-term strategies and commitment to addressing the underlying risk and vulnerability factors are key to sustainable development and building resilience, this study focuses on the short to medium term actions prioritised by the Consortium within its operational timeframe.

2. Research Method

Study Design

This is a qualitative study based on desk-based research conducted between July 2012 – January 2013. It consists a case study of disaster risk reduction in Kathmandu, in the context of broader changes in the international humanitarian system’s engagement with urban development and emergencies. It aims to further the discourse on ways in which governments, the international aid system, and others are adapting to the challenge of building the resilience of cities to urban disasters. The focus of the study has also been shaped by conversations and correspondence on the subject of urban resilience with key informants such as academics, professionals and practitioners at the NRRC, the Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP), the United Nations Human Settlements Programme (UN-HABITAT), and the Centre for Development and Emergency Practice (CENDEP).

Contextual and thematic framework

The context and themes for the study developed from the 27th ALNAP Meeting, ‘Meeting the Urban Challenge’, in Chennai, India, 17-19 January 2012, for which I was a rapporteur. ALNAP is a learning network that supports the humanitarian sector to improve humanitarian performance through learning, peer-to-peer sharing and research. Its members include donors, NGOs, the Red Cross/Crescent, the UN, independents and academics. For the first time, the 27th ALNAP Meeting was also attended by over fifteen government representatives from National Disaster Management Authorities (NDMAs). Urban resilience and multi-stakeholder approaches were recurrent themes that linked several of the sessions in particular:

- a pre-conference meeting for NDMA representatives that focused on the changing dynamics of the relationships between the international humanitarian system and affected states;
- a keynote speech from the Nepal UN Resident and Humanitarian Coordinator (UNRCHC) Robert Piper outlining the dimensions of the earthquake risk facing Kathmandu;
- a keynote speech from Dan Lewis (Chief, Urban Risk Reduction, UN-HABITAT) on urban resilience;
- a presentation by Jenty Kirsch-Wood (UNDP) and Lakshmi Prasad (Government of Nepal) on the role, financing, and scope of the Nepal Risk Reduction Consortium (NRRC);
- and discussions between UN agencies on priority actions for improving country and city-level urban response.

This study, therefore, examines the NRRC's approach to urban resilience, its unique multi-stakeholder model, and the various opportunities and challenges involved in strategically scaling up risk reduction efforts in Kathmandu, while working to multiple implementation and funding timescales.

Data collection and analysis

In terms of data collection, there is not yet a substantial body of literature specifically related to urban disaster risk reduction activities in Kathmandu, which have rapidly increased in scale and scope in the past three years, although recent increased funding for emergency preparedness in Nepal has been reviewed in detail by Development

Initiatives (Sweeney, Smith et al. 2011). For this study, online searches for relevant academic and industry literature were conducted. Reports and literature were reviewed from a diverse range of UN entities such as United Nations International Strategy for Disaster Reduction (UNISDR) and UN-HABITAT, NGOs, international consortiums, consultancy groups, educational institutions and donors. Key web resources included reviews and publications from independent development and humanitarian research and policy organisations such as ALNAP, the Overseas Development Institute (ODI), the International Institute for Environment and Development (IIED), and the Humanitarian Practice Network (HPN). Various types of industry literature such as global synthesis reports such as the IFRC World Disasters Reports, lessons papers, and real-time evaluations and inter-agency evaluations of recent urban disasters, including the earthquake in Port-au-Prince in 2010 were also consulted. Relevant items and articles on DRR in Kathmandu released by traditional and social media were reviewed to gain understanding of DRR messages and public information strategies.

As this study particularly focuses on the progress of the NRRC, primary sources such as speeches, presentations and interviews by Consortium members and other key stakeholders, press releases, minutes of the NRRC Steering Committee and sub-working group meetings, publications, articles, audio-visual resources, the online UN Nepal Information Platform, and the NRRC social media sites were analysed. Other useful resources included the contingency and disaster preparedness plans produced by agencies, clusters, and district disaster relief committees (DDRC). Key publications by the Government of Nepal were consulted, such as the National Strategy for Disaster Risk Management (NSDRM) (2009), the interim National Progress Report on the implementation of the Hyogo Framework for Action (HFA) (2010), and the Nepal Hazard Risk Assessment. Triangulation, verification and synthesis were all key components of the data analysis.

3. Contextual and thematic background

a. Meeting the challenges of urban disaster response and recovery

Literature Review

Urban disaster management and urban resilience are fast-evolving subjects, with key developments in the past three years. This is reflected in the literature, which includes global synthesis reports such as the IFRC World Disasters Report ‘Focus on urban risk’ (2010); reports from international financial institutions, including the forthcoming (March 2013) publication from the World Bank ‘Building Urban Resilience: Principles, Tools, and Practice’; and reports from key conferences such as the report following the Wilton Park conference 22-25 November 2010, ‘Urban risks: moving from humanitarian responses to disaster prevention’ (Field 2010); and the 27th ALNAP Meeting report, ‘Meeting the Urban Challenge: Adapting Humanitarian Efforts to an Urban World’ (Ramalingam, Knox Clarke 2012). In addition, reports, evaluations and learning papers from recent urban disasters have emerged, such as the ‘Report for the Disasters Emergency Committee (DEC)’ (Clermont, Sanderson et al. 2011) on the major earthquake in Port-au-Prince in 2010, and the ALNAP Lessons paper, ‘Responding to Urban Disasters: Learning from previous relief and recovery operations’ (Sanderson, Knox Clarke et al. 2012). Some national and international non-governmental organisations (INGOs) such as Oxfam, World Vision and SPHERE have produced updated guidelines for working in urban areas in both chronic and rapid-onset emergencies. The UNISDR initiatives such as the Making Cities Resilient Campaign (MCR) and the UN-HABITAT City Resilience Profiling Programme (CRPP) have also raised awareness of the need for multi-stakeholder, multi-disciplinary, and integrated approaches to resilience-building. The objective of this study is to explore how the humanitarian and development community in Nepal has begun to rethink tools, approaches and assumptions for building resilience in the context of the scale and scope of a possible mega earthquake in Kathmandu.

Rapid urbanization in low and middle-income countries

Rapid urbanization increases vulnerability and exposure to disaster risk (UNISDR 2011). Over 3.3 billion people in the world live in urban areas, with one billion living in slums (UN-HABITAT 2012). Over half of the world's cities, with populations ranging from 2 to 15 million, are currently located in areas highly vulnerable to seismic activity (UNISDR 2012b: 2). In addition to specific urban disasters, the rapid growth of cities means that regional disasters tend to have both rural and urban components, and therefore also negatively impact the linkages between urban and rural areas. Disasters in urban areas present a number of specific challenges, many due to scale and density, i.e. the higher concentration of infrastructure, political and economic activity, and institutions, in addition to the higher numbers of people potentially in need of humanitarian assistance. Disasters can have debilitating impacts on livelihoods strategies in the context of fragile and intricate economic systems in cities, particularly in low and middle income cities, where resources are often contested (Field 2010: 2). Every city has unique dynamics of multi-layered formal and informal systems of governance and leadership, with their own complex power relations. While this increases the complexity of disaster management coordination; collaboration across all tiers of government and the international community are essential components of effective urban resilience. These need to be supported by more effective mechanisms for policy co-ordination and decision-making (Ramalingam, Knox Clarke 2012: 20).

Urban vulnerability

Of the many dimensions to urban vulnerability, weak governance and poverty are key underlying drivers of risk that contribute to urban populations' increased vulnerability to disasters (UNISDR 2012a: 2). Weak governance has magnified impacts in cities, for example where it has resulted in poorly managed urbanisation and deficits in services, housing, and infrastructure. Urban poverty drives large numbers of people (especially

displaced persons) to live in informal settlements that are usually in unsafe and overcrowded areas. Poorly constructed buildings combined with limited access to basic services compounds their increased exposure to weather-related disasters and industrial accidents. Building the resilience of cities must include addressing the root causes and underlying structural conditions of risk and vulnerability such as these. As noted in conclusion to the Wilton Park (2010) conference report, though the 'impact of disaster and humanitarian crises escalate when disaster management fails', this is also inextricably linked to the 'failure of development policies to enhance governance and institutional capacity compounded by unsuccessful efforts to address economic and social redistribution' (Field 2010: 10).

Adapting humanitarian response to urban disasters

There is general agreement of the urgent need to rethink humanitarian approaches and assumptions for relief operations in disaster-affected urban areas to meet the complex challenges of the urban context (Ramalingam, Knox Clarke 2012, Clermont, Sanderson et al. 2011, Sanderson, Knox Clarke et al. 2012, IASC 2010). These challenges may include the loss of both key government and humanitarian staff and facilities, urban search and rescue, the lack of free goods such as water and land, lack of access to affected areas, and damaged infrastructure that may need to be repaired before other response operations can be started. The sheer number and diversity of actors involved in urban response can seriously undermine the effectiveness of a response, resulting in poor coordination, duplication and gaps. Vulnerable populations may be highly mobile and not always visible. The difficulty of targeting vulnerable groups for humanitarian assistance may also be increased by poor or non-existent data. The Inter-Agency Standing Committee (IASC) for key UN and non-UN humanitarian partners produced a 'Final Strategy for Meeting Humanitarian Challenges in Urban Areas' in 2009, which outlined six priority actions for improved urban disaster response. These were the development of multi-stakeholder approaches, increasing technical surge capacity,

designing and adapting tools for urban areas, improving protection for vulnerable groups against violence and exploitation, the restoration livelihoods as priority, and preparedness. Recommendations from the DEC Haiti report (2011) and the revised ALNAP lessons paper on urban relief and recovery (2012) highlighted the need for humanitarian actors to engage more closely with and build the capacity of municipal governments and civil society organisations, to consider the use of cash-based programmes to aid recovery and stimulate local markets, and to find and utilise locally available skills and knowledge. Literature on the response to the earthquake in Port-au-Prince in 2010 frequently highlights two operational issues: first, the lack of clarity over entry and exit points for the humanitarian community (leading to extended relief operations); and second, questions over the appropriateness of the cluster system for delivering the effective coordination for multi-sectoral challenges. There is consensus that humanitarian relief and recovery approaches need to be significantly adapted to meet the growing challenge of disasters in urban areas.

