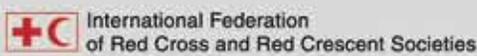


NEPAL RISK REDUCTION CONSORTIUM FLAGSHIP PROGRAMMES



Summary

NRRC Background, Objectives & Structure

In February 2011, the Government of Nepal (GoN) launched the Nepal Risk Reduction Consortium (NRRC). The NRRC is a unique body that unites the GoN, the international financial institutions of the Asian Development Bank and World Bank, development partners and donors, the Red Cross and Red Crescent Movement, and the United Nations as members in the Steering Committee of the NRRC. The Government of India is a standing observer member of the Steering Committee. Partners of the NRRC who work to support the fulfilment of the five flagship programmes are located in Annex 8.

NRRC Members



Government of Nepal



Embassy of Japan



United Kingdom Department
for International
Development (DFID)



Asian Development Bank
(ADB)



Australian Agency
for International
Development (AusAID)



United Nations (UN):
UNDP, UNISDR, UNOCHA
and WHO



Humanitarian Aid and Civil
Protection Department of the
European Commission (ECHO)



Embassy of the
United States



International Federation
of Red Cross and Red Crescent Societies



World Bank/
GFDRR





Nepal Risk Reduction Consortium

Flagship Programme: 5 Year Budget (US millions)*			
Flagship	Coordinator	Government Lead	Amount
1. School and Hospital Safety	ADB & WHO	Ministry of Education & Ministry of Health and Population	57.1
2. Emergency Preparedness and Response Capacity	UNOCHA	Ministry of Home Affairs	55.2
3. Flood Management in the Kosi River Basin	World Bank	Ministry of Irrigation	26.2
4. Integrated Community Based Disaster Risk Reduction	IFRC	Ministry of Federal Affairs and Local Development	44.3
5. Policy/Institutional Support for Disaster Risk Management	UNDP	Ministry of Home Affairs	13
Total			195.8

* This budget reflects the estimated amount required under each flagship and the funding that has been tracked in each flagship.

We work to bridge the spectrum of activity of development and humanitarian expertise, supporting the GoN to implement a long term Disaster Risk Reduction Action Plan. The work of the NRRC builds on the National Strategy for Disaster Risk Management (NSDRM) which was approved in 2009.

Following the approval of the NSDRM and discussion by multi-stakeholder groups based on GoN priorities, five Flagship areas of immediate action for disaster risk management (DRM) in Nepal were identified:

- School and hospital safety

- Emergency preparedness and response capacity
- Flood management in the Kosi river basin
- Integrated community-based disaster risk reduction/management
- Policy/Institutional support for disaster risk management

The estimated total budget of the five-year Flagship programmes is **US \$195.8 million**.¹

In developing the programme, the priorities outlined in the Hyogo Framework of Action 2005-2015, Building the Resilience of

¹ The budget total reflects a 5 year time frame, whereas previous budgets were only 3 years. It also reflects the inclusion of critical priorities, such as airport readiness, where assessments had not been completed at the time when the original budget was developed.



FLAGSHIP 1 on School and Hospital Safety will improve the earthquake resistance of an ambitious number of these structures through retrofitting, operational strengthening, training and awareness-raising. A study of school earthquake safety revealed that of the 900 buildings in 643 public schools surveyed in the Kathmandu Valley, over 60% were 'at risk of collapse' during a major earthquake (NSET, GeoHazards International, 2000). A similar structural assessment of hospitals and health institutions in the Kathmandu Valley (KV) stated that a major earthquake in the KV would result in only 10% functionality of hospitals, with 30% partially functional and 60% out of service (NSET, WHO-Nepal, 2003). While the focus of this Flagship is on seismic resilience, it will also seek to promote risk-sensitive land-use planning, particularly in the KV and links to DRR work in schools and at policy level which are conducted under other Flagships.

Nations and Communities to Disasters (HFA), and the Outcomes of the Global Platform for Disaster Risk Reduction 2009, which sets out specific targets for reducing losses from disasters, were taken into account. To date, more than 100 organisations and government entities are contributing to consortium work, including UN agencies, government departments, national and international NGOs.



FLAGSHIP 2 on Emergency Preparedness and Response Capacity seeks to enhance the government's response capabilities at national, regional and district levels. This involves developing the ability to respond in a coordinated manner with all in-country resources, including the armed forces, and incoming international humanitarian and military assistance. The programme will build upon on-going efforts to enhance the capacity of Medical First Responders (MFRs), collapsed structure search and rescue (CSSR) and fire & emergency services in order to create a sustainable response capability. Activities will also include a major effort in conducting disaster preparedness workshops in all districts and regions of Nepal to ensure an effective emergency response to those affected by natural disasters and to guarantee the continuous operation of critical facilities. These activities will involve consultation and agreement for implementation with all partners, especially with line ministries, the Nepal Army and Armed Police, Inter-Agency Standing Committee (IASC), partner organisations and the donor community.



FLAGSHIP 3 on Flood Management in the Kosi River Basin has the specific priority of addressing the annual risk of floods in Nepal. Managing water-induced disasters, primarily floods, is a priority for the government and this Flagship has both short- and long-term goals. The short-term goals relate to improving flood management, while the longer-term goals are focused on implementing effective flood mitigation measures, reducing economic impacts due to floods, improving weather and flood forecasting capabilities and strengthening flood warning dissemination to communities. The Kosi River Basin is the largest river basin in Nepal and when it floods it severely impacts communities in Nepal as well as in Bihar, India. This Flagship therefore focuses on the Kosi River Basin with a design strategy that includes both structural and operational components aimed towards comprehensive disaster management.



FLAGSHIP 4 on Integrated Community-Based Disaster Risk Reduction/Management (CBDRR/M) seeks to capitalise on the activities and experience which has already accumulated to contribute to a consistent, systematic and harmonized approach to CBDRR/M at VDC level. Flagship 4 members have developed a set of minimum characteristics for disaster-resilient communities and thereby adopted a minimum package of common elements to be included in all CBDRR/M projects. This Flagship will complete CBDRR/M projects in 1,000 VDCs over a 5 year period.

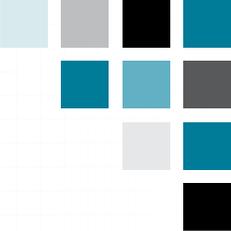


FLAGSHIP 5 on Policy/Institutional Support for Disaster Risk Management recognises that development and growth in Nepal are being done in a haphazard manner, thus creating new risks. In order to protect the investments made in development, the DRM capacity of the GoN should be enhanced both centrally and at the local level. This must include shifting the policy environment from a 'relief' oriented framework to a proactive and comprehensive risk reduction approach. In order to achieve this shift, FLAGSHIP 5 is supporting the GoN in mainstreaming DRM into development planning at the national and district levels and is working with municipalities to develop risk sensitive land use planning and strengthen the enforcement and compliance with building codes. This collective effort, which builds on the National Strategy for Disaster Risk Management, will save lives and protect Nepal's gains in development.

Contents

●	Summary	i
●	Contents.....	v
●	Acronyms	vii
●	NRRC Background, Objectives and Structure	1
	Background	2
	Objectives of the NRRC	6
	Architecture and Membership of the NRRC.....	7
	NRRC: Aligned with Global and National Priorities.....	9
●	Flagship 1 – School and Hospital Safety Structural and Operational Aspects of Making Schools And Hospitals Earthquake Resilient	11
	Background to Flagship 1	12
	Joint Programme Results and Implementation	15
	Table 1.1: Joint Programme Results Budget - Schools.....	23
	Table 1.2: Joint Programme Results Budget - Hospitals....	24
●	Flagship 2 – Emergency Preparedness & Response Capacity... 27	
	Background to Flagship 2.....	28
	Joint Programme Results and Implementation	30
	Table 2.1: Joint Programme Results Budget.....	41
●	Flagship 3 – Flood Management in the Kosi River Basin.....	45
	Background to Flagship 3.....	46
	Joint Programme Results and Implementation	49
	Next Steps	54
	Table 3.1: Joint Programme Results Budget.....	55

●	Flagship 4 – Integrated Community- Based Disaster Risk Reduction.....	59
	Aim of Flagship 4.....	60
	FLAGSHIP 4 Coordination Mechanism.....	63
	Support development of common tools for CBDRR/M.....	65
	Identification of hazard prone districts.....	68
	Monitoring and Evaluation.....	70
	Advocacy.....	72
	Online Information Platform.....	74
	Resource mobilisation	75
	Table 4.1: Joint Programme Results Budget.....	76
●	Flagship 5 – Policy & Institutional Support for Disaster Risk Management	79
	Background to Flagship 5.....	80
	Joint Programme Implementation and Outcomes.....	82
	Table 5.1: Joint Programme Results Budget.....	89
●	Annexes.....	91
	Annex 1 - Composition and Functions of NRRC Steering Committee.....	92
	Annex 2 - NRRC Flagship Counterparts.....	94
	Annex 3 - Terms of Reference NRRC Secretariat.....	95
	Annex 4 - Terms of Reference: Flagship 2 Advisory Committee.....	97
	Annex 5 - Terms of Reference: Flagship 4 Advisory Committee.....	99
	Annex 6 - Terms of Reference: NRRC Communications Group.....	102
	Annex 7 - DRR Definitions.....	104
	Annex 8 - NRRC Current Partners.....	107
●	Bibliography.....	109



Acronyms

Acronym	Name of organisation
ADB	Asian Development Bank
ADRC	Asia Disaster Reduction Centre
APF	Armed Police Force
AusAID	Australian Agency for International Development
BCPR	Bureau for Crisis Prevention and Recovery (within UNDP)
CADRE	Community Action for Disaster Response
CAT	community action team
CBDRR/M	community-based disaster risk reduction/ management
CBO	community-based organisation
CCA	climate change adaptation
CNDRC	Central Natural Disaster Relief Committee
CSSR	collapsed structure search and rescue
DDC	district development committee
DDRC	district disaster relief committee
DFID	Department for International Development (United Kingdom)
DHM	Department of Hydrology and Meteorology

DIPECHO	Disaster Preparedness – ECHO
DKKV	Deutsches Komitee Katastrophenvorsorge (German Committee for Disaster Reduction)
DoE	Department of Education
DPNet	Disaster Preparedness Network
DRM	disaster risk management
DRR	disaster risk reduction
DUDBC	Department of Urban Development and Building Construction
DWIDP	Department for Water Induced Disaster Prevention
ECHO	Humanitarian Aid and Civil Protection Department of the European Commission (formerly European Community Humanitarian aid Office)
EMI	Earthquake and Megacities Initiative
EOC	emergency operations centre (NEOC = National EOC; DEOC = district EOC)
FFC	Flood Forecasting Centre
FFO	Federal Foreign Office (Germany)
GIS	Geographic Information System
GLOF	glacial lake outburst flood
GoN	Government of Nepal
HFA	Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters
HOPE	Hospital Preparedness for Emergencies
IASC	Inter-Agency Standing Committee
ICS	Incident Command System
IDP	internally displaced person