Building urban resilience during urban recovery

Urban recovery can be an opportunity to build resilience through the 'strategic investment of limited capital in permanent assets' during recovery and the 'integration of short term interventions into long term development'(Lewis 2012: 8). Adopting urban approaches to disaster recovery in urban crises can help to catalyse development gains, and reduce exposure and vulnerability. Some of the lessons learned from recent urban recovery operations include ensuring the safe return of affected populations to their neighbourhoods wherever possible; avoiding the location of camps in periphery areas which could increase displacement and lead to new slums; and taking into account the increased vulnerability and disadvantaged position of the 'untitled, the unregistered... and the undocumented' (Field 2010: 8). These challenges can be mitigated by the incorporation of pre-disaster recovery plans and disaster risk reduction strategies into contingency plans and development plans. Pre-disaster recovery planning is essential

for ensuring that relief and recovery actually increase resilience to disasters and to avoid setbacks to long-term development.

b. Urban resilience and disaster risk reduction

The rise of resilience

‘Resilience’ is a concept that has been increasingly applied to humanitarian and development policy and practice. It is a key aim of the ‘Hyogo Framework for Action 2005-2015 – Building the resilience of Nations and Communities to Disasters’ which has served as ‘a guiding instrument for international cooperation, disaster risk reduction and resilience building’ which ‘recognised the multidimensional aspects of disaster risk from a development perspective’ (UNISDR 2012a: 5). It is a guiding principle in the UNISDR discussion paper ‘Towards a Post-2015 Framework for Disaster Risk Reduction’ (UNISDR 2012a). Resilience was a recurrent theme in the UK government’s Humanitarian Emergency Response Review (HERR) (2011) and has become more prominent in both donor and INGO policy and programming. Article 27 of the agreement on Partnership for Effective Development Co-operation from the High Level Forum on Aid Effectiveness in Busan, Korea, in December 2011 calls on governments to invest in resilience and risk reduction that ‘increases the value and sustainability of our development efforts’ and to ‘ensure that development strategies and programmes prioritise the building of resilience among people and societies at risk from shocks, especially in highly vulnerable settings’ (Busan Partnership For Effective Development Co-operation 2011).

Conceptual and operational framework for resilience

Resilience is an ‘integrating concept’ that has emerged from multidisciplinary traditions that ‘allows multiple risks, shocks and stresses and their impacts on ecosystems and vulnerable people to be considered together in the context of development programming’ (Mitchell, Harris 2012). It can be defined as ‘a concept concerned fundamentally with how a system, community or individual can deal with disturbance, surprise and change’ (Mitchell, Harris 2012). In the context of disasters, it can also be defined as ‘the ability of a system, community or society exposed to hazards, to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions’ (UNISDR 2013c). In theory, resilience should be a more comprehensive concept than DRR as it is often linked to climate change adaptation, ‘conflict resilience’ and sustainable development. In terms of functional definitions and applications of resilience, descriptive indicators of disaster resilience have been developed (UNISDR 2013b, Twigg 2009), which describe proactive measures to build both structural resilience (mitigating strategies to resist impact of hazard and social resilience (strengthen coping capacity of communities) (Johnson, Blackburn 2012: 37).

‘Resilience’ in the post-2015 development agenda

With the approach of 2015, there are strong arguments for disaster resilience to be incorporated into the Sustainable Development Goals (SDGs). In a Background Note for ODI, Mitchell discusses options for its inclusion, and possible working definitions, indicators, data collection requirements (Mitchell 2012). He highlights the potential for the concept of ‘resilience’ to draw in humanitarian actors more closely to the global development agenda. The UN System Task Team on the Post-2015 UN Development Agenda advocates more explicit recognition of the importance of risk reduction and resilience in the post-2015 Development Agenda, arguing that, ‘Governments now

recognize the issue [resilience] as fundamental for sustainable development. The question is how to reflect the recognition into tangible and focused action that reduces the risk of disasters'. It states that increased resilience will result in 'less duplication of efforts, optimized use of available resources; an increased potential for collaborative alliances and joint actions among disciplines; and the ability to provide better guidance for policy makers and practitioners in program design, implementation and evaluation' (UNISDR 2012b: 4). However, the use of the term 'resilience' in policy and programming has been critiqued by some as a superficial change that in practice simply means business as usual. Though it is often used interchangeably with DRR and therefore similarly suffers from a lack of standardised definitions and contradictory classifications in programming (ALNAP 2012: 58); as a concept, it is perhaps less associated with root causes of disaster risk such as chronic poverty and governance challenges. For example, defining resilience only in functional terms of risk management can fail to fully address underlying risk factors, vulnerability and power (Mitchell, Harris 2012). Yet perhaps resilience does also offer a 'potential unifying framework, bridging humanitarian, DRR, good governance/state-building' (ALNAP 2012: 57-8). As noted by The State of the Humanitarian System report, the rise of resilience has re-opened the long-standing debate on humanitarian and development divides, potentially catalysing renewed efforts to bridge these (ALNAP 2012: 58).

Urban resilience initiatives

Resilience is a difficult concept both to measure and to apply to different operating contexts (Mitchell, Harris 2012). However, two examples of initiatives to apply the concept of resilience to urban contexts are UNISDR's Making Cities Resilient Campaign (MCR) and UN-HABITAT's City Resilience Profiling Programme (CRPP). The former has over 1290 cities signed up so far to its campaign to strengthen local governance capacity for risk reduction (UNISDR 2013a). It has used a ten-point checklist to focus resilience building activities, facilitated dialogue and city-to-city exchanges, produced a

Local Government Self Assessment Tool, a handbook, online resources and provided technical support activities. The CRPP is a new integrated urban planning and management model to help cities build urban resilience to disasters by integrating all functional aspects of planning and developing human settlements through a four year research and development initiative. Its aim is to be able to measure progress towards resilience, and better evaluate the efficacy of mitigation and reduction projects, with the overall goal to make cities safer places to live and work by targeting 'specific indicators of resilience to multi-hazard catastrophic events' (UN-HABITAT 2012). It seeks to go beyond the current approaches and tools available that are generally disaggregated by sector, in order to develop integrated tools more suited to complex urban systems. This will involve bringing together urban specialists such as planners, engineers architects, economists and business specialists (UN-HABITAT 2012). Building urban resilience requires multi-stakeholder approaches such as these to increase expertise and capacity to strengthen and prepare urban systems to withstand and recover from shocks (Lewis 2012).

c. The changing aid architecture

Changing relationships between the international humanitarian system and disaster-affected states

A key complexity of urban response and risk reduction are the multi-layered formal and informal urban governance structures combined with the number and diversity of responders to international crises. This is linked to the changing 'aid architecture' in terms of the changes in the way the international humanitarian system engages with host governments and affected populations, particularly in conflict or post-conflict situations, and in urban contexts. It is also affected by the growing influence and power of other key stakeholders. Traditionally, the humanitarian system has consisted providers (such as donor governments, foundations and individual givers), and

implementers (such as the IFRC, INGOs, UN agencies, IOM, and national and regional civil society organisations). However, other central and often neglected actors include disaster-affected populations and their governments, the military and private sector (ALNAP 2012). Informal assistance such as remittances and zakat are often not included in tracking of aid flows and traditional monitoring and evaluation, yet play a significant role in enabling affected households and communities to recover (ALNAP 2012). As the State of the Humanitarian System review in 2012 found, there is an increasing polarisation between the traditional actors and the 'newer' actors caused by a number of frustrations and tension. For example, there often exists a tension between centralised coordination from the government and international actors' independent and impartial role in delivering assistance and protection, compounded by agencies' acknowledged tendency to default to operational mode, especially in rapid-onset emergencies or conflict situations (ALNAP 2012: 69). For host governments, the tensions focus on a 'tendency for agencies to bypass national authorities and to directly engage at local levels,' reported insufficient deference to nations' sovereignty, a perceived lack of respect from some agencies' for local culture and structures, and a lack of information, transparency and accountability from some INGOs (ALNAP 2012: 70). For aid practitioners, the tensions centre on serious concerns about political actors' 'lack of respect for humanitarian principles' (such as impartiality), instances where governments have blocked or diverted aid away from certain sections of the population, and tensions within the aid community arising from the choices of some humanitarian actors to align themselves with political and military activities and actors, in such a way as has compromised their own neutrality and humanitarian principles at times (ALNAP 2012: 13).

More assertive host governments and the rise of National Disaster Management Authorities

The increased assertiveness of some host governments is a key factor in the changing dynamics between the international humanitarian system and host governments, which is linked to the steady rise of National Disaster Management Authorities (NDMA) in the last decade. Some national governments have become stronger at managing their own responses to disasters, with their own NDMA, human and financial resources, and legislative, policy and donorship guidelines. Some have also moved away from traditional channels of requesting assistance and have not issued the standard emergency appeals that trigger international humanitarian response. This has caused uncertainty for traditional aid actors in knowing how to support these governments, e.g. as noted by UN representatives (ALNAP 2012). These more assertive host governments have also focused more on independence, self-reliance and sovereignty, prefer to engage with the international system on their own terms. The presence of stronger NDMA also changes the dynamic of host governments' engagement with the international humanitarian system. For example, stronger NDMA are 'increasingly likely' to push governments to handle disasters internally without making requests for external assistance (ALNAP 2012: 69).

Initiatives to strengthen international partnerships in disaster response

A number of host-governments and international humanitarian actors met together for the International Dialogue on Strengthening Partnership in Disaster Response: Bridging National and International Support: Geneva, 25-26 October 2011. A *Statement of the Co-Convenors Identifying Elements for a Plan of Action* was released afterwards which, while affirming some shared understandings, clearly highlighted the risk of very

fragmented regional and international initiatives that fail to take the affected state or population into account, or to complement existing structures (SDC, IFRC et al. 2011). The *Statement* identifies several of the challenges and tensions outlined above, and acknowledges additional frequent challenges: cross-purpose agendas; blockages and delays to some international assistance due to domestic regulations and frameworks; some poor quality and ill-suited international assistance that fails to build local capacity for future disasters; the increased politicization of international disaster assistance; and signs of more mistrust between states, donors and international actors. Some of the recommended actions to address these challenges were: continuing to build trust between actors; establishing and strengthening legal frameworks and procedures; establishing mutual assistance and cooperation arrangements; and starting multi-stakeholder preparedness planning (SDC, IFRC et al. 2011). To that end, the IFRC are facilitating the development of the International Disaster Response Laws, Rules and Principles Programme (IDRL) which will allow for a more sophisticated system and guidelines for governments for the 'facilitation and regulation' of international disaster relief and initial recovery assistance, and to specify what kind of assistance might be needed. While this may give governments greater control over how and when they receive assistance, it could also result on more restrictions for aid agencies.

Finally, these broader shifts and challenges within the international humanitarian system and its engagement with national and local governments; the rise of NDMAs; the increased role and influence of responders outside the traditional aid system; and the struggle for coherence within the traditional humanitarian system are all systemic challenges that also have a bearing on the complex multi-stakeholder dynamics of preparing for major urban response and recovery operations in Kathmandu.

4. Case Study: Preparing for a major earthquake in Kathmandu

Likely earthquake scenario

'Low-income countries account for only 9% of the world's disasters but 48% of the fatalities'

(Government of Japan, GFDRR et al. 2012: 2)

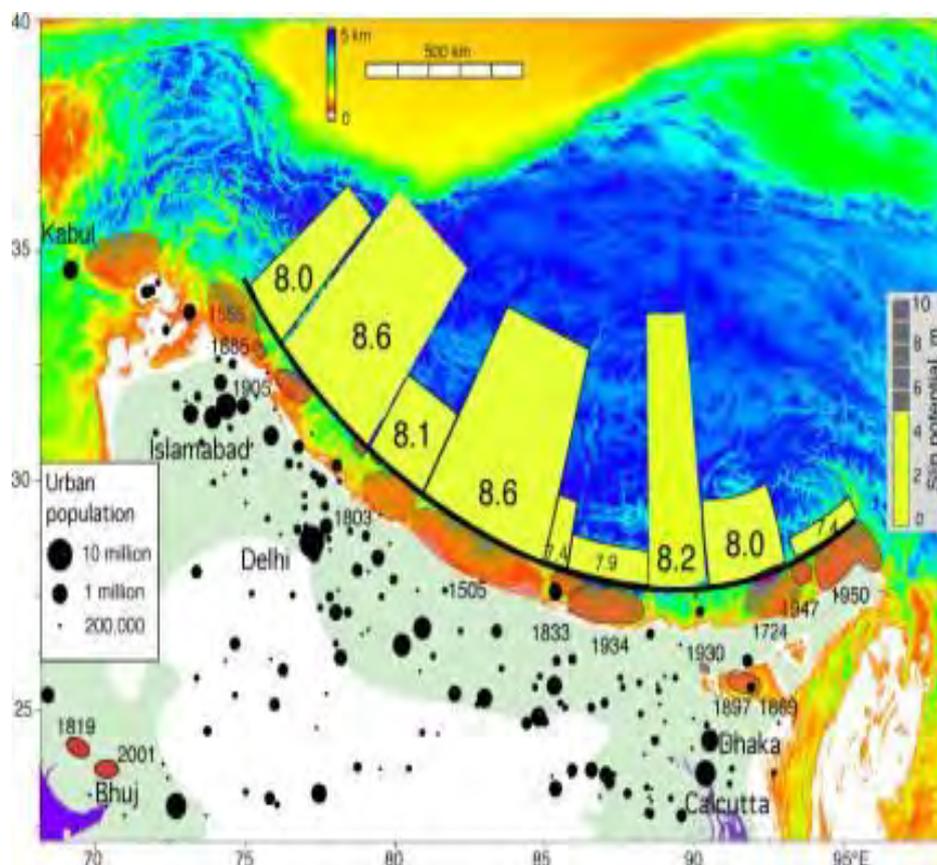


Figure 2: Scale of earthquakes on India-Nepal border. From Key Note by Robert Piper, UN Resident & Humanitarian Coordinator at the 27th ALNAP Meeting, Chennai, India, 17 January 2012

From 2001-2011, earthquakes caused almost 60% all disaster-related mortality – more than 780,000 deaths (Bartels, VanRooyen 2012). Since 1223, Nepal has experienced 16 mega earthquakes, and a major earthquake occurs roughly every sixty years. As the last

major earthquake of magnitude 8.4 was in 1934, the threat of a mega earthquake in Kathmandu Valley is both a likely and a serious one. In 1934, around 8,000 people were killed and 60% of the buildings in Kathmandu Valley were destroyed. At the time, Kathmandu a relatively small town of around 150,000 residents compared with the 2.5million or so who inhabit it today (Piper 2012a). With calculations based on conservative estimates of the population of Kathmandu Valley, an earthquake of the same magnitude as that in 1934 would kill more than 100,000, seriously injure another 300,000 and displace up to a million people (Government of Nepal, Government of the United States of America et al. 2011). Furthermore, large areas of sandy land in the valley are prone to liquefaction in the event of shaking from an earthquake. This has not been factored into the location of many key public buildings and critical infrastructure. It is predicted that up to 80% of critical facilities such as hospitals and schools are at risk of collapse in a major earthquake, and that over 60% of buildings would be totally destroyed (DFID 2011). In September 2011, an earthquake of 6.9 magnitude on the Richter Scale hit the Eastern region of Nepal, affecting eighteen districts and causing seven fatalities. Seventy-two people were seriously injured, 6,300 buildings were completely destroyed and 38,000 were unable to return to their homes (IFRC Emergency Fund Data 21 Oct 2011 in DFID 2011: 2). This medium-sized earthquake highlighted the urgency of scaling up disaster risk reduction at both local and national level.

Operational challenges for urban response

A major earthquake would create immediate major urban response challenges as, due to haphazard construction, there are very few open spaces that could be used for humanitarian coordination, temporary shelter or field hospitals. The emergency services, who already have limited capacity would be overwhelmed by the scale of the disaster, and humanitarian response would be hampered by the expected failure of virtually all essential services. Access to Kathmandu Valley would also be a serious

challenge, as it is likely that the three main access roads would be blocked through landslides and collapsed bridges. Currently there is no medium or heavy urban search and rescue capacity. Get Airports Ready (GARD) training and a capacity assessment of the one international airport was carried out in 2012 by UNDP and DHL with support from the Government of Nepal, as it is extremely vulnerable to an earthquake (NRRC Secretariat 2012c: 6). Critical damage to this airport increases the likelihood that Kathmandu Valley, where all central Government and many key non-Governmental actors are located, will be isolated without any substantial external relief for several weeks (Piper 2012a). Not least, this presents major logistical challenges for storing and distributing preparing relief supplies (food and non food items) in-country for potentially over a million people displaced. The World Food Programme have estimated that 16,000 MT will be needed to provide food 1 million people for thirty days (Piper 2012a).

Cluster Contingency plans are available online on the UN Nepal Information Platform, and are based on two disaster scenarios, the first being a major earthquake in Kathmandu Valley. These plans confirm that preparedness work is underway, but also underline the scale and complexity of the expected disaster impact. Major challenges foreseen by the Logistics Cluster in the most recent plan available (2011) include security concerns for the incoming relief assistance by road, and serious concerns regarding the safety and security of the seat of the government. It also recognises the new risks that will be created due to the subsequent haphazard, spontaneous recovery efforts which will start within a couple of weeks of the earthquake, compounded by the huge shortfall of skilled labour and building materials (Lal 2011: 6).

Governance, socio-economic and economic implications

In addition to operational challenges for response, a mega earthquake in Kathmandu Valley would have significant wider impacts nationally and regionally. Up to 40% of civil servants died in the earthquake in Port-au-Prince in 2010. A repeat of the 1934 earthquake in Kathmandu would similarly incur significant personnel losses amongst key government ministries and essential service providers, further limiting the government's capacity to coordinate national and international incoming aid and emergency response, and to ensure the security of deliveries of essential supplies (NRRC Secretariat 2012e). In the current politically unstable and insecure context of Nepal, a fragile rule of law and recently demobilised Maoist troops, a major disaster with key personnel losses also has the potential to trigger a major security situation with regional implications. In terms of socio-economic impacts, a major earthquake in Kathmandu would also increase the vulnerability of many already vulnerable groups, such as those living in marginal areas in the city. Other particularly vulnerable social groups include Dalits ('a community that has traditionally been subjected to untouchability and caste-based discrimination' (National Dalit Commission in UN Country Team in Nepal 2011: 53)), the elderly, women and children (UN Country Team in Nepal 2011). As seen in the Haiti earthquake (2010), the impact of an urban disaster is also felt in many of the surrounding rural areas, due to food, trade and other significant urban-rural linkages. In Nepal, there are already many female headed households and excluded groups in rural areas who would also be adversely affected by a major urban disaster in Kathmandu (UN Country Team in Nepal 2011). Finally, the economic impacts of a major disaster in Kathmandu would seriously undermine development in Nepal. In 1988, Nepal witnessed an earthquake of 6.6 on the Richter scale that caused losses of £69m according to official estimates, though informal estimates were higher (Ministry of Home Affairs, Government of Nepal 2009). It is estimated that a major disaster now could cause economic losses that are ten times that or greater, with likely prolonged macro-economic impacts and detriment to long-term growth (e.g. increased public deficit and worsened trade balance) (DFID 2011: 31).