IFRC	International Federation of the Red Cross and Red Crescent Societies
INSARAG	International Search and Rescue Advisory Group
IOM	International Organization for Migration
ISDR	International Strategy for Disaster Reduction
KMC	Kathmandu Metropolitan City
KV	Kathmandu Valley
MCM	mass casualty management
MFR	medical first responder
MMI	Modified Mercalli Intensity scale (for measuring impacts of earthquakes)
MoE	Ministry of Education
MoEST	Ministry of Environment, Science and Technology
MoF	Ministry of Finance
MoFSCAC	Ministry of Forestry and Soil Conservation
MoHP	Ministry of Health and Population
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
MoFALD	Ministry of Federal Affairs and Local Development
MoPPW	Ministry of Physical Planning and Works
NDMA	National Disaster Management Authority
NPC	National Planning Commission
NRCS	Nepal Red Cross Society
NRRC	Nepal Risk Reduction Consortium
NSDRM	National Strategy for Disaster Risk Management
UK Aid	See DFID



NRRC Background, Objectives and Structure

Background

Risk and Vulnerability in Nepal

With such a diverse landscape, ranging from the massive Himalayan range to the fertile Terai region, the people of Nepal face a variety of life-threatening hazards. Classified as a global 'hotspot' (World Bank, 2005), Nepal is vulnerable to multiple natural disasters, suffering an average of 900 natural disasters each year resulting in lost lives and damaged livelihoods (MoHA, 2009). These disasters include earthquakes, floods, landslides, windstorms, hailstorms, fire, glacial lake outburst floods (GLOFs) and avalanches. In terms of relative vulnerability, Nepal has been ranked as the 11th most at-risk country in the world to earthquakes and 30th most at-risk to floods and landslides (UNDP,BCPR, 2004). This vulnerability to natural disasters results in preventable deaths and injuries and puts investments made in development at risk.

Between 1971 and 2007, over 27,000 people lost their lives to natural disasters in Nepal. This was more than 2 lives lost every day. In addition to this high mortality, more than 50,000 people were reported injured, another 3,000 missing and nearly 5 million affected during the same period (Des Inventar). These disasters have imposed a devastating burden on people and communities throughout Nepal. Disasters occur consistently in a majority of the districts in Nepal with more than 90% of the population at high risk of death from two or more types of hazards (MoHA, 2009).



Earthquake in Nepal: A question of when?

A major concern is the looming threat of a major earthquake in the Kathmandu Valley; an area that has suffered major earthquakes in the past, such as the Great Earthquake of 1934 (damages from 1934 earthquake picture), and will inevitably face more major earthquakes in the future. The 1934 earthquake killed over 8,000 people and destroyed 20 percent of the Valley's building stock.

The well documented increasing vulnerability in both urban and rural areas in Nepal requires a strengthened approach to disaster risk management (DRM). In common with many developing nations, Nepal is faced with rapid urbanisation, with a 3% increase in urban population since 2001 (Central Bureau of Statistics), specifically in the capital region, the Kathmandu Valley (KV)². This urbanisation is occurring in a haphazard manner with little regard to averting risk and placing more lives in danger specifically with regard to earthquake.

Kathmandu is the most at-risk city in the world to a major earthquake, as the Indian Plate continues to push under the Tibetan Plate (Geo Hazards International, 2001). Current assessments suggest that

a magnitude 8.0 earthquake in KV would result in 100,000 deaths, 300,000 injured, and over 1 million persons displaced.³ In addition, major bridges and critical infrastructure, such as the only international airport, would be severely affected, posing significant challenges for an immediate and effective response. This vulnerability is largely due to poor building practice including infrastructure that is constructed without reference to resilient materials or technique. During the last 40 years, more than 300,000 buildings were destroyed or damaged by floods, fire or earthquakes (Des Inventar).

In rural areas, the risk of floods and landslides is particularly high in Nepal, where there is heavy reliance on weather dependent agriculture; nearly 66% of the population

² The Kathmandu Valley consists of five municipal areas: Kathmandu Metropolitan City, Lalitpur Sub-Metropolitan City, Bhaktapur Municipality, Kirtipur Municipality and Madhyapur Thimi Municipality

³ This assessment uses the methodology in the Kathmandu Valley Earthquake Risk Management Action Plan (1998) by NSET and GeoHazards International and applies to current official census figures.

employed in the agriculture sector (GoN, Dept. of Agriculture). The sector is poorly diversified and largely dependent on the monsoon rains, which have become less predictable due to climate change. Annually, floods and landslides cause 300 deaths in Nepal and economic damages exceeding US \$10 million (MoHA, 2009). As a result, sustaining development gains made becomes a challenge as natural disasters continue to impede them at both national and local levels.

Progress in development that does not take natural disasters into account is not sustainable and faces severe risk of setback. At a global level there is now an emphasis that sustainable development, poverty reduction and good governance should require disaster risk reduction (DRR) to be integrated into plans, policies, and programmes (Hyogo Framework for Action 2005-2015). The Government of Nepal (GoN) recognises the need to address and mainstream DRR and DRM through development planning in Nepal in order to protect lives and development gains.

Disaster Risk Management in Nepal

Over recent years, the GoN has taken steps to move from a purely relief and response paradigm towards putting greater emphasis on DRM. While the current institutional and financial frameworks remain predominantly response-based, recent efforts have been

made to move towards a DRM approach that is mainstreamed across all development sectors and at all levels.

The Natural Relief Calamity Act (1982) provides the main legal basis for disaster management in Nepal. Amended twice since its adoption, it has encouraged a response-focused approach to DRM. In part, the government has addressed this gap through the Local Self-Governance Act (1999), which authorises a number of risk reduction measures to be designed and implemented by local government through the District Development, Municipal, and Village Development Committees. However, the limited institutional structures, lack of trained personnel in risk reduction approaches, and the absence of resources all remain limiting factors to the implementation of these risk reduction measures. Moreover, the absence of elected representatives, due to the decade long conflict which ended in 2006, has also been a stumbling block in the exercise of this authority.

The GoN has recognized the impacts of natural disasters and the need to address this issue through comprehensive risk management rather than response only approaches. As a result, development plans have included DRM as critical parts of sustainable development. The Tenth Five Year Development Plan (2002-2007) first highlighted the need for policy formulation and coordination with the creation of strong and suitable institutional mechanisms for DRM. The Three Year Interim

DRM Frameworks to Date

- 1982 Natural Relief Calamity Act adopted, focussed on immediate response to DRM
- 1999 Local Self Governance Act, responsibility decentralised to DDC & VDC level
- 2002 10th Five Year Plan requires policy formulation & institutional mechanisms
- 2005 HFA adopted by Nepal and serves as a guide for DRM
- 2007 Three Year Interim Plan focuses on preparedness (updated in 2010-2013)
- 2009 NSDRM outlines Nepal's priorities in DRM.
Disaster Risk Management Act drafted to include planning, sustainability, risk reduction & development (pending approval)

Plan (2007-2010) again emphasised the importance of DRM and disaster mitigation, calling for changes in existing national policies to give greater attention to disaster preparedness and reconstruction in addition to relief activities. The Three Year Interim Plan (2010-2013) also places resiliency and minimising human and economic loss from disaster as a priority.

In line with this renewed focus on DRM, the GoN became a signatory to the Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters (HFA) in 2005. This promotes a systematic and strategic approach to reducing vulnerability to natural disasters. In alignment with this, the GoN is currently in the process of passing the Disaster Management Act, which aims to include long-term planning, sustainable approaches to DRM and strengthened links between risk

management and development. The Act will clarify the government's understanding of DRM and clearly outline the role of national, regional and local authorities in regards to DRM. A critical input of this new act will be the creation of the National Disaster Management Authority (NDMA), which will be charged with implementing the National Strategy for Disaster Risk Management (NSDRM) and will act as the focal point for all national and international actors on DRM coordination. This new structure, which will operate from the highest levels of government to community level, will oversee a range of DRM activities, including risk assessments, early warning systems, implementation of building codes, context specific community-based DRR, and the strengthening of critical infrastructure and services. This will help limit Nepal's vulnerability to natural disasters and protect the people of Nepal when those disasters do strike.

While the Disaster Management Act is pending approval, the GoN has launched the Nepal Risk Reduction Consortium (NRRC) in order to implement priorities identified from within the NSDRM. The strategy, which was finalised in 2009, is the product of a government-led consultative process. It outlines priority actions for the establishment of a national DRM framework that promotes a holistic approach to ensure sustainable DRM at the national, regional and local level.

Objectives of the NRRC

In essence, the objectives of the NRRC are threefold.

The first objective is to support the GoN to implement a long term disaster risk reduction Action Plan building on 2009's National Strategy for Disaster Risk Management.

Second, it will initiate a multi-stakeholder participatory process with the GoN and civil society organizations.

Thirdly, the NRRC will identify short- to medium-term DRR priorities that are both urgent and viable within the current institutional and policy arrangements in the country, termed Flagships. The NRRC currently has 5 Flagship programmes.

Architecture and Membership of the NRRC

On 19 March 2010 the GoN formally established the NRRC Steering Committee, which is chaired by the Secretary of the Ministry of Home Affairs (MoHA). The Joint Secretary of the MoHA is the Member Secretary of the Steering Committee (See Annex 1). A Secretariat was created to support the work of the Steering Committee and is comprised of the Joint-Secretary and Under-Secretary of MoHA and an NRRC Coordinator. The Secretariat is supported by DFID, the International Strategy for Disaster Reduction (ISDR) and UNDP.

Each of the 5 Flagship programmes is coordinated and led by a focal point from the international community and from the GoN. Flagship coordinators and their government focal points are responsible for coordinating activities, sharing information about on-going and planned projects, and ensuring appropriate consultation among relevant partners.

The Consortium is open to new members who would demonstrate their commitment to the Flagship Programmes and associated action plans. Members agree to share a common advocacy and fund-raising platform.

Flagships

Priority actions in the Flagships have been jointly identified between the GoN, NRRC, and international partners, in accordance with the NSDRM and HFA. However, they do not cover all the

priority strategic actions or sector activities as identified in the NSDRM; there are priority activities that are not reflected in this document.

The NRRC is both a framework to coordinate all activities that help achieve identified priority targets, and a platform for generating new resources needed. Consortium members agree to the selected priorities, and agree to align their activities with these priority targets to the extent possible.

The general approach for the implementation of the Flagships that comprise the NRRC Action Plan is one that ensures that the Flagship components, subcomponents and activities are adequately designed and implemented as specific projects. This ensures that all projects being implemented are congruent, compatible and according to the proposed timeframe. All projects should be considered part of the overall NRRC Action Plan. This will not only optimise results but also the use of funds from donors.