At the very least, development spends would suffer budgetary contractions and the cost of the humanitarian response would be very high (DFID 2011: 10). Not least, the economic impact on individual households would also be significant , particularly for various 'invisible' groups who already have difficulty accessing government assistance or rely on the informal economy, and who are more likely to have insecure housing and no savings.

5. Nepal Risk Reduction Consortium (NRRC)

“Reducing risk is a core element of the post-2015 development agenda. Addressing current, and future development, demands it. Therefore ensuring convergence between a bold and inspirational development agenda with a universal, action-oriented framework for disaster risk reduction will ultimately support the end goal – sustainable development.” (Wahlström 2012)

Increased coordination for DRR in Nepal

The formation of the Nepal Risk Reduction Consortium in 2009, coordinated by the Secretary of Home Affairs, has been a key development in DRR in Nepal, significantly improving coordination. The Consortium is a ‘unique collective mechanism’ led by the Government of Nepal, drawing on the resources and expertise of international and national partners such as the development arms of the UN system, OCHA, UNISDR, the World Bank, the Asian Development Bank, the IFRC, the Governments of the US, UK, Australia and Japan, and the European Community (NRRC Secretariat 2012e). A milestone in the formation of the NRRC was a High Level Symposium in February 2011 which received the highest level of political representation in Nepal, and participation from national first responders, the military, donor governments, the military, and key representatives with experience from recent urban disasters in New Zealand, Pakistan, Haiti and Japan. It is estimated that it is possible to predict in advance 80-90% of risks in Nepal in terms of rough numbers and types of needs (Kirsch Wood, Dhakal 2012). Therefore it is possible to take proactive steps towards minimizing the impact of hazards, preparing emergency response, and planning for recovery. Crucially, the most significant priority action identified in Nepal’s interim national progress report for the implementation of the Hyogo Framework for Action (2009-2011) was to ‘drive’ a paradigm shift from a ‘conventional rescue and relief approach’ in Nepal to an ‘integrated approach where multiple hazard environments are considered’, and to

change the ‘practice, attitude and commitment of both government officials and civil society actors’ (Ministry of Home Affairs, Government of Nepal 2010). Based on the commitments made by the Government with regard to the implementation of the ten year global HFA plan in Nepal, the Consortium’s objectives are to ‘support the Government of Nepal in developing a long term DRR Action Plan building on the new National Strategy for Disaster Risk Management (NSDRM) (approved October 2009)’ and ‘to initiate a multi-stakeholder participatory process with the Government of Nepal and civil society organizations’ (NRRC Secretariat 2010: 4).

Waiting for a new Disaster Management Act and National Disaster Management Authority

The strategic role and focus of the NRRC involves fundraising and identification of funding sources and mechanisms; the implementation of the five flagship programmes (detailed below) through guidance on resource utilization; coordination of government authorities and UN agencies; technical and administrative support; and monitoring and evaluation. The Consortium is an interim measure, providing leadership, strategic guidelines and technical support in the interim period before the Natural Calamities Act (1982), which is predominantly relief-oriented, is replaced by a new Disaster Management Act (NRRC Secretariat 2010: 4). It is also hoped that a NDMA will be established as soon as possible that will have the power to implement wider and more substantial disaster risk reduction policies. However, though proposals for the Disaster Management Act and new NDMA have been submitted to the Cabinet, the implementation of new legislation has been subject to a series of delays in the midst of political instability and successive governments, despite repeated calls in national and international media from government line ministries, UN agencies, donors and disaster risk management experts to address the issue with a greater sense of urgency (Pokharel 2012).

NRRC Five Flagship Programmes

A further objective of the Consortium is to ‘identify short to medium term disaster risk reduction priorities that are both urgent and viable within the current institutional and policy arrangements in the country’ and it has therefore started working from the NSDRM to create five flagship programmes that “address critical points of vulnerability at scale” (NRRC Secretariat 2012f).

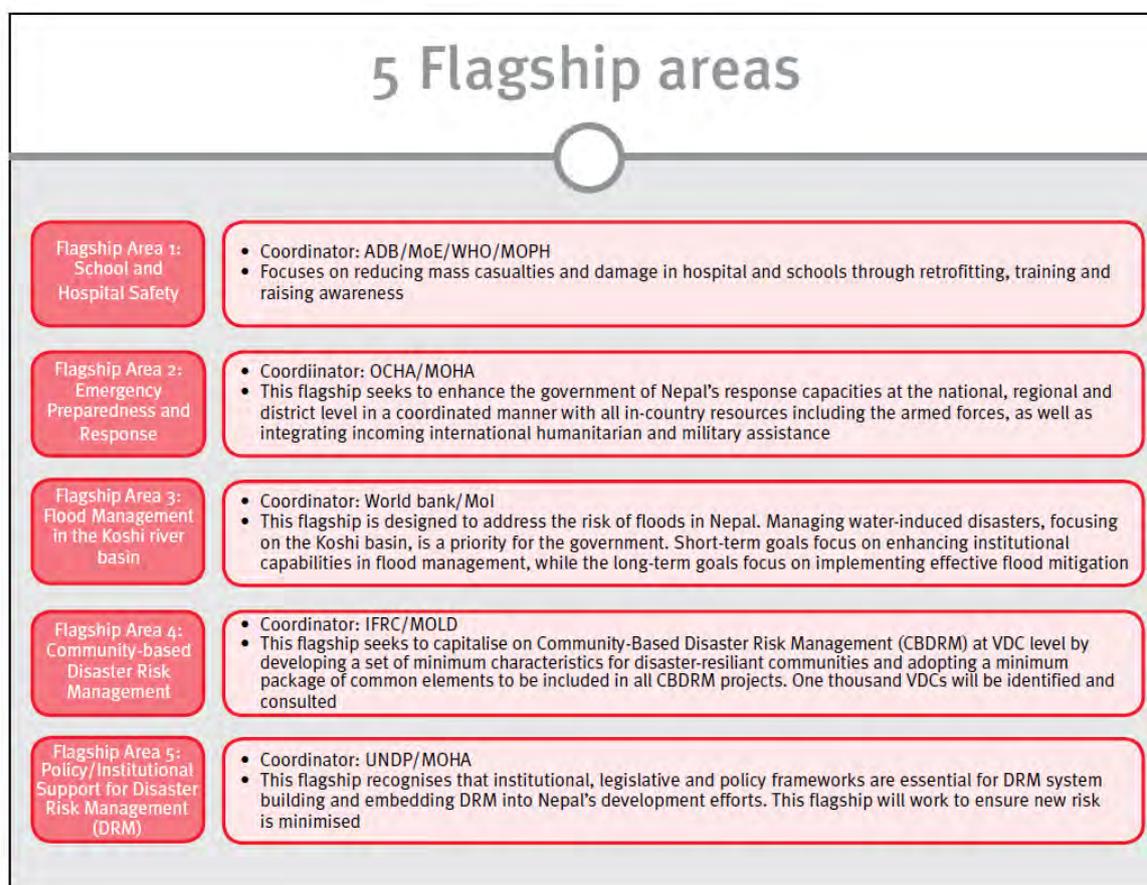


Figure 3: NRRC Flagship Programmes overview (NRRC Secretariat 2012)

In the following section, the strategy and progress to date, and implementation challenges of each of the flagship programmes will be discussed. Though it is integral to

multi-hazard risk reduction in Nepal, Flagship 3 is not discussed in this study, which focuses more specifically on the earthquake risk.

6. Urban Resilience in Kathmandu

a. Flagship 5: Policy, institutional and legislative support for disaster risk management (DRM)

Flagship 5 is working to strengthen the institutional, legislative and policy frameworks in Nepal for improved and integrated DRM systems, moving away from a historically relief and response oriented disaster management, administered in a fairly ad hoc manner under the Natural Calamity Act of 1982. Its comprehensive multi-hazard and multi-sector strategy underpins the other Flagships programmes through capacity building at national and local levels in the following areas:

- Advocating for policy and legal reform
- Revising and new legislation where needed
- Forming sector disaster risk management (DRM) policies
- Capacity building for institutional reform
- Establishing knowledge management and sharing systems
- Capacity building for improved building code implementation
- Risk sensitive land use planning (RSLUP)
- Mainstreaming DRM budgets in line ministries and at national and district levels
- National platform building
- Community based disaster risk reduction (CBDRR)
- Domestic professionalization of DRM and establishing new independent 'specifically mandated' disaster related organisations at both central and local level (NRRC Secretariat 2010: 69).