Finally, the NRRC programme will need to be adjusted as further consultations are undertaken, and in line with the evolving situation. The activities and budget are therefore indicative and will be revised on a regular basis.

NRRC Steering Committee Members	
Government Ministries	Partners
Ministry of Home Affairs	Resident and Humanitarian Coordinator
Ministry of Finance	UNDP
Ministry of Physical Planning & Works	UNOCHA
Ministry of Federal Affairs & Local Development	ADB
Ministry of Health & Population	WHO
Ministry of Irrigation	DFID
National Planning Commission	IFRC
Ministry of Education	USAID
	World Bank
	AusAID
	ECHO
	DPNet
	NRCS
	Embassy of Japan

NRRC: Aligned with Global and National Priorities

Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disasters

The HFA is the first plan to explain and detail the work that is needed from all sectors to reduce disaster risk. It has set out 5 priorities for action to guide governments and partners in developing strategies for DRM. These priorities are:

- Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation
- Identify, assess and monitor disaster risks and enhance early warning
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels
- Reduce the underlying risk factors
- Strengthen disaster preparedness for effective response at all levels

Nepal Risk Reduction Consortium (NRRC)

Launched by the Government of Nepal, the NRRC unites financial, humanitarian and development partners in support of reducing vulnerabilities to natural disasters in Nepal. Aligned with the NSDRM, the following 5 flagship priorities have been identified:

- School and Hospital Safety
- Emergency Preparedness and Response
- Flood Management in the Kosi River Basin
- Community-Based Disaster Risk Reduction Management
- Policy/Institutional Strengthening of Disaster Risk Management

National Strategy for Disaster Risk Management

In line with the HFA, the Government of Nepal has developed a National Strategy for Disaster Risk Management. This strategy outlines a holistic approach to DRM with the priorities of the HFA



“FLAGSHIP 1 will strengthen over 900 school buildings and the major health care facilities in KV for earthquake resistance and service continuity.”



FLAGSHIP 1: SCHOOL AND HOSPITAL SAFETY

**Structural and Operational Aspects of Making Schools
and Hospitals Earthquake Resilient**

Background to **FLAGSHIP 1**



Natural disasters pose a significant threat to critical facilities, such as schools and hospitals that are socially, economically and operationally essential to the community during both normal life and crisis situations. Many new constructions of schools and hospitals in Nepal do not meet the requirements for good earthquake resistant design and construction. This raises major concerns as some of the most vulnerable people in society – the young and infirm – are being exposed to serious risks unnecessarily. From an economic perspective, the cost to rebuild after a major disaster is far higher than the cost of either proactive retrofitting or utilising good design in new buildings. This can create a substantial economic burden for the country. (INEE, ISDR, GFDRR, 2009).

Schools

From a social perspective, schools act as a centre for community activities and social infrastructure. Disaster resilient schools ensure that the disruption of education is minimal after an incident, act as locations for coordinating response and recovery, and can function as emergency shelters for the community.

A school child in Kathmandu is 400 times more likely to die in an earthquake than a school child in Kobe, Japan (Geo Hazards International, 2001), two cities at comparable risk of significant earthquake activity. The Kathmandu Valley Earthquake Risk Management Project (1997-1999) undertaken by the National

Earthquakes & Schools

- The September 2011 earthquake along the Nepal-India border resulted in 128 schools destroyed with another 547 damaged.
- The Sichuan earthquake (2008) killed more than 7,000 children and destroyed 7,000 classrooms.
- The earthquake in Pakistan (2005) killed at least 17,000 students, injuring 50,000 and affecting 300,000 children. 10,000 school buildings were destroyed.

Society for Earthquake Technology-Nepal (NSET) and GeoHazards International described a simplified earthquake scenario and action plan. Their report identified community-based School Earthquake Safety programmes as a sustainable mitigation process. It included various approaches for seismic retrofitting depending on the vulnerability of the building, the current state of the building and the budget available (NSET, GeoHazards International, 2000).

In 2011, there were a total of 33,160 public and private schools in Nepal, with 2,121 located in the Kathmandu Valley (KV). The majority of these schools are non-engineered constructions. The lack of mandatory policies in place to control the design or construction technique has resulted in a large number of earthquake-vulnerable school buildings. A high level of vulnerability to natural disasters denies at-risk communities access to school buildings as temporary post-disaster shelters,

warehouses or field hospitals. There has been little progress thus far on addressing high-risk schools. Measures that could be taken include retrofitting, training masons, non-structural measures (activities required to ensure operational continuity after a disaster) and preparedness planning. A number of factors have contributed to this lack of progress, including low annual budgets, lack of quality controls and low standards for school construction and retrofitting.

A School Seismic Safety proposal received strong support during a national workshop that was co-sponsored by the Government of Nepal (GoN) and the Asian Development Bank (ADB) in July 2010. This was attended by over 100 representatives from development partners, government agencies and the private sector. Representatives agreed on the need to rollout a programme across the nation, starting in KV (given its risk status of a major earthquake). The recommended approach is to undertake a series of 'assessment-through-implementation' activities in a sequential manner that would allow for systematic changes, as required. A public awareness campaign is essential as school buildings are typically constructed by local masons using non-engineered techniques.

Hospitals

The presence of hospital services for society after a major disaster is absolutely critical.

Compromised hospital service can result in unnecessary loss of life and limited care for the injured. In addition to the immediate need of hospital service after a major disaster, sustainable recovery efforts and health-driven development goals require operational hospitals.

To enhance disaster preparedness of health institutions and the overall health system, the Ministry of Health and Population (MoHP), with support from World Health Organisation (WHO), developed the Health Sector Emergency Preparedness and Disaster Response Plan for Nepal in 2003. Two related studies revealed that approximately 80% of the assessed hospitals are classed as 'unacceptable' for new construction, with the remaining 20% of hospitals at 'high risk of life-threatening collapse'. (NSET, WHO-Nepal, 2003) (NSET, WHO-Nepal, 2003)

The majority of regional and zonal hospitals have an emergency preparedness plan and some of them conduct regular drills. These practices need to be expanded to all major

Earthquakes & Health Facilities

- The September 2011 earthquake along the Nepal-India border resulted in 26 completely destroyed and 38 damaged health facilities.
- The earthquake in Pakistan (2005) levied damages amounting to US \$300 million to health facilities.
- In Sri Lanka, the 2004 tsunami resulted in US \$88 million in damages to health facilities.

hospitals in the country. Some progress has been made in preparing district emergency plans that include the network of major hospitals in that district.

In 2009, Nepal signed the Kathmandu Declaration on Protecting Health Facilities from Disasters. This declaration commits the government to ensure that hospitals will be able to function in emergency situations. Further efforts are needed to ensure that major hospitals can withstand a major earthquake and continue to function in a disaster situation.

Joint Programme Results and Implementation

Schools

Structural and operational vulnerability assessment

This outcome builds on an initiative⁴ which commenced in 1999 but was not fully implemented. It will produce an updated seismic assessment of the school building stock in KV through a survey that will be completed in 2013. This information will then be used as data for physical retrofitting and seismic strengthening and awareness-raising. Measurable outputs include documentation, measurement of assessed school structures against design codes⁵ and recommended remedial adjustments.

Currently, no systematic risk assessment process for natural hazards is carried out for any major development project in Nepal, not even the most key infrastructure projects. However, there is a recommendation in the GoN's 'Three Year Interim Plan' and the NSDRM to make disaster impact assessments mandatory. This will strengthen the implementation of the Environment Impact Assessment policy. Economic appraisals of certain DRR projects are required in Nepal, but existing government guidelines are

⁴ Kathmandu Valley School Earthquake Safety Program (SES) by the Kathmandu Valley Earthquake Risk Management Project

⁵ NSET defines code compliance for schools to mean ensuring immediate occupancy at medium earthquake (MMI VIII) and life safety at large earthquake (MMI IX or more). Although the Nepal building code does not have specific clauses for schools, philosophically it demands the same safety level.

unspecific and provide no direction on how to explore the potential risks posed by hazard events to development projects.

In 1999–2000, with assistance from the Ministry of Education (MoE), District Education Boards, school principals and GeoHazards International, NSET undertook an inventory of public schools in KV to ascertain the feasibility of retrofitting school buildings for seismic safety. The inventory revealed a stock of 643 schools composed of over 900 buildings. None of the structures complied with the seismic building code with over 60% considered 'at risk from collapse' (NSET, GeoHazards International, 2000). The structures were divided into three categories:

- Quality of construction so poor they cannot be retrofitted
- New structures and/or under construction (but non-compliant)
- Structures of sufficient quality requiring immediate attention.

Snapshot Study on school safety in Nepal in 2011, supported by ADB through technical support from NSET to the Department of Education (DoE), determined that 700 school buildings in KV require retrofitting, with another 280 requiring re-construction. On this basis, cost and time-frame estimates for retrofitting and/or necessary reconstruction of KV school structures is about US\$32 million over 5-6 years. This

Status of School Safety in Nepal

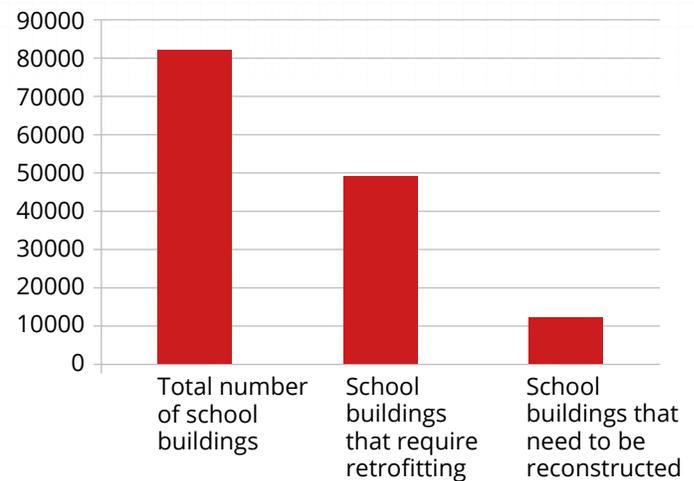


figure includes costs for updating the school-stock risk assessment, retrofitting structures in Category C, reconstructing school buildings, training masons, engineers, teachers and students and developing a community-based awareness programme.

It is also estimated that there are about 82,170 public school buildings in 33,160 schools in Nepal, of which over 50% are in Category C. The cost of retrofitting the school buildings identified in NSET's Snapshot Study in 2011 (49,302 school buildings) throughout Nepal is estimated at US\$927 million. In addition, the 12,326 school buildings identified for complete



FLAGSHIP 1 will retrofit over 700 school buildings and reconstruct 280 school buildings. This will ensure schools are resilient to earthquakes.

reconstruction was estimated at US\$711 million (NSET, 2011). This gives a total of over US\$1.6 billion over a 15 year period to make all schools in Nepal resilient to natural disasters.