These priorities were reinforced at the High Level Symposium in February 2011, which further identified critical actions to ensure the effectiveness and sustainability of the programme: namely the need to ensure the predictability of DRR funds; for all new projects to be assessed for risk and disaster impact; and the assessment of all major infrastructure for DRR (Government of Nepal, Government of the United States of America et al. 2011). This relies on the engagement of all the relevant line ministries. In terms of achievements, as of December 2012, a risk sensitive land use plan for Kathmandu has been agreed and a replication outside the valley is also underway. An automated building permit system has been created to ensure a more rigorous and standardised process for issuing permits, and to inform RSLUP with more detailed mapping and monitoring data (NRRC Secretariat 2012a). A road map for enhancing building code implementation has been developed and the Ministry of Agriculture has completed Mainstreaming Plan with DRM focal points in 23 Ministries/departments. Local level mainstreaming has been approved by the Government and District guidelines are in the final draft stage (NRRC Secretariat 2012h).

Governance

'The Government needs to lead, rather than be informed.' (Kirsch Wood, Dhakal 2012)

There has been the highest level of political representation at key events such as the High Level Symposium and recent annual National Earthquake Safety Days. Early Ministry of Finance involvement was also crucial in gaining IFI's support for the NRRC (Sweeney, Smith et al. 2011). However, this has not translated into consistent government engagement and action on key DRR issues that would enable the scaling up of the work agreed in the NSDRM. As discussed earlier, the highest priority for Flagship 5 remains the enactment of a Disaster Management Act that will enable the establishment of a National Disaster Management Authority, with the power and resources to 'convene all concerned national and international actors, including

government, donors, NGOs on one platform and enable effective implementation of the NSDRM' (Piper 2012c). Mainstreaming sustainable and comprehensive risk reduction requires the engagement of those with the 'authority or capacity to influence decisions related to national development planning and investment' (Clause 21, UNISDR 2012b). In Nepal, however, though several line ministries have gradually become more engaged with the Consortium, substantive mainstreaming of DRR into development planning is still undermined by the lack of a NDMA. As reported at a coordination meeting held by MOHA for relevant line ministries early 2012, the problem is compounded by the critical 'lack of dedicated staff to the issue of DRM within ministries' (NRRC Secretariat 2012c: 2).

b. Flagship 1: School and hospital safety

Critically unsafe buildings

The Consortium's Flagship 1 programme aims to ensure the structural resiliency and operational capacity of schools and hospitals survives a major earthquake. Recent estimates predict that an earthquake of 8+ Richter magnitude is likely to cause the total destruction of 60% of all buildings and severe damage to 80% of hospital infrastructure in Kathmandu Valley (Nepal High Level Symposium Statistics and Scenarios DFID 2011: 3). Around 90% of buildings in Kathmandu are non-engineered, have been built by house-owners, and are predominantly concrete structures (NRRC Secretariat 2012a). There is poor quality control of materials and construction and a critical shortage of skilled masons. Few buildings comply with building codes, with many precarious multi-storey buildings attached together, and with building safety further compromised by property divisions within families (Khatri 2012). Many critical facilities are located on land prone to liquefaction, and on land with high subsidence rates due to the over exploitation of underground water (Khatri 2012). Furthermore new risk is created daily

with a booming construction industry that is fuelled partly by the remittances that make up over a quarter of the country's economy (Piper 2013).

Prioritising hospital and schools safety

Prioritising the safety of hospitals and schools is key to saving lives both during and after an earthquake. Structural assessments after the earthquake in eastern Nepal in September 2011 (6.8 magnitude on the Richter scale) suggest that, had the earthquake occurred during school hours, many more children would have died (Piper 2012a).

Hospitals and schools are critical facilities that reduce exposure after a disaster, and can be used as field hospitals, places of temporary shelter, and warehouses. Retrofitting of key buildings such as schools and hospitals are therefore major investments in disaster risk reduction. Other critical facilities at high risk of collapse in a major earthquake and in need of retrofitting also include government buildings, although these are currently not included under Flagship 1. The objectives of Flagship 1 are to conduct structural and non-structural vulnerability assessments of hospitals and over 900 school buildings in Kathmandu Valley, physically retrofit prioritised hospitals and 900 school buildings, raise awareness of disaster risk in school communities, and train health practitioners and engineers for hospital safety. The Ministry of Education retrofitted 15 schools in FY2011, with another 50 schools planned for retrofitting in FY2012. Funds are in place for another 260 to be retrofitted by the end of 2014. A School Action Plan (supported by ADB and AusAid) to retrofit 260 school buildings through the School Sector Program has been finalised (NRRC Secretariat 2012g). Detailed assessments of 60 hospitals are being conducted by WHO and the Ministry of Health 2012-2013. Twenty of these will be selected for detailed structural assessments with ten of these chosen by a Technical Advisory Group to be retrofitted. Funds have been allocated by the Government of Nepal for the retrofitting of Patan Hospital (McClellan 2012). One unresolved question for the Consortium's Steering Committee, however, is increasing the resilience of private schools and hospitals (NRRC Secretariat 2012c: 3). Many private schools in

Kathmandu are located in former private houses with little adaptation to school safety standards and are therefore at very high risk of collapse. However, private schools currently remain outside the mandate of Flagship 1.

Challenges for improving building safety

A number of policy, implementation and capacity challenges stand in the way of safer construction and the improved structural resilience of buildings in Kathmandu (NRRC Secretariat 2012a). First, building codes and policies currently do not cover buildings constructed above four stories, and standardized retrofitting guidelines have yet to be finalized. The effective implementation and sustainability of Flagship 1 therefore relies on the policy, legislative and institutional support provided by Flagship 1. For example, both the low annual budgets for school (NRRC Secretariat 2010: 7), and the delay in processing the funds for the retrofitting of schools in 2011-2012, highlight yet again the need to mainstream disaster risk reduction across line ministries such as the Ministry of Education and Ministry of Finance (NRRC Secretariat 2012c: 4). Second, a lack of demand for safer construction is the result of low public awareness of investment in earthquake resilient homes. Similarly, there needs to be greater investment from the private sector and financial institutions in building code compliant structures. Third, municipalities lack the incentive, and the financial and human resources, to enforce and regulate building codes. This was recognised at the High Level Symposium in 2011, where senior leaders recommended developing 'public accountability mechanisms for engineers, contractors and other construction professionals and decision makers. This would include mechanisms for updating rules and ensuring effective monitoring and enforcement of building codes' (Government of Nepal, Government of the United States of America et al. 2011: 14).

c. Flagship 2: Strengthening emergency response capacity

The second NRRC Flagship Programme aims to enhance the Government of Nepal's response capacity at national, regional and district level, and coordination of in-country resources and incoming international humanitarian and military assistance.

Emergency coordination mechanisms

Crucially, the National Disaster Response Framework was finalised at the end of 2012, which will enable scaling up of institutional emergency response capacity building. The Central Natural Disaster Rescue Committee (CNDRC) is a very small unit, with few civil servants dedicated solely to disaster risk management. It is chaired by the Home Minister, and formulates and implements disaster response policy, and coordinates relief assistance through District Disaster Relief Committees. The CNDRC (also co-chair of the Consortium) manages the emergency operation centre network and is a nodal agency linking the Government of Nepal to the cluster system. The National Emergency Operations Centre runs 24/7 and has direct communications links with all security agencies, Civil Aviation Authority, Red Cross and UN (Piper 2012b). Under Flagship 2, it is now being linked to a national network of 25 regional and district operations centres, equipped with new communications tools, high frequency radio communications capacity, and trained staff (NRRC Secretariat 2012c). Disaster Preparedness and Response (DPR) plans have been completed in all 75 districts, using Guidance Notes prepared by the Ministry of Home Affairs (MOHA) (Ministry of Home Affairs, Government of Nepal 2011). Some review workshops on the DPR planning process were held in December by MOHA, which identified the lack of financial resources, lack of common understanding among agencies on the relevance of the DPR plans, and the frequent turnover of government officials as the key implementation challenges (UN RCHC Office 2013).

Developing first responders' capacity

Flagship 2 also works to develop first responders' capacity in terms of first aid, fire services, and urban search and rescue. Nepal has very limited urban search and rescue (USAR) capacity and has requested assistance with training two medium and light urban search and rescue teams trained and equipped to INSARAG standards who will be able to provide trauma care and also manage collapsed buildings and structures. These teams are needed for house collapses due to annual floods and landslides, as well as the high earthquake risk. Currently, the lack of national policies, has made it difficult to obtain extra resources for this (NRRC Secretariat 2012c: 6), though it should be easier now that the National Strategy on USAR capacity is finalized, and together with the National Disaster Response Framework (NDRF), is currently in the process of approval by the Central Natural Disaster Relief Committee (UN RCHC Office 2013).

As the evidence of poorly managed trauma and the high rate of amputations after the earthquake in Haiti indicates (Ramalingam, Knox Clarke 2012: 15), there is also a critical need to scale up training such as the Primary Trauma Care training that has taken place at Patan Hospital since 2007, to increase the number of first responders in Kathmandu with skills in trauma management (Primary Trauma Care Foundation 2013). The fire and emergency facilities need investment and systematic upgrading in order to manage the fire risks associated with earthquakes, for example from damaged and collapsed electricity cables. Currently there are only twelve fire engines in Kathmandu Valley (often in state of disrepair) serving a population of 2.5 million or so (Piper 2012a). The Government of India will soon be donating 17 more fire engines that will be distributed across Nepal (McClellan 2012). In terms of current capacity for national emergency response, the High Level Symposium in 2011 found that the 'basic assets, services and systems for response operations are in place, there is willingness of different agencies, to enhance capacity, but there are also issues of duplication' (Government of Nepal, Government of the United States of America et al. 2011: 10). The Nepal Army (NA) is

stationed in over 400 locations, and has adequate ground transport (but not any air lifting capacity), some provision for temporary shelter, and personnel trained in establishing emergency camps. They have also conducted regular disaster management training and participated in preparedness exercises with the US forces. The Armed Police Force (APF) has around 31,000 uniformed personnel with over 40% trained in disaster management, with aims to increase this to 75% (Shahi 2012). Early 2012, the APF established a Disaster Training Centre at Kurintar for APF training in the management of floods, landslides, earthquakes and fires, and trained around 600 APF personnel on three month courses on disaster awareness raising, rescue operations, first aid and emergency shelter (Shahi 2012). In addition, the Nepal Police has around 59,000 personnel and incorporates some disaster management training into its general training.