Physical and operational strengthening

The second outcome will enhance school building resilience against adverse hazard consequences, save lives and allow for more reliable service delivery during and after a disaster. This will directly lead to an improvement in community security and well-being. The retrofitting and strengthening operations will be undertaken with local services and tradespeople (such as masons), thereby enabling acquired skills and experience to remain within the community. Measurable outputs

will include, as a minimum, structural compliance to national building codes. During retrofitting, due consideration will be given to make schools resilient to other natural hazards such as landslides and floods.

The first priority for retrofitting and strengthening will be the most vulnerable public school buildings in KV in order to protect children from a major disaster, such as an earthquake. Through a pilot program that started in KV, NSET (supported by ADB) provided MoE with the technical support to develop a model for retrofitting Nepalese school structures. Estimated costs are at US\$30,000 per structure, based on a holistic approach that includes a detailed vulnerability assessment, detailed designing and technical support to retrofit

Raising awareness is a critical aspect to school safety. Teachers and students can act as social mobilizers in preparing their households and communities to disasters.



a school building structure and training and awareness-raising.

In 2011, the DoE retrofitted 15 school buildings in KV. For 2012, the government has allocated budget for civil works to retrofit a further 50 school buildings. ADB provided the technical support through NSET for 15 school buildings in 2011 and 7 school buildings in 2012.

Grant assistance from ADB (US\$5 million) and the Government of Australia (US\$3.8 million) has been provided for the GoN's on-going School Sector Reform Program. This aims to retrofit a further 260 school buildings in the valley by 2014. The World Bank has also committed US\$1.37 million for DRR activities. The remainder of the school buildings will come on stream as

capacity expands and additional funds are available.

In addition to school retrofitting and reconstruction in the KV, FLAGSHIP 1 will focus on schools in East Nepal that were damaged in the September 2011 earthquake. This includes the reconstruction of 162 schools with seismic retrofitting training for 600 masons.

Awareness-raising

An expected outcome of FLAGSHIP 1 is improved knowledge in constructing resilient structures. When linked to FLAGSHIP 4, this should result in more resilient communities throughout KV and safeguarding measures for sustainability in the future. Measurable outputs will be the production and delivery of community-

Priority hospitals identified by the MoHP

- Tribhuvan University Teaching Hospital (TUTH)
- Sri Birendra Hospital
- Civil Services Hospital
- Patan Hospital
- Bir Hospital
- Kanti Children's Hospital
- Maternity Hospital

level 'self-help' material and courses that improve social mobilization, and protocols and processes for regulatory enforcement.

Public awareness on DRR is very low and requires a massive campaign, with a specific need to enhance disaster awareness among school teachers and educators. For school building safety, the GoN considers training and public awareness to be essential components of a retrofitting program, since school management and issues such as maintenance are the responsibility of local communities. Stand-alone retrofitting of school buildings will not provide a long-term solution in Nepal. Initial pilot programmes for school safety witnessed a transfer of techniques on building resilience to local dwellings. As the local masons and engineers are pivotal to this transfer process, technical guidelines

will be produced that will assist the overall development and upgrading of design codes (including improvement of building codes to include multi-hazard and climate change risk) and methodologies for incorporating DRR in engineered and non-engineered construction. These awareness-raising activities will be coordinated with the NRRC Communications Group in order to harmonise and maximise the impact of DRM messages (For more information on the NRRC Communications Group, please refer to Annex 6).

Hospitals

Structural and operational vulnerability assessments

According to a 2001 assessment, a major earthquake in KV would leave only 10% of hospitals 'functional', with

Ensuring hospitals remain operational after an earthquake is critical for post disaster response and recovery. FLAGSHIP 1 is supporting efforts to strengthen the operational capacity of hospitals. In this photo, a worker is adding glass protection to prevent shattered glass.



30% 'partially functional' and 60% 'out of service'(NSET, WHO-Nepal, 2003). In 2002, NSET conducted a physical seismic safety study of the 9 major hospitals in Nepal. This includes 4 hospitals in KV and 5 regional hospitals. None of the hospitals examined were building-code compliant⁶. In addition, the report estimates the cost for structural retrofitting and restoring basic functionality to a hospital following a major earthquake would have then been approximately US \$20 million.

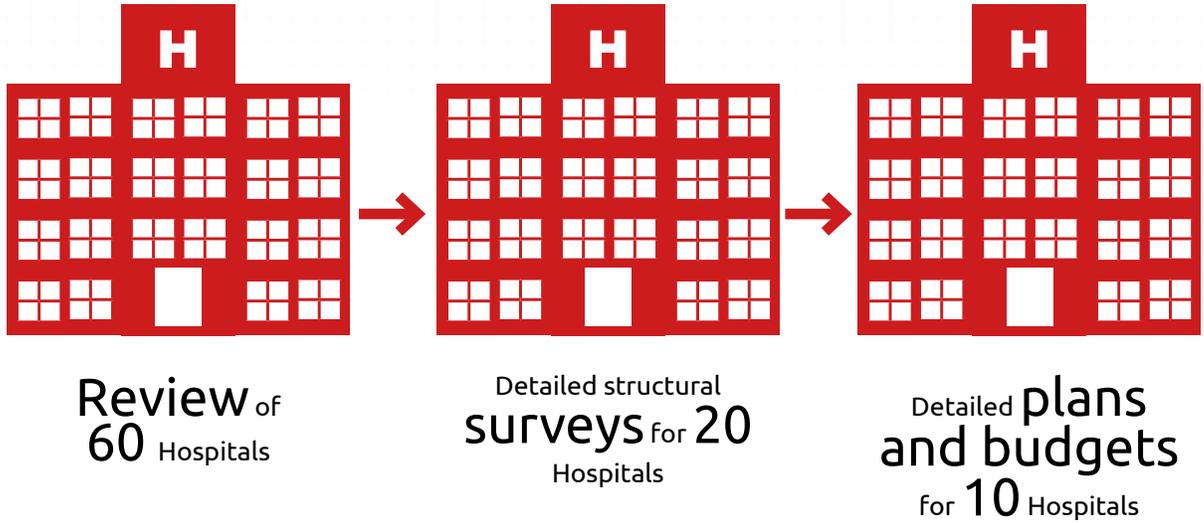
In 2010, The Ministry of Health and Population (MoHP) led a consultative process that included participation from the major hospitals in KV (those with 50 or more beds). It was determined that structural retrofitting and operational improvements of hospitals would be prioritised and implemented in a phased approach based

on an agreed list of criteria. In addition, this process led to the identification of seven hospitals prioritised to remain operational after a disaster (see box).

It was agreed DFID would lead on comprehensive surveys on behalf of the MoHP, Ministry of Public Planning and Works (MoPPW), Department of Urban Development and Building Construction (DUDBC) and WHO. These Comprehensive Seismic Vulnerability Surveys and Structural Surveys are being conducted through 2012-2013. The assessments will be completed in a 3-stage process, beginning with the review of 60 hospitals, including the 7 priority hospitals in order to identify 20 hospitals for detailed structural surveying. This will be followed by the development of detailed plans and budgets for 10 of the 20 hospitals surveyed. A conference will then

⁶ Similarly, NSET defines code compliance for hospitals to mean ensuring immediate occupancy at large earthquake (MMI IX) and life safety at very large earthquake (MMI X or more). Although the Nepal building code does not have specific clauses for hospitals, philosophically it demands the same safety level.

Comprehensive Seismic Vulnerability and Structural Surveys: A Phased Approach



As a priority hospital for the Ministry of Health and Populations, the T.U Teaching Hospital is included in the detailed assessment process to identify which hospitals require retrofitting work.

be held in 2013 to present detailed plans and budgets to donors and implementing partners to encourage funding for structural retrofitting and operational improvements to the 10 public hospitals. This will ensure functionality to save lives and treat the injured after a major disaster.

Physical and operational strengthening

As previously mentioned, the 7 seven priority hospitals will be assessed under the DFID led survey process.

In addition, ECHO through a WHO led consortium including Merlin, Oxfam and Handicap International is supporting the MoHP to develop a National Mass Casualty Management (MCM) Strategy and subsequent MCM plans for each of the 7 priority hospitals. Currently, MoHP has allocated funds to retrofit one of the priority hospitals with further funding support from DUDBC. Further, it also will assess and improve the operational capacity of identified hospitals. The work done here will complement the comprehensive surveys led by DFID, on behalf of MoHP, MoPPW, DUDBC and WHO.

Awareness-raising

The retrofitting, maintenance and regular monitoring of hospitals requires the training of hospital administrators on all aspects of hospital safety. National capacities on hospital safety must be improved through the training

ECHO-funded hospital project

The MoHP has identified 3 of the 7 priority hospitals (Tribhuvan University Teaching Hospital, Civil Services Hospital, and Sri Birendra Hospital) and two rehabilitation institutions (Shainak Prasthapana Kendra, National Disabled Fund) for the implementation of an ECHO funded project. This project will:

Retrofit

- Conduct structural and operational assessments with operational improvements in one hospital.

Train/Develop Capacity

- Strengthen response capacity to a major earthquake in Kathmandu district.
- Improve health workforce capacity to respond to disasters and provide training on the Health Sector Contingency Plan and referral protocols for Kathmandu district.

Raise Awareness

- The local community will be consulted and trained on immediate response measures to an earthquake.



of engineers and masons on both structural and operational components. Tools and Methodologies for Safer Schools and Hospitals is a toolkit designed to improve knowledge and increase awareness on what is needed for structural retrofitting and operational improvements in hospital safety. Its development is being supported by UNISDR, UNHABITAT, the Government of Nepal, ADB and WHO. The NRRC Communications Group will also support awareness-raising activities that will reach communities regarding key DRM messages that will strengthen knowledge and shape behaviours.

TABLE 1.1 | Joint Programme Results Budget - Schools⁷

Expected Outcome		Flagship 1: School Safety in Kathmandu Valley	
Joint Programme Outcomes	Outputs/Activities	Estimated Budget (US\$)	Potential Partners
1.1.1 Structural and operational vulnerability assessment ⁸	1.1.1.1 Seismic risk assessment of school building stock in KV resulting in documentation, consistency with design codes, and remedial actions	1,700,000	MoE, World Bank
	Sub-total	1,700,000	
1.1.2 Physical and Operational Strengthening ⁹	1.1.2.1 Retrofit 700 school building buildings	12,250,000	MoE, MoPPW, ADB, World Bank, AusAid
	1.1.2.2 Re-construct 280 schools buildings in KV for earthquake resiliency	14,700,000	
	1.1.2.3 Training of masons and engineers in KV	2,940,000	
Sub-total		28,890,000	
1.1.3 Awareness raising and capacity building	1.1.3.1 Develop community based awareness program with 'self-help' materials (linked with Flagship 4)	Part of 1.1.1 and 1.1.2	MoE, MoPPW, ADB
	1.1.3.2 Raise awareness of teachers, students and parents on school safety and disaster risk reduction		
Sub-total			
Total		31,590,000	

Expected Outcome		Flagship 1: School Safety in Eastern Nepal	
Joint Programme Outcomes	Outputs/Activities	Estimated Budget (US\$)	Potential Partners
1.1.4 Physical and Operational Strengthening	1.1.4.1 Reconstruct 162 schools damaged from the Sikkim earthquake in September 2011	2,700,000	MoE, MoPPW, ADB, DFID
Total Budget for Flagship 1: School Safety		34,290,000	

This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org

⁷ This workplan reflects the work underway and planned for FLAGSHIP 1. The allocated budget is an estimate and is subject to change.

⁸ From Snapshot Study 2011: vulnerability survey of all schools buildings (0.5 million), detail assessment and design for retrofitting (1 million), design for demolition and reconstruction (0.2 million).

⁹ Figures obtained from Snapshot Study, page 16-17

TABLE 1.2 | Joint Programme Results Budget - Hospitals

TABLE 1.2 Joint Programme Results Budget - Hospitals			
Expected Outcome	Flagship 1: Hospital Safety		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
1.2.1 Structural and operational vulnerability assessment	1.2.1.1 Conduct structural surveys of 60 hospital buildings in KV	620,000 ¹⁰	MoHP, MoUD, MoPPW, DUDBC, NSET, DFID, WHO, Local Institutions
	1.2.1.2 Conduct detailed surveys of 20 hospitals in KV		
	1.2.1.3 Develop detailed plans and budgets for 10 hospitals in KV		
	1.2.1.4 Hold a donor conference to showcase 10 detailed plans to secure resources	10,000	
Sub-total		630,000	
1.2.2 Physical and operational strengthening	1.2.2.1 Develop a MCM Strategy and MCM plans for the 7 priority hospitals identified by The GoN	50,000	MoHP, MoUD, MoPPW, DUDBC, WHO, DFID, ECHO, NSET, Local Institutions
	1.2.2.2 Develop guidelines for structural & operational strengthening	35,000	
	1.2.2.3 Implement pilot retrofitting project in Patan Hospital	830,000	
	1.2.2.4 Retrofit 10 hospitals based on seismic vulnerability and structural surveys (structural and operational retrofitting)	20,900,000 ¹¹	
	1.2.2.5 Implement ECHO-funded non-structural hospital safety project	50,500	
Sub-total		21,865,500	
1.2.3 Awareness raising	1.2.3.1 Train hospital administrators on safety and risk reduction	195,000	MoHP, MoPPW, DUDBC, NSET, WHO, ECHO
	1.2.3.2 Train masons and engineers on structural and operational guidelines to construction	110,000	
	1.2.3.3 Support awareness raising activities that will reach communities regarding key DRR messages	40,000	
Sub-total		345,000	
Total		22,840,500¹²	
This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org			

¹⁰ 400,000 GBP at 1.54984 USD rate

¹¹ Please note that this figure will change based on the results of the detailed hospital plans.

¹² This total is subject to change pending the results of the detailed hospital plans

“FLAGSHIP 2 will prepare and train medical first responders, develop disaster response and information management planning, warehouse and stockpile goods, prepare open spaces and facilitate international assistance for emergency response.”



FLAGSHIP 2:
EMERGENCY
PREPAREDNESS &
RESPONSE CAPACITY

Background to **FLAGSHIP 2**



Natural disasters affect Nepal daily and a major earthquake directly affecting Kathmandu Valley (KV) will occur; it is not a question of whether it will happen, but when. Given the primacy of the capital, a disaster that severely affects the KV affects the whole of Nepal. A major disaster will result in a significant loss of life and severe damage to infrastructure and livelihoods. Communications systems will be down and key decision makers may be unavailable. Consequently, the Government of Nepal (GoN) requires a strong preparedness and response framework in place as well as strengthened systems for coordination and response.

This means having the proper plans, equipment and capacities already in place to respond to a natural disaster prior to its' onset. An emergency preparedness and response framework will allow the government to coordinate and respond to major natural disasters, which will save lives and help the country return to normalcy as quickly as possible. Historically, the disaster risk management systems in Nepal have been relief and response oriented with little coordination between the local, district and central levels. However, over the last 10 years, Nepal has placed a renewed focus upon risk reduction and preparedness as well as response.

The fifth priority for action within the HFA is disaster preparedness for effective response at all levels. This priority emphasises the role of government in preparing for major disasters and taking adequate steps to effectively respond in order to maximise the

recovery phase. Consequently, MoHA led the development of the NSDRM in close consultation with senior government officials from all development ministries and key stakeholders. The NSDRM places preparedness for effective response as a priority action. The MoHA is the leading institution of GoN for emergency relief, response and preparedness with assistance from relevant line ministries. District Disaster Relief Committees (DDRCs) are mandated to coordinate any emergency related activities in their district with the participation of humanitarian actors.

The NSDRM process recognised several gaps in emergency preparedness in Nepal, such as the lack of institutionalisation at central, district or community levels and the absence of emergency operating centres and sector based emergency preparedness plans. As a result, the NSDRM proposes a new approach to emergency preparedness, which includes the reorganisation and development of Disaster Management institutions, improvements in existing policy, creating an enabling environment for DRR and preparedness planning at all levels, and mainstreaming DRR into the national development and poverty alleviation agenda.

Joint Programme Results and Implementation

Institutional Capacity Building of First Responders

The International Search and Rescue Advisory Group (INSARAG) Emergency Response Capacity Scoping Mission visited Nepal in May 2011. This report was followed up by the MBS report (November 2011) and the USAR Capacity Assessment Report (August 2012) by a Chinese expert team. These reports made clear that training first responders – emergency health services, search and rescue (SAR), municipal fire services – would be a prerequisite to effective DRM in Nepal. For all districts, NRCS volunteers will be trained on first aid for emergencies and NRCS chapters will be equipped for first-aid response. Health workers will be trained on dealing with mass casualty incidents, including training on trauma care and triage systems.

Capacity building of emergency health services is being addressed under FLAGSHIPS 1, 2 and 4 and is closely coordinated with the health cluster¹³. Under FLAGSHIP 2, district-level Mass Casualty Planning and Rapid Response (RR) Training is under way, in coordination with Health Contingency Plans (as part of the health cluster). Currently, 35 districts have completed health sector disaster contingency plans. The dignified and proper management of dead bodies also requires planning, preparation and capacity.

¹³ In response to major humanitarian crises, the UN has developed the 'cluster' approach, which identifies nine thematic clusters (such as health) for coordination at both the field and global levels. Each of these clusters is led by a UN agency functioning as 'provider of last resort' and each are accountable to the UN Humanitarian Coordinator.

INSARAG Search and Rescue Medium Team Requirements

- Five components: Management, Logistics, Search, Rescue, Medical
- Ability to conduct technical search and rescue operations in collapsed or failed structures of heavy wood and/or reinforced masonry
- Must conduct rigging and lifting operations
- Capacity to work at a single worksite
- Capability of either search dogs or technical search
- Adequately staffed to allow for 24 hour operations at 1 site for up to 7 days

Emergency response requires the proper equipment and training of response personnel. FLAGSHIP 2 is supporting training and simulation exercises for personnel to strengthen emergency response.



The INSARAG and other reports also pointed out that the development of urban search and rescue (USAR) must be part of an overall strategy to ensure first responder capacity enhancement. Nepal has no current capacity for collapsed structure rescue or medium level USAR. This is a major gap in an urbanising earthquake-prone country, where house collapse due to monsoon or fire is also common. Capacity will be developed by building upon the achievements of the Program for Enhancement of Emergency Response (PEER). This programme has qualified more than 198 instructors as Medical First Responders (MFRs), more than 133 instructors in Collapsed Structure Search and Rescue (CSSR), and several

hundred end-user responders in MFR and CSSR in the Nepal Army (NA), Nepal Police, Armed Police Force (APF) and the NRCS. In 2009, the third phase of PEER launched in Nepal and included trainings in Community Action for Disaster Response (CADRE) and Hospital Preparedness for Emergencies (HOPE).

There is a strong possibility that the airport and major roads may be destroyed due to an earthquake and/or landslide. This would prevent international assistance arriving in a timely fashion, and so the development of a domestic USAR capacity is essential. The INSARAG recommendation was to create at least two national USAR teams trained and

Emergency response requires the proper equipment and training of response personnel. FLAGSHIP 2 is supporting training and simulation exercises for personnel to strengthen emergency response.



equipped according to INSARAG 'medium' standards.

In addition, the current domestic light SAR capacity needs to be enhanced with a focus on the development of basic capabilities, including trauma care. Specific training is required in the management of collapsed buildings and structures, as well as instructions in flood and landslide search and rescue. Work is in progress under FLAGSHIPS 2 and 4 to continue training and supporting the existing SAR capacity. Some light SAR equipment has been provided to MOHA, the municipal fire services and the APF but additional equipment will be required to meet the needs.

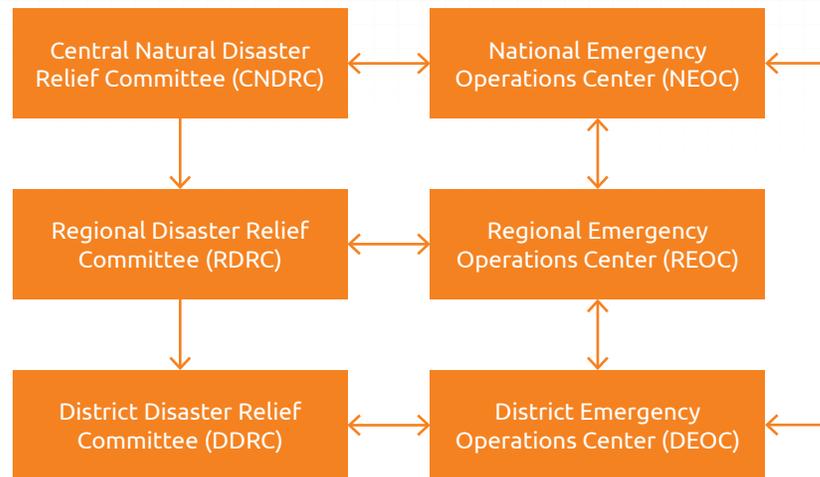
Work is underway to enhance coordination between the light SAR teams already established by the NA and APF. Medical

response teams will also be supported to develop evacuation procedures, including 'human porter ambulances' in remote and inaccessible areas. Linkages will be strengthened with the NRCS, NA, APF and the SAR capacity-development programmes of other agencies to create an emergency response capability at district level. In addition, the Nepal Ambulance Services will be strengthened to provide first aid response, efficient patient evacuation, and instigate a referral mechanism between the field and the receiving health facility.