National and international civil-military coordination

Another Flagship 2 objective is to establish and strengthen mechanisms to facilitate international assistance. The National Disaster Response Framework has been key to this, in addition to the continued small UNOCHA presence that enables a 'minimum level of contingency planning' (Piper 2012a: 6). A disaster of the scale that is expected, however, also requires the development of multilateral military strategies for the region. The Nepal Army held a three day international symposium on disaster management in April 2012 to agree cooperation and assistance in the region for rapid response in the event of a disaster (Himalayan News Service 2012). It was attended by representatives from the Nepal Army, Indian Army, Nepal Police, Armed Police Force, National Society for Earthquake Technology, various UN agencies, Ministry of Defence, Ministry of Home Affairs, Ministry of Health, Ministry for Information and Communications and Nepal Red Cross Society, and Army officers from Bangladesh and Sri Lanka, the US Pacific Command and the British, Pakistani, Indian, Chinese and American embassies. As some of the assistance provided to Nepal by the Indian government during the Koshi River

floods in August 1998 was blocked at the border, such pre-disaster coordination and planning meetings are essential (Himalayan News Service 2012). The US military has a five-phase plan to bring in heavy lift helicopters command and control facilities, and medical supplies, as requested by the Nepal Government (Government of Nepal, Government of the United States of America et al. 2011: 7). Given Nepal's transitional context since its ten-year civil war (1996-2006) and the protracted demobilisation of Maoist troops, the coordination of national first responders with regional and international military assistance is a particularly critical and sensitive matter. Many are aware that a large-scale disaster in Kathmandu has the potential to destabilise the government and renew conflict across country, with an inevitable regional impact.

Protecting open spaces

As it is expected that over one million people will be displaced in the event of a repeat of the 1934 earthquake in Kathmandu, one of Flagship 2's objectives is to 'identify, prepare and deconflict open spaces in Kathmandu Valley', in order to provide operational space for humanitarian assistance and shelter for internally displaced peoples. So far, eighty-three open spaces have been identified, and the challenge is to protect these spaces from encroachment in a context of unregulated urban development. The question of legal issues surrounding the prohibition of construction in spaces not owned by government was raised at the sixth Consortium Steering Committee. It was agreed that MOHA should lead the process of public notification regarding the open spaces to engage the cooperation of local bodies, the private sector, and the public to keep the spaces free (NRRC Secretariat 2012c). Again, the cooperation of local municipalities will also be critical to enforcing this. The Consortium are also working to secure earthquake-resilient water supplies for these sites, and to ensure that new and current warehouses are earthquake resilient for the pre-positioning of relief and rescue supplies (McClellan 2012).

Displacement

As the DEC Haiti report (Clermont, Sanderson et al. 2011) has highlighted, effective links between analysis and action in the fast-changing urban disaster environment are critical. The NRRRC are working with mobile phone networks to plan ways in which mobile phone data can be used to track the movements of people into the surrounding areas and across borders, to inform and improve relief and recovery planning. Robert Piper (UNRCHC) has said, 'We need to learn from the experience in Port au Prince, and put in place the right systems to help people stay out of a destroyed city to buy time for some semblance of order and services to be put in place rather than pulling them back to Kathmandu to access relief and services' (Piper 2012a). However, this temporary solution needs to be balanced with lessons learned from previous urban disasters which suggest that the 'safe return' of people to their neighbourhoods of origin should be prioritised wherever possible (Clermont, Sanderson et al. 2011). Other reports recommend avoiding relocation camps in peripheral areas, which have been found to increase displacement, to lead to tensions with surrounding populations, and to create new slums - thereby increasing chronic vulnerability (Sanderson, Knox Clarke et al. 2012). Furthermore, the IFRC World Disasters Report (IFRC 2012) and the Review Of Urban Humanitarian Challenges In Port -Au-Prince, Manila, Nairobi, Eldoret (Barcelo, Masaud et al. 2012) both highlight the significant protection and violence problems associated with urban disaster displacement and relocation camps, and some of the steps taken by UNHCR and IFRC to address these. Clearly, identifying open spaces for in the midst of densely populated Kathmandu is the first step towards preparing for the large-scale displacement, shelter, and protection issues that will arise in the event of a major earthquake. Nevertheless, much more integrated planning between all concerned actors is needed, that incorporates and adapts lessons learned from previous rapid-onset and chronic urban emergencies for Kathmandu.

d. Flagship 4: Community-based disaster risk reduction (CBDRR)

Flagship 4 is a coordination and advocacy mechanism for community based disaster risk reduction (CBDRR) in Nepal, working with a coalition of local and international NGOs to complete 1000 community based disaster preparedness projects at Village Development Committee (VDC) level within five years in Nepal. The rationale for Flagship 4 is that community based disaster risk reduction is 'driven by the recognition of the need to shift from reactive and relief based approaches to proactive mitigation and adaptation architecture. This requires institutional, legislative and policy change to support the decentralization of responsibility in support of engaging all stakeholders at national, district and village levels' (NRRC Secretariat 2010: 2). Chakra Pani Sharma, Under Secretary for the Ministry of Federal Affairs and Local Development, has spoken about the need for community awareness and ownership of DRR, as communities are always 'the first to be affected by disasters and they are the first to respond'. The long term goal of CBDRR, according to Sharma, is to achieve a sustainable process through which to 'develop a community that is environmentally safe and disaster resilient; where infrastructure, development, management of natural resources is a process owned and internalised by the community' (Sharma 2012a). Flagship 4 has introduced a project tracking survey to track the progress of communities and VDCs against nine minimum characteristics for a disaster resilient community. A key implementation challenge, however, has been in engaging organisations to complete the survey (NRRC Secretariat 2012c: 7). The aim is that the incorporation of these characteristics into CBDRR projects will increase aid coherence. MOFALD have also finalised the Local Disaster Risk Management Planning (LDRMP) guideline for communities which creates a mechanism for resourcing VDCs with tools for vulnerability and capacity assessments and local disaster management plans (Sharma 2012a). However, it has been difficult to reach VDCs that currently do not have CBDRR projects (NRRC Secretariat 2012c: 7). The issue of absorptive capacity for local partners for scaling up CBDRR projects has been raised at Consortium Steering Committee meetings, which reinforces the importance of seriously investing in the capacities of local operational partners in non-emergency

periods, as has been highlighted in The State of the Humanitarian System report and elsewhere (ALNAP 2012).

e. Communications

Radio

Rumours of an impending large-scale earthquake spread quickly after the medium-sized September 2011 earthquake, causing widespread panic and bringing traffic to a standstill in Kathmandu (IRIN 2012). This underlines the importance of effective emergency communications, which should include accurate public information, journalists and broadcasters trained to give accurate and consistent advice, and structurally resilient telecommunications facilities. As damage from earthquakes can be predicted to some extent, a number of public service announcements can be planned in advance. Radio is still a powerful information medium in Nepal as according to the Nepal Living Standards Survey (NLSS-III 2010-2011) the adult literacy rate is 56.6% (71.6% for men and 44.5% for women), and the majority of the population own radio sets (UNESCO 2013). Mobile phones (including internet access) are widely used in Kathmandu Valley and will also be a key means of emergency communications and accessing public information.

Radio broadcasters such as Ujyaalo 90 Network have trained staff in disaster preparedness, and invested in radio systems back up plans and alternative broadcasting locations. In the event of serious damage to their building, they have the capacity to broadcast from their basement using a back up transmitter, antennae and a diesel-powered generator (IRIN 2012). There is a need for more radio stations to similarly develop their own redundancy and contingency plans. In addition, one of the most well-

established and active national DRR organisations in Nepal, the National Society for Earthquake Technology-Nepal (NSET) is working to extend and strengthen the amateur radio capacities throughout the country to support emergency communications (NSET 2012). Through technical support and donations of equipment received from CAN-USA, a high-frequency station was set up at NSET in June 2012 to provide training to new ham operators, with a demonstration of communications with ham radio operators in India, Indonesia, Argentina and Thailand. A 9N1KS repeater is now stationed at top of the NSET building on the southern outskirts of Kathmandu which transmits on 145.000MHz and receiving on 434.500MHz with no tone (NSET 2012). This example of capacity building in the use of low-cost technology is characteristic of NSET's approach to promoting CBDRR and local ownership of DRR.

Mobile phones

NRRC are proactively engaging the private sector in risk reduction, for example, working with telecommunications companies such as NCELL, who have now introduced risk reduction measures to protect critical telecommunications infrastructure and formed disaster contingency plans. NCELL have also conducted disaster preparedness (training and scenarios) and are preparing to assist with emergency communications. They are engaged in disseminating public awareness messages such as advising people to use texts where possible in the event of a disaster, as these only use 'a fraction of the capacity of the network' compared with calls and 'will stay in the system, will queue and transmit automatically when there is space in the network' (Koistinen 2012). In the event of a disaster, sending texts instead of making calls will help to avoid failure in the system due to congestion, as was experienced after the September 2011 Sikkim earthquake. To enable the network to keep functioning even if centres in Kathmandu sustain damage from an earthquake, NCELL have started built earthquake resistant switching centres in different parts of the country. Though the work is expected to be completed by 2013, some of the construction work is pending import permissions,

underlining, yet again, the need for multi-sector coordination for DRR. The NRRC are also in discussion with NCELL over the use of mobile phone data to track the movements of the 1 million people who will be displaced. Mobile phone data tracking was used after the Haiti earthquake in order to improve aid targeting, and identify cholera outbreaks (Sanderson, Knox Clarke et al. 2012). The *ALNAP Lessons Paper in Urban Relief and Recovery* (Sanderson, Knox Clarke et al. 2012) outlines further examples of technological innovation in urban humanitarian assistance, such as using mobile phones for cash transfers, registering affected populations, and for pinpointing areas of need; crowdsourcing; and digitally-based mapping. The applicability of these innovations for an urban disaster in Kathmandu should be considered in contingency planning for disasters that are likely to occur - for those in the near future and those in ten years' time.