Fire services in urban areas have historically been neglected; increasing urbanisation has not been matched by adequate fire safety capabilities.

A 2011 study found that only one of the ten functioning fire engines in KV can respond

FIGURE 1 | Interaction between NEOC, REOC and DEOC



Emergency response requires the proper equipment and training of response personnel. FLAGSHIP 2 is supporting training and simulation exercises for personnel to strengthen emergency response.

to a fire occurring above the fourth floor (MoLD, UNDP, 2011). While individual and bilateral initiatives are now taking place, such as the provision of fire engines by India, Italy and the UK, there is a need for a consolidated training programme and an upgrading programme that can couple the provision of light and heavy equipment with the necessary maintenance and upskilling that is required. In Kathmandu, Biratnagar, Nepalgunj, Pokhara and Bharatpur, the capacity of the fire and ambulance services will be strengthened and enhanced through the provision of updated equipment and specialised training on fire-fighting, paramedical care, search and rescue techniques and medical evacuation techniques.

This institutional capacity-building of first responders is supporting the development of emergency operations centres (EOCs) with communication networks and control rooms across Nepal. The National Emergency Operations Centre (NEOC) project in Kathmandu is being implemented with support from UNDP, and standard operating procedures (SOPs) have been finalised. These SOPs harmonise policy and ensure the level of quality in the work of the NEOC. In order to develop capacities and ensure the SOPs are institutionalised in the NEOC, a number of critical trainings and simulation exercises have been conducted. Among these is the Incident Command System (ICS), which allows for the integration of facilities, equipment, personnel, procedures and communications to operate under a harmonised organisational structure for effective coordination during a disaster. Continued support for the NEOC is required to ensure it effectively serves as the hub for emergency response. This is now being complemented by EOCs at the regional and district levels. These EOCs are communication networks and coordination platforms, not physical structures, and work is underway to equip them with the appropriate standardised technology and communications equipment. In addition, the cooperation and linkages between the GoN Emergency Operations Centres, other government line agencies, UN agencies' and partners' line agencies and NRCS are being

formalised. 16 pilot District EOCs (DEOCs) have already been established. This will now be expanded to cover 30 districts and municipalities.

Disaster Response and Information Management Planning

In 2010, Inter Agency Standing Committee (IASC) partners, in collaboration with government ministries and INGOs, conducted 63 district disaster preparedness workshops resulting in disaster preparedness and response plans in these districts. Additional contingency planning workshops in 15 of the 63 districts were conducted, and after adaptation of the existing planning framework, the formats for both the workshops were officially endorsed by GoN. As a capacity-building exercise, GoN staff will be trained in disaster preparedness and included in a roster pool; at least one GoN representative will act as a co-facilitator in all workshops. At the cluster level, all Cluster Contingency Plans are in the process of being updated.

MoHA coordinated and developed the Guidance Note on Disaster Preparedness and Response Planning 2011 with support from OCHA/ECHO. This document has been endorsed by the Central Natural Disaster Relief Committee (CNDRC). As of July 2012, 70 districts have prepared Disaster

Preparedness and Response Plans, with the remaining 5 districts currently drafting plans. Unlike previous plans, these ones adopt a multi-hazard approach. Each district is required to review and update the plans annually with support from MoHA, national authorities and humanitarian partners. At least 20 districts will be supported to broaden their planning from solely disaster preparedness to a more comprehensive disaster management plans. Nepal is currently in a period of transition where the structure of government and the political landscape will change when the new constitution is drafted and approved. While these changes will affect disaster response and information management planning, current efforts will ensure Nepal is ready to respond to a natural disaster.

The flow of information and the ability to create, retain and disseminate data before and after emergencies is also an issue that needs to be addressed. At present, it is completely reliant on the police reporting system and the inputs of other national partners as there are no standardised national databank on disaster related issues. Development is centred upon the nationwide EOC system, which is a hub for collecting disaster information using a Sahana¹⁴ based information management system. Key

personnel have already received training, which will continue throughout 2012/13.

Establishing a clear picture of needs and priorities in the first days of a relief operation is critical, yet this information often takes weeks to compile. To support this, an information management environment is being prepared, with the objective that on the day of an emergency, humanitarian responders can take immediate advantage of existing data, initiate common assessments and freely share information. The government has begun to improve data collection systems, which will be compliant with the IASC MIRA tool¹⁵. A minimum set of information standards, tools, forums and platforms is being established and plans to partner with key ministries in post-disaster needs assessment (PDNA) are in place for 2013.

The involvement of NA, APF and police attending these workshops and exercises will ensure that the entire civilian and military components of the administration and its partners can be trained to respond in a coordinated manner throughout the 75 districts of Nepal. Involvement of hospital networks and the development of hospital emergency preparedness plans will help provide coordinated medical services in

¹⁴ The Sahana Free and Open Source Disaster Management System was conceived during the 2004 Sri Lanka tsunami. <http://www.sahanafoundation.org/>

¹⁵ Multi-Cluster Initial Rapid Assessment (MIRA). <http://www.un.org.np/resources/mira>

The impact of a major disaster in Nepal will be overwhelming, and requires a concerted effort in preparing now. This includes ensuring warehouses are earthquake resilient, strategically located for access and stockpiled with essential life-saving goods.



the immediate aftermath of a disaster. Emergency preparedness plans have been completed in 4 of the 7 priority hospitals identified by the government. Information on health facilities collected and provided through various channels (including Google Earth mapping) will ensure a network of health facilities is in place. Currently, fifty-seven districts have completed data collection and mapped health services, which will be crucial in ensuring proper flow of patients during mass casualty incidences.

Nepal faces huge challenges in developing an effective public information strategy for

emergency response. Many communities are very remote and the topography of the country makes it difficult to broadcast radio or TV signals nationwide from a central source. That said, considerable resources do exist in the communications sector, which will be invaluable during a humanitarian crisis.

- The national community radio networks encompass 140 local radio stations
- The BBC World Service Trust has begun work on a capacity building programme
- Mobile phones are increasingly held to be an essential element of post-disaster communications and coverage in Nepal is growing fast

Radio stations in Nepal need to be researched on their footprint coverage, power backup facilities, satellite capability along with mobile phone coverage, and quality radio public service announcements (PSAs) will be prepared and translated. Thought is now being given to how these could best be used in a post-disaster scenario. Coordination with community networks and the private sector can be put in place, along with compiling information on the media's capacity to function after a major disaster. Led by MoHA, the NRRC has established a Communications Group (see Annex 6), which will support the development of targeted and effective DRR and preparedness messages to be communicated throughout Nepal. These will raise awareness about the risks faced and change behaviours to reduce those risks. Finally, a national strategic Geographic Information System (GIS) framework has been developed and the National GIS policy will be implemented to ensure updated key data sets that are accessible and can be used across organizations before and after an emergency

Warehousing, Infrastructure, Open Spaces, Logistics and Stockpiling Support

For successful relief operations in a major emergency, there is a need to protect and pre-position supplies to cater for disruption

to land and air transport links. It is essential that warehouses across the country are constructed, upgraded or renovated, and the development of critical infrastructure expanded. These warehouses must be accessible to the open spaces where it is likely that Internally Displaced Persons (IDPs) will be accommodated. Though pre-positioning of supplies to the scale required may be impractical for the major earthquake scenario, it is also relevant for cyclical events such as flooding in the Terai during the monsoon season. Reporting formats will be standardised across the country, and coordination and distribution mechanisms will be formalised with the assistance of Information Management Units from Kathmandu based agencies.

The pre-positioning of relief and rescue materials is essential in KV and needs to be scaled up across Nepal, particularly in hazard prone and densely populated areas. In KV, the Pre-Positioning of Emergency Rescue Stores (PPERS), supported by NSET, have pre-positioned light SAR material, such as ladders, picks, shovels, ropes and first aid kits, in 8 locations. For non-rescue materials, the NRCS, UNICEF and WFP have warehouses to store food and non-food items at strategic locations across Nepal. There are plans to seismically assess these warehouses to ensure structural resiliency and operational capacity remain intact after a major disaster.

The International Organisation on Migration has identified 83 open spaces that can be used after a major disaster to assist displaced persons. FLAGSHIP 2 is supporting efforts to preserve and de-conflict these open spaces to ensure a coordinated response after a major disaster.



This will be expanded to create a countrywide network of storage facilities, with established regional hubs feeding into district-level warehouse centres. Transport and distribution networks will need to be studied and strengthened, and all regional hubs should have cold-chain facilities for the storage of medical supplies where necessary. An assessment of potential existing structures (upgrades, renovation) and the erection of new storage facilities will be conducted. MoHA has begun construction of 2 warehouses in the Eastern and Far-Western Regions and intends to construct three additional warehouses in the Central, Mid-Western and Western Regions.

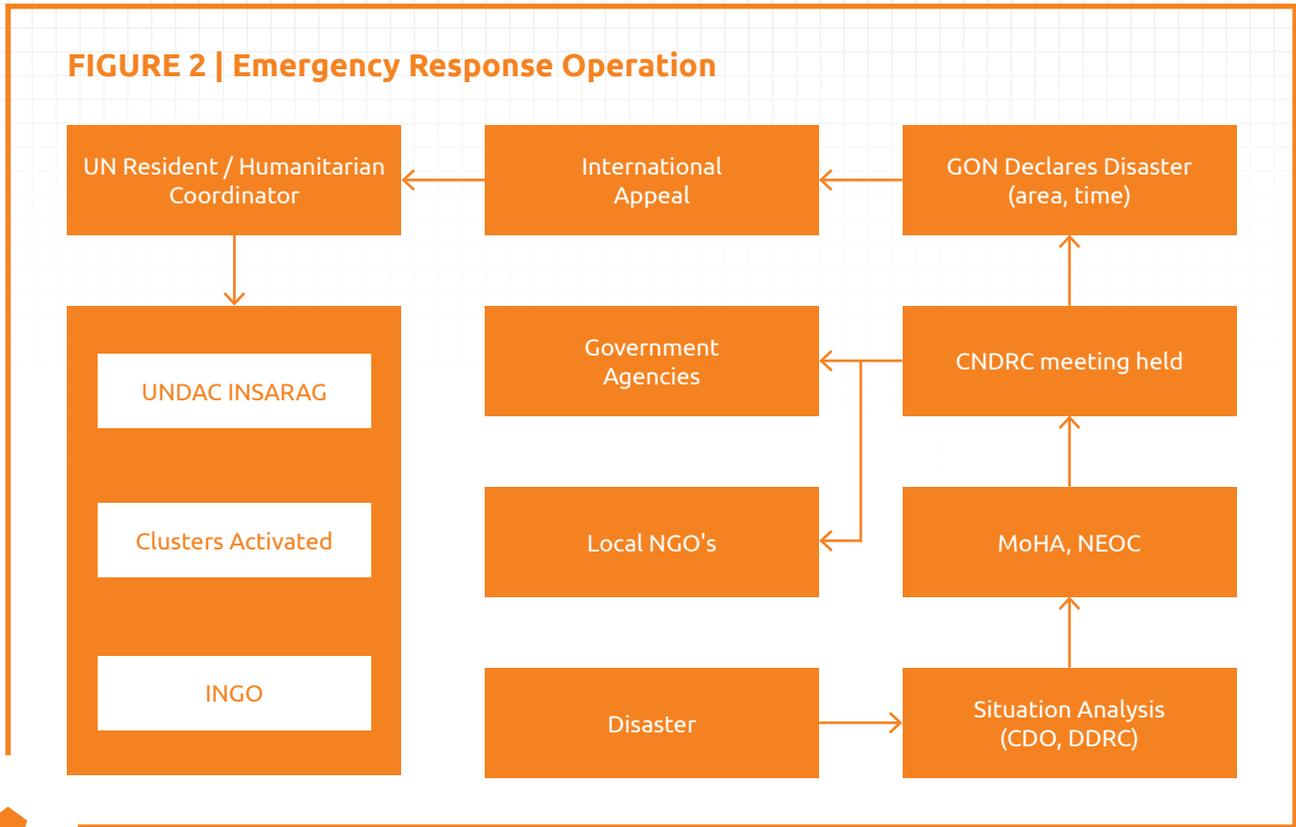
Open Spaces

The International Organization for Migration (IOM) has conducted a survey identifying open spaces across KV, which could be used

as IDP sites following an emergency. There are now efforts being made to consolidate, validate and gain endorsement from national authorities to use open spaces and prepare these areas for response, such as constructing deep tube wells. The logistics, Water And Sanitation Hygiene (WASH) and health projects will be integrated into an overall plan of preparedness activities for these sites. The IOM report and its recommendations were approved by MoHA and the process to protect them is underway. This includes deconflicting the open spaces and the use and logistics of open spaces (whether for civilian or military use) is agreed upon prior to the disaster.

The work on open spaces is being complimented by proposals from the WASH and Logistics Clusters led by UNICEF and WFP. These are detailed in the work-plan and concept notes, which are available. The

FIGURE 2 | Emergency Response Operation



Health Cluster has also stockpiled essential medical supplies at strategic locations and is planning a similar stockpile at hospital sites. It is likely that hospitals will become a starting point for health activities, dependent on their withstanding a large-scale disaster. The programme outcomes will also entail expansion of stocks at regional and district levels. This will be accompanied by appropriate training on maintaining inventories, periodically replenishing supplies and formalising the pre-positioning of materials. A list of relief and rescue materials, including food supplies (especially Ready to Eat (RTEs), medical supplies and equipment, Non-Food Items (NFIs), PPERs, and appropriate requirements for different caseloads will be developed at each level.

Strengthening Preparedness for the Facilitation of International Assistance

This part of the programme includes the establishment of coordination structures between GoN and incoming international assistance providers, including international military responders. There have been a series of discussions and workshops throughout 2010 to 2013 between major international humanitarian and military responders and national partners to effectively coordinate the response effort. These discussions have identified a number of gaps, as well as recommendations for action to address them. They have helped familiarise the relevant bodies with field coordination

structures such as the On-Site Operations Coordination Centre (OSOCC) and the Civil–Military Coordination Centre (CMCC). To support these interventions, GoN is currently finalising the National Disaster Response Framework, which includes establishing clear roles and links at district, regional and national levels with international assistance.

As a landlocked country with a rugged landscape, facilitating an incoming humanitarian response from regional and international partners to a major disaster will be challenging. Nepal has one international airport in Kathmandu and only three major roads lead into the valley, none of which are resilient to a major earthquake. The inability to facilitate international assistance from outside the country will hinder Nepal’s ability to effectively respond to a natural disaster. Infrastructure efforts are now underway to ensure the international airport and major bridges are earthquake resistant, in order to effectively facilitate and manage incoming humanitarian assistance. These efforts include trainings, simulations and emergency preparedness plans to ensure that the airport remains operationally functional after a disaster with the roles and responsibilities of authorities clearly defined.

The team will also provide technical assistance for the implementation of key international and regional standards for the provision of international assistance during large-scale



A major disaster, such as an earthquake, will require the coordination amongst all national and international actors. FLAGSHIP 2 is supporting efforts to facilitate international humanitarian assistance in case of disaster.

disasters. In collaboration with FLAGSHIP 5, it will identify and recommend legislative measures to support the implementation of relevant international guidelines. National legislation needs to be flexible enough to accommodate the specific requirements of an emergency in certain operational areas and activities, and to ensure compatibility between GoN mechanisms and international response best practices.

GoN has signed the Customs Model Agreement (one of only 3 countries globally to have signed to date), which allows international responders’ easier access to enter the country with personnel, goods and equipment. This activity, in conjunction with FLAGSHIP 5, will build on the steps already taken by GoN to enhance and strengthen existing working practices, by advocating for a swift passage of enabling legislation and exploring further opportunities to adopt internationally accepted norms and conventions for humanitarian response.

TABLE 2.1 | Joint Programme Results Budget

Flagship 2: Emergency Preparedness and Response Capacity updated by 15 Oct 2012				
Expected Outcome	Key Activities	Estimated Total Cost	Lead Agency	Current Partners
1) Institutional Capacity Building of National and Humanitarian Partners	1.1 Develop Search and Rescue (SAR) capacities in the country	\$ 6,560,000	OCHA, MOHA, UNDP	UNDP, NA, APF, INSARAG members & donors
	1.2 Fire and standard ambulance services to 58 major urban centres	\$ 4,130,000	WHO, MoFALD	MoFALD, OCHA, Red Cross Movement, INGOs, Health clusters, EDPs
	1.3 Emergency Operation Centre at all levels –District, Regional and National	\$ 3,624,518	UNDP, MoHA	MoFALD, OCHA & Authorities at region, district & municipality
	1.4 First aid training to NRCS volunteers and CHVs in all districts and MFR training to First Responders (Security forces)	\$ 2,235,000	WHO, MoHP	NRCS chapters, Merlin, NSET
	1.5 Mass casualty incidents management including trauma care, triage, and other specific health issues	\$ 1,280,000	WHO, MoHP	MoHP, Health Cluster partners
	1.6 Capacity building of the TIA staff on logistics thru training and simulation exercises	\$ 480,000	WFP	GoN, UN Agencies, NRCS, I/NGOs, Log cluster members
2) Disaster Preparedness and Response (DPR) planning activities	2.1 Capacity building of the national partners through workshops, trainings and simulations	\$ 567,000	OCHA, MOHA	MoHA, I/NGOs, Red Cross, Nepal Army, Armed Police Force and FCOs
	2.2 Review and Update of IASC Contingency Plan and Cluster contingency plans	\$ 595,000	OCHA, Clusters	WHO, HCT and Cluster Leads agencies
	2.3 Radio station, satellite and mobile phone coverage in Nepal and effective radio public service announcements (PSA)	\$ 165,000	BBC World	BBC World Service Trust, OCHA, ETC Cluster, MOHA
	2.4 Development of inter-operable communications system amongst emergency responders and data centres (EOCs).	\$ 100,000	UNDP, MOHA	Telecommunication cluster members

TABLE 2.1 | Joint Programme Results Budget

Flagship 2: Emergency Preparedness and Response Capacity updated by 15 Oct 2012				
Expected Outcome	Key Activities	Estimated Total Cost	Lead Agency	Current Partners
	2.5 Detailed Planning of the Open Spaces for humanitarian Purposes	\$ 115,000	IOM, DUDBC	MoHA, OCHA, Clusters, Line Ministries, Kathmandu Valley Municipal Administration, Security Forces, Red Cross, I/NGOs
3) Warehousing, Infrastructures, Logistics and Stockpiling supports	3.1 Development of logistics hubs, warehouse construction and rehabilitation	\$ 25,810,000	WFP	IOM, GoN, UN Agencies, NRCS, I/NGOs, Logistics Cluster GoN, UN Agencies, NRCS, I/NGOs, Logistic cluster
	3.2 Open space management and stock piling for Pre-positioning of the relief items (NFI)	\$ 445,000	IOM, DUDBC	MoHA, OCHA, Clusters, Line Ministries, Kathmandu Valley Municipal Administration, Security Forces, Red Cross, I/NGOs
	3.3 Managing the WASH activities within the identified Open Spaces	\$ 6,805,000	UNICEF	WASH cluster, UNICEF, Oxfam, USAID
	3.4 Health Sector Stock Piling of essential medical supplies	\$ 1,531,000	WHO, MoHP	UNFPA, UNAIDS, MoHP, Health cluster partners
4) Preparedness for the facilitation of International Humanitarian Assistance	4.1 Strengthen national capacities to coordinate and integrate incoming international humanitarian assistance	\$ 650,000	OCHA, MoHA	Line Ministries, Security Forces & clusters and humanitarian partners
	4.2 Strengthen the role of Humanitarian Coordinator and Humanitarian Country Team through Coordination, website management and reports	\$ 150,000	OCHA	OCHA, HCT and cluster members
Grand Total		\$ 55,242,518		

This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org

“Flagship 3 will reduce flood risk in the Kosi River Basin through detailed assessments, forecasting and mitigation activities.”



FLAGSHIP 3:

FLOOD MANAGEMENT IN
THE KOSI RIVER BASIN

Background to **FLAGSHIP 3**



Floods and landslides cause an average of 300 deaths per year in Nepal and economic damage exceeding US \$10 million (MoHA, 2009). Most floods in Nepal occur during the monsoon season, between June and September, when 80% of the annual precipitation falls, coinciding with snowmelt in the mountains (MoE, 2004)(Regmi, 2007). Flash floods and bishyari (the breaking of natural dams caused by landslides) are common in the mountains, whilst river flooding occurs when rivers augmented by monsoon rains overflow their banks in the plains in the south of the country. These floods go on to affect sections of Uttar Pradesh, Bihar, West Bengal and Bangladesh(Dixit, Pokhrel, & Moench, 2007). Most parts of the middle mountains and Terai are 'exposed' to severe flooding (NSET, 2008).

Rainfall intensities of 40-50mm per hour are common in lower Mahabharat and Siwalik areas of Nepal. Several instances of rainfall of more than 400mm in a 24-hour period have been recorded by Department of Hydrology and Meteorology (DHM). However, with changing land use and other associated development activities, less rainfall (as low as 40mm per hour which is common during monsoons) can result in damaging landslides and flash floods (ADRC, 1998). July 1993 saw heavy rainfall in the Central and Eastern Regions of Nepal, filling the Bagmati, East-Rapti and Kamala river basins. This had disastrous consequences with heavy loss to life and property as well as severe infrastructure damage due to floods, landslides and debris flows. In 2007, almost half a million people were affected and 23,000 houses destroyed by widespread flooding caused by the early onset of strong monsoon rains.

Significant 24 hour Rainfall Records

12 Aug 1980	Bajura	431mm
29 Sep 1981	Beluwa	446mm
25 Aug 1968	Ghumbang	500mm
10 Oct 1959	Anarmani	473mm

On 18 August 2008, the eastern embankment of the Kosi River near Paschim Kusaha village in Sunsari District breached and the river changed its course.

The resulting flood affected 8 Village Development Committees (VDCs) rendering more than 42,500 people homeless and 22 dead in Nepal and more than 3 million people displaced in the Indian state of Bihar. It also damaged the national highway in several locations. About 6,000 hectares of agricultural

1993 Flood Stats

87%	Deaths in Nepal due to flood/ landslide
500,000	People affected
1,336	People killed
25,000	Livestock lost
17,113	Houses destroyed
57,584	Hectares arable land damaged
67	Irrigation projects seriously damaged (excluding farmer-managed ones)
4,900	Million in NPR loss estimates

land were inundated and agricultural products worth more than US \$3.7 million were damaged on the Nepalese side.

Kosi Basin

The Kosi, a major tributary of the Ganga, has the third largest catchment area in the Himalaya after the Brahmaputra and the Indus. It is the largest river basin in Nepal. Originating in the Tibetan plateau and the Nepali highlands, the river has seven tributaries: the Indrawati, SunKosi, TamaKosi, Likhukhola, DudhKosi, Arun and Tamur. The total catchment area of the river at Nepal-India border is 60,500 sq. km, of which 48% or 28,900 sq. km lies in the Tibetan Special Autonomous Region. The other 52% is situated in Nepal. The average elevation of the Kosi basin is +3,800m. The river drains rapidly and at very high velocity at Chatara. Sagarmatha (Mt. Everest) lies close to the centre of the basin.

The three major factors influencing hydro-meteorological characteristics of the Kosi basin are the climatology of atmospheric circulation, variations in topography and rain-shadow effects of the Himalaya. The following weather systems play a major role in bringing precipitation to the basin:

- Summer monsoon brings several widespread wet spells. Almost 80 percent of the annual precipitation over the basin occurs during the monsoon.

It generally sets-in during the first half of June and withdraws towards mid-September.

- Rain during the winter is dominated by westerly winds with westerly jet-stream in the higher troposphere. The amount of precipitation, although insignificant compared to monsoon volumes, contributes to significant snow accumulation in high elevation areas.

Annual precipitation within the basin under the influence of topography varies from less than 250mm to more than 4,000mm. There are several instances of daily precipitation exceeding 300mm, but these are rare above +3,000m. The seasonal distribution of precipitation has a strong influence on the hydrological characteristics of the basin. The lowest flows are generally observed during the first three months of a calendar year. Stream flow increases in spring as a result of rising temperatures and increasing snowmelt in the high altitude zones. Most areas of the basin above +5,500m are covered by permanent snow

2008 Kosi River Flood

3,000,000	People affected/displaced
22	People killed
42,500	Houses destroyed
6,000	Hectares arable land damaged
3.7	Million in US\$ loss estimates

as the temperature remains below freezing throughout the year. The areas between +2,500m to +5,500m experience seasonal snow accumulation that melts along with the rise in temperature during spring and summer.

History of Major Floods in Nepal

Bagmati	1902/03
SunKosi	1964, 1981, 1984
Tinau	1981
Eastern and Central Nepal	1993
Kosi River	2008
Seti River	2012

Joint Programme Results and Implementation



The Kosi River is the largest river basin in Nepal and one of the most flood prone.

The Kosi is one of the most important and flood prone rivers in Nepal, impacting communities in the Terai as well as Bihar in India. A large number of structural measures, particularly embankments, barrages and spurs, were constructed in the late 1950s and early 1960s in Nepal to reduce the incidence of floods. However, it has been recommended that the designs of these structural measures be revisited in view of the complexities of the problem and the huge implications of structural failure (UNESCO, 2009).

Flood Risk Assessment

FLAGSHIP 3 will conduct a probabilistic risk and vulnerability assessment for flood and landslide hazards in the Kosi River Basin (Shrestha, 2008). This will include detailed geography, geomorphology,

Flood Risk Assessment Steps



hydrology, hydro-meteorology, vegetation, land use, existing counter-measures and historical analysis of local flood events. The assessment will also include detailed study of the ice and snow content feeding the Kosi River system and the impacts of climate change on the entire river basin.

This activity will directly strengthen the knowledge base to improve flood management. It includes a hydrological-hydrodynamic model of the Kosi Basin calibrated on historical data covering extreme events (e.g. floods of 2008). Critical topographic and other surveys (cross-sections, longitudinal sections of embankments and river) in the focus areas of the lower Kosi Basin will be carried out. Surveys will be conducted to determine the level of exposure communities face to the threat of a flood, which includes mapping and providing a valuation of infrastructure, agriculture and human settlements in exposed areas. Under this activity, support will also be provided for the development of a spatial database for flood management, at a broad level for Nepal and more detailed for the flood-prone areas of the Kosi Basin.

Following the floods of 2008, the river morphology has changed. A comprehensive research-based study will be undertaken to assess the new shape and nature of the river including bed level rising and its impact on existing flood mitigation measures including embankments.

Structural Measures for Flood Mitigation

The outcome of FLAGSHIP 3 will be construction of civil works such as embankments along rivers, minor drainage works to pass the flood and avoid inundation, irrigation canals diverting water to agricultural fields, provision of culverts and flood-ways, polders enclosing houses, fields, food supplies or animal fodder and construct flood shelters. Structural measures will tend to consider mainly the hydrological and hydraulic implications of flooding selecting the option that is most effective in the given situation.

Following the eastern embankment breach on the Kosi at Paschim Kushaha in August



FLAGSHIP 3 is supporting efforts to strengthen embankments along the Kosi River through both structural and non-structural measures.

2008, existing river training structures¹⁶ are being eroded. The floods eroded several studs at Pulthegaunda and threatened the embankment at several locations. The World Bank/GFDRR undertook an assessment mission in December 2011 along with engineers from DWIDP. The assessment report (which was shared with NRRC members) called for immediate strengthening of studs and spurs and the entire length of Kosi embankment maintained by the Government of Nepal (GoN). The report helped highlight the urgency of needed repair works. GoN and Government of India (GoI) had bilateral discussions and subsequently GoI financed

the emergency repair and embankment strengthening works.

The World Bank/GFDRR will conduct a follow-up mission in March 2013 jointly with DWIDP and DOI to ascertain if any further structural works need to be carried out in the near future and assist DWIDP and DOI in helping design a long-term plan for the embankment maintenance and strengthening.

Non-structural Measures for Flood Mitigation

FLAGSHIP 3 will also emphasize non-structural measures which include reducing discharge levels through natural retention, watershed management, delineation of flood areas, securing flood plains and applying flood area regulations. These measures have become more feasible as they are cost-effective and do not interfere with natural drainage systems (Shrestha, 2008). Non-structural mitigation also involves improving the coping capacity and resilience of the local community.

Flood Forecasting and Early Warning Systems

The existing hydro-meteorological network in Nepal is not designed for flood forecasting

¹⁶ 'River training structures' refers to the efforts, such as embankments, to stabilize the river and maintain the desired flow, cross-section and navigation of the river.



The impacts of floods can be long lasting. Desertification from the 2008 Kosi River flood continues to impede livelihood development. Arable land is being destroyed, which is also threatening livestock,

purposes, and needs to be improved to meet that requirement. A combined satellite and surface-based rainfall estimate provides the best input for flood forecasting and early warning systems. The same problem exists with rain gauge stations in many river basins. Many stations are in district headquarters and in the Terai. Being a mountainous catchment and having very little lead-time, the network needs to be modified and rain gauge stations improved by installing automatic recorders for real time data transmission. Data collection, analysis and the transmission system also need to be modernised.

The project will concentrate on strengthening and optimising the hydrological and meteorological data observation network, including glaciers and glacial lakes monitoring network, in the Kosi Basin. Telemetric systems will be

developed for real-time data transmission from hydro-met stations. The project will focus on the development of weather forecasting and flood forecasting models based on real time data. Flash-floods are of huge concern in Nepal where several instances of massive hourly precipitation have been recorded. This component will aim to develop a Flash Flood Guidance System for the Kosi Basin. It will also work on a flood warning mechanism, including the use of mobile applications for advisories and warnings, to be piloted in the Kosi Basin for dissemination of flood forecast.

The World Bank's Board of Directors approved the Pilot Program for Climate Resilience: Building Resilience to Climate Related Hazards Project in 2013. This US \$31 million project aims to enhance government capacity to mitigate climate related hazards by improving timeliness of

weather and flood forecasts and warnings. This will be achieved through a US \$25 million investment in establishing multi-hazard information and early warning systems, upgrading the existing hydro-meteorological system and enhancing institutional and technical capacity of the department of Hydrology and Meteorology across Nepal. The strengthening of DRM operations component of this project includes piloting of “end-to-end” early warning systems in two river basins. The Kosi Basin also falls under the ambit of the PPCR project and will benefit in terms of better flood forecasting, early warning systems and community preparedness through implementation of the project. This work is expected to begin in 2014.

In addition, GFDRR is also in the process of supporting the IFRC and Nepal Red Cross in undertaking Flagship 4 activities on CBDRM (with special focus on floods and landslides) in ten communities in the Kosi Basin.

Institutional Capacity-building

FLAGSHIP 3 has identified technical capacity-building as one of its focus areas, specifically providing training to scientists. The two main agencies that will be directly involved in the implementation are the Department of Water Induced Disaster Prevention (DWIDP) focusing on the structural components and the DHM (which is being strengthened with support from the PPCR project) focusing on flood forecasting and early warning dissemination. Capacity strengthening will include equipment upgrades, specialised training and better coordination and information-sharing amongst different agencies. A new Flood Forecasting Centre (FFC) will be established within the DHM. The FFC will also be responsible for sharing flood early warnings downstream in order to provide sufficient lead-time to these stakeholders.

Next Steps

The World Bank/GFDRR along with other partners and stakeholders will continue working in the Kosi Basin area. FLAGSHIP 3 was initially designed with the aim of focusing efforts on one single river basin and been quite successful with most of the identified components already completed or soon to begin into the implementation in early 2013. Given the success of the model of focusing efforts on one entire