Private sector engagement

Lessons from previous urban disasters recommend involving the private sector as much as possible early on, as it is a key player in response and recovery (Clermont, Sanderson et al. 2011). Moreover, engaging the private sector in risk reduction is key to preventing new risk. For example, increased investment from the private sector in earthquake resilient buildings, would be a key turning point in creating the demand for safer buildings. While it could be easy to blame the haphazard urban development in Kathmandu on the private sector, Consortium members are instead working to change the perception of the private sector as a contributor of risk, by drawing them in as part of the solution, for example through working with NCELL, DHL and others (Kirsch Wood, Dhakal 2012). A Flagship 4 Urban DRR workshop in August 2012 reported increased interest from the private sector in risk reduction but also a need for more guidance: 'many are willing to help but don't know how' (NRRC Secretariat 2012d). There are also clear economic benefits for the private sector to invest in risk reduction and resilience: 'On average, large businesses with robust risk management programmes realise

catastrophe losses that are seven times less costly than those companies with immature risk programmes - an average of US\$478,000 per loss compared with US\$3.4 million,' according to UNISDR's Making Cities Resilient Report 2012 (Johnson, Blackburn 2012: 43).

Raising public awareness of earthquake risk

The Consortium is aiming to address the 'very low' level of public awareness on DRR through 'a massive campaign with a specific need to enhance disaster awareness among schoolteachers and educators' (NRRC Secretariat 2010: 9). The campaign is targeting schools with the goal of sustaining and mainstreaming disaster awareness, given the temporary nature of the Consortium, and in the context of Kathmandu's youth bulge. The Consortium has developed a communications strategy with a new Public Information Coordinator and with BBC Media Action Nepal as the technical lead. It has begun to utilise social media such as Facebook and LinkedIn to raise public awareness about risk reduction and the Consortium's work. The World Bank has produced a series of short videos to promote the work of the Consortium, accessible from the UN Nepal Information online platform. The annual Nepal Earthquake Safety day continues to be a high profile event with the highest level of political representation.

Raising public awareness is key to increasing the local response capacity of the families and communities who will be the first responders, both by challenging culturally fatalistic attitudes towards disasters, and potentially redefining the dynamics between governments and the electorate. As Sharma commented in *The Kathmandu Post*, 'We need to change our mindset that the government is the provider and everyone else should just watch-and-wait. Actually, in case of an emergency, families and communities are the first responders and receivers as well' (Sharma 2012b). Increased

awareness of disaster risk reduction is equally important for creating a 'culture of safety', and increasing public demand for safer construction and greater investment in earthquake resilient houses. It should also increase public accountability and the idea of the 'duty of care' of those in leadership. As Spantigati (Asian Development Bank) said in an interview for the NRRC, 'There is a need to raise awareness of parents about school safety so they have the knowledge to demand school safety from authorities. We also need to communicate that parents should not consider school safety a luxury. Rather it is a non-negotiable right and a moral responsibility that all schools are safe' (NRRC Secretariat 2012b).

7. Relating urban resilience in Kathmandu to wider contextual themes

a. Preparing for an urban humanitarian crisis in Kathmandu

Flagship programme implementation challenges

The NRRC Flagship Programmes outlined above illustrate many dimensions of the challenges of adapting to urban preparedness and response that are outlined above in the contextual themes section. Many of the challenges in implementation relate to the scale and scope of building urban resilience in Kathmandu, and having to ‘simultaneously address critical needs in multiple sectors’ (NRRC Secretariat 2012e). For example, the current challenges range from establishing in advance the contributions that can be expected from national army, police and incoming militaries, to developing appropriate mechanisms to check the structural and non-structural strength of new schools and hospitals in order to prevent new risk being created (NRRC Secretariat 2012c). Scaling up ambitious programmes within tight timeframes also brings its own challenges: though funding was found for retrofitting a third of the 900 schools identified in Flagship 1, the government only retrofitted 15 in 2011, in part due to aid absorption challenges (a lack of skilled masons), but also due to delays in processing the finances (NRRC Secretariat 2012c). Earlier in 2012, ‘critical funding gaps’ due to earmarked funding commitments slowed progress on building seismically resistant warehouses in strategic locations and the preparation of pre-identified open spaces for IDPs (NRRC Secretariat 2012e).

Governance challenges

Multi-level governance challenges remain the NRRC's most significant challenge for implementation and sustainability (Piper 2013). Without the government's leadership on key legislation such as the enactment of the Disaster Management Act which will enable the establishment of a National Disaster Management Authority, the gap between limited risk reduction efforts and the scale and scope of the disaster risk simply widens. While the Government of Nepal's leadership and endorsement of the NRRC has been essential for developing national ownership of the Consortium, engagement of government line ministries in DRR still needs to be strengthened. All the line ministries are needed: from the Ministry of Finance's ability to secure predictable funds for DRR and for processing funds for retrofitting; to the Ministry of Education and Ministry of Health's cooperation for school and hospital safety initiatives; to the Ministry of Federal Affairs and Local Development's coordination of community based disaster risk reduction activities. However, DRR needs to be more fully mainstreamed across line ministries with improved communication and inter-departmental contingency planning. This is currently undermined by a lack of civil servants able to be dedicated to DRR, and who have sufficient authority to significantly influence the major infrastructure decisions and development planning processes that are central to risk reduction (Piper 2012c).

The importance of local government in urban resilience

'IASC and non-IASC organizations need to anchor their preparedness activities at the municipal level; IASC actors should consider ways of supporting local governments to prepare and set up urban response and recovery systems' (Barcelo, Masaud et al. 2012: 6).

Recommendations from the DEC Haiti Report (Clermont, Sanderson et al. 2011), ALNAP Urban Lessons Paper (Sanderson, Knox Clarke et al. 2012), and UN-HABITAT Meeting Humanitarian Challenges in Urban Areas (Barcelo, Masaud et al. 2012) paper agree that local government are key to effective urban preparedness, response and recovery systems. Piper agrees that local government is 'the single most important institutional partner for this planning effort' and that the humanitarian system need to 'adjust to this default setting for the urban disaster context' (Piper 2012a: 4). As he points out, without the engagement of local government, it is very difficult - if not impossible - to implement risk sensitive land use planning and zoning, to enforce regulations for protected open spaces and building construction, or to agree specific roles and responses in an emergency. Local government are also key to conducting local disaster risk assessment of critical infrastructure and mainstreaming DRR in schools. Therefore, the Consortium is working to build municipalities' capacity to reach out to other key actors and institutions such as schools, to create community networks pre-disaster (Kirsch Wood, Dhakal 2012).

The example of Robert Parker, Mayor of Christ Church, (who addressed senior leaders in Nepal at the High Level Symposium in 2011) demonstrates the strategic role local mayors can play in implementing disaster risk reduction at local levels. However, there have been no local elections in Nepal since the late nineties, resulting in a lack of local leadership. Instead many districts are led by transient 'local bureaucracies' with little incentive to engage in long-term risk reduction. Therefore, strong governance reforms at both local and national levels are needed in order to enable the effective implementation of disaster risk reduction initiatives (Piper 2013).

b. 'Resilience' and funding for DRR in Kathmandu

'Resilience' and donors: UK Department for International Development

One of the successes of the NRRC has been its ability to gather different organisations around agreed indicators, timeframes and to align funding long-term and rapid funding flows (Kirsch Wood, Dhakal 2012). The Development Initiatives paper 'Nepal case study – funding for emergency preparedness' (Sweeney, Smith et al. 2011) explores the contributions from each of the Consortium's funders in more detail.

Over four years, DFID will provide up to \$26m to support DRM policy and building code compliance, CBDRR, the reconstruction of at least 162 schools damaged in the Sikkim earthquake in September 2011, and hospital retrofitting (DFID 2012b). One reason for DFID's involvement in Nepal is historical: 'UK Ministers firmly believe that the UK – given our long history in Nepal – is morally obliged to do what it can to reduce risks to the population due to earthquakes' (DFID 2011: 2). A specific cross-Whitehall contingency plan for a UK joint response to an earthquake in Nepal has already been drawn up: 'a new departure in inter-departmental scenario-planning and cooperation for a humanitarian response potentially drawing on UK military assets,' which would also include the Gurkha regiment (DFID 2011:8, DFID 2012a). However, as discussed in the Background section, 'resilience' has become a central concept in funding for risk reduction policy and programming, and is also a strong theme in policy documents related to DFID's development and humanitarian programming in Nepal, including its Operational Plan 2011-2015. According to DFID's *Intervention Summary for Strengthening Earthquake Resilience in Nepal*, the UK Government's Humanitarian Policy 'puts resilience at the centre of our approach to addressing disasters, both natural and man-made... Nepal is a priority country for implementation of the new approach' (DFID 2011: 8). DFID explains it is focusing on 'building disaster resilience across the DFID Nepal programme in response to Lord Ashdown's 2011 UK Humanitarian Review' (DFID 2011: 8). The Intervention Summary adds that Lord Ashdown's Humanitarian Emergency Response Review (HERR) recommendation that

funding for DRR should be in addition to development spending, and that also development funds should be used more flexibly for DRR efforts that protect development gains, has 'now been accepted by DFID'. This is just one apparent example of the influence of 'resilience' on donor funding for risk reduction in Nepal.

'Resilience' and funding from international financial institutions (IFIs)

The involvement of IFIs has been particularly crucial, as, according to Piper, scaling up to this kind of project 'needs the engagement of institutions that can think 'big' project terms, and have a sufficiently long-term planning horizon that they will stay the course' (Piper 2012a). As the Asian Development Bank and the World Bank are the largest infrastructure donors in Nepal, their commitment to risk reduction in Nepal as Consortium founding members is particularly important. Statistics quoted in the joint World Bank, GFDRR, and Government of Japan brochure, *Managing Disaster Risks for a Resilient Future* (2012), underline the lack of investment in prevention and preparedness from international financing compared with overall international aid contributions. 'Between 1980 and 2009, US\$ 91.2 billion in international aid went to disaster-related activities; just US \$3.3 billion of that was for prevention and preparedness' (Government of Japan, GFDRR et al. 2012: 5). There has been increased recognition of the need to integrate risk management into economic and fiscal policy, as reflected at The High Level Forum on Aid Effectiveness in Busan, Korea, 2011, which resulted in agreement that disaster management needed more funding (Busan Partnership For Effective Development Co-operation 2011). Translating this into action might involve 'the development of national disaster loss databases, disaster risk mapping and financial tracking systems'(UNISDR 2012b: 3). These could potentially 'encourage governments and the private sector to take ownership over their stock of risk and identify strategic trade-offs' (Wahlström 2012).

“It is clear that the current development model is inadequate for the challenges and realities, both social and environmental, that we face today. The increasing levels of risk underscore this. Our priority must be to ensure that addressing risk, through practical and proven measures, underpins the development agenda going forward. The cost of inaction – of failing to invest in disaster risk reduction – represents a burden that no society, regardless of how advanced, can bear. Sustainable development depends on us reducing risk across all areas of development.”

(Wahlström 2012)

c. The changing aid architecture in Kathmandu: aligning humanitarian and development planning and financing

‘Development actors need to be injected with a dose of urgency that only emergency actors can administer. And emergency actors can learn much from development actors about building policies and institutions that last. In Nepal we are witnessing how we can be so much more than the sum of our parts, when we come together in this way.’ (Piper 2012b)

Bridging development and humanitarian divides in urban response

The NRRC’s multi-stakeholder approach to urban resilience not only reflects some of the wider changing dynamics in the international humanitarian system’s relationship with other actors, but also changes within the aid system. A key success factor for the NRRC has been the coordination of both humanitarian and development actors in long-term risk reduction, emergency preparedness, and funding mechanisms - in order to maximise the comparative advantages of both. The long-acknowledged ‘disconnect’ between development and humanitarian programming in cyclical and slow-onset disasters (even within the same international organisations), has too often ‘failed

populations at risk', according to The State of the Humanitarian System report (ALNAP 2012: 13). Therefore, meeting the challenge of building urban resilience in the multi-hazard context of Kathmandu requires increased adaptation and commitment to aid coherence from both sectors. Recommendations from multiple reports on urban disaster response underline the importance of the humanitarian system's coordination with other actors in all phases of the disaster cycle, particularly in the context of urban areas with multi-layered governance structures and service providers (Sanderson, Knox Clarke et al. 2012). A critical component of urban resilience is that, despite the short-term nature of humanitarian aid, emergency interventions must also contribute to long-term risk reduction and development goals (Lewis 2012).

Building the emergency response capacity of long-term development actors in Kathmandu

One of the specific recommendations of The State of the Humanitarian System report illustrates the need for both humanitarian and development actors to partner in building response capacity: the need for preparedness and surge capacity for rapid response (including appropriately skilled staff) (ALNAP 2012: 85). Access to Kathmandu Valley is expected to be severely limited in the event of a major earthquake. As the long-term development actors in Nepal will be amongst those first affected by the crisis and the first to respond, it is especially important to build the capacity of development actors to be able to switch modality to emergency response when needed. At the 27th ALNAP Meeting, Jenty Kirsch-Wood pointed out that many development actors in Nepal are already committed to staying in Nepal to support the long-term development process, during the next crisis and beyond. This underlines both the opportunity and need for increased versatility and response capacity from long-term development actors in Nepal, and improved pre-disaster coordination between the development and humanitarian arms of the organisations that respond to crises in Kathmandu.

Aligning development and humanitarian planning and financing

For the NRRC, scaling up risk reduction in Nepal has required both flexible and ambitious timescales. Development actors have committed to more ambitious long timeframes in order to align programming with IFIs' 3-5 year funding cycles. This has been combined with shorter twelve month time horizons for simulations and contingency planning. Working with multiple time horizons has helped to mainstream DRR and resilience in development programming. According to Piper, 'Annual spending on disaster risk reduction in Nepal has grown from barely \$8 million five years ago to a projected \$40 million in 2013. There is not a lot of new development money coming in - - rather, we are using existing resources better'(McClean 2012). In contrast to the short-term and often restricted funding for humanitarian aid, 'development aid can engage in long-term efforts like retrofitting hundreds of schools and hospitals and ensuring the enforcement of building codes.... around one billion dollars worth of development aid comes to Nepal each year and more of this needs to be dedicated to DRR work' (Piper 2012c).

8. Conclusion

Study objectives

The objectives of this study were to increase understanding of the scale and scope of urban risk reduction activities in Kathmandu and their contribution to building longer-term resilience to disasters. The study aimed to make thematic connections between DRR in Kathmandu, the changing aid architecture, resilience, and the urgent need to adapt humanitarian response for urban disasters. It was initially hoped that this desk-study would have also drawn on a greater range of primary data through semi-structured interviews with key informants in the NRRC, to gain more insight into different perspectives on risk reduction priorities and progress in Kathmandu. Unfortunately, due to time constraints, there was limited opportunity to contact many of those initially identified as key informants. Nevertheless, publically available information on the Consortium has provided a number of key insights into changes in the fast-evolving world of urban DRR in Kathmandu, particularly in the past three years.

Progress

Since 2009 the NRRC has gathered concerned actors around agreed priorities, based on the NSDRM and HFA framework. It has strategically engaged national and international stakeholders in contributing to the mitigation of known risks and prevention of the creation of new risk in Nepal under the five Flagship programmes. In particular, it has made progress in mainstreaming DRR across different levels of government and line ministries, and drawing in actors from outside the traditional aid architecture, such as the military, private sector, and new and traditional media. It has significantly helped to raise funds for DRR. A decade ago, only \$5million USD was spent annually on DRR in

Nepal, whereas the NRRC has to date raised \$80million USD, and is working towards a goal of \$150million by 2015. In 2013, it is expected that investments will rise to \$40million. 1000 VDCs have been targeted for funding and funding has been secured for half of these so far (Piper 2012c). The example of the NRRC demonstrates that it is possible to plan ambitious time frames and targets that allow different organisations' planning cycles to come together around common indicators, and to find ways to align long-term and rapid funding flows, that enable both mitigation and prevention measures to take place in parallel (Kirsch Wood, Dhakal 2012).

Challenges

The work of the Consortium shows that, while the exact timing of a rapid-onset disaster such as an earthquake cannot be predicted, it is nevertheless possible to be ambitious and proactive in preparedness and mitigation of risks. There is much that can be learned from the Consortium's progress and challenges in scaling up preparedness for an earthquake in Kathmandu. Progress of some areas of risk mitigation has been difficult; for example, the process for retrofitting hospitals in Kathmandu which are at risk of life-threatening collapse has been very complicated and slow. Planning for and adapting lessons learned from previous urban crises with regard to reaching vulnerable groups and managing vast numbers of displaced peoples remain major challenges. The implementation challenges related to the delayed enactment of the Disaster Management Act and lack of a NDMA again emphasise the importance of a strong legislative context for DRR. The difficulty for mitigation activities to keep up with the pace of construction in Nepal shows the importance of raising awareness of building earthquake-resilient structures, the need for citizen pressure for stronger enforcement of building codes, and the importance of strengthening the policy, institutional and legislative context in order to prevent risk being created every time a new building is constructed.

Sustainability

Most important is continually creating and sustaining commitment and the sense of urgency, as Wahlström reminded senior leaders at the High Level Symposium (Government of Nepal, Government of the United States of America et al. 2011). Moreover, building sustainable risk reduction in Nepal requires more consistent and predictable practical engagement and investment from national and local budgets and funders. Therefore, while implementation remains the focus at this stage of the Consortium's development, it is also important to build the evidence base to demonstrate the effectiveness of the investments, to improve the sustainability of the work, and to support future fund-raising (Sweeney, Smith et al. 2011).

Urban resilience

The work of the Nepal Risk Reduction Consortium is of great interest to all those concerned with reducing urban vulnerability to disasters. Although it has developed in a certain fast-evolving, multi-hazard, politically fragile context, many insights can be gained from its successes and challenges at this implementation stage of scaling up risk reduction in Kathmandu, which both enrich and challenge our understanding of urban resilience.

'I know only too well the multiple challenges that face us in Nepal now. However we could lose everything in just 40 seconds. We must resolve today to ensure that risk reduction and emergency preparedness receives the sustained attention and priority that it must. When it happens, we must be able to tell ourselves and future generations, that we saw it coming, and we did everything we could to get ready.'

Speech by Robert Piper
UN Resident and Humanitarian Coordinator
15 January 2013
National Meeting of 15th Earthquake Safety Day
Bhaktapur Durbar Square

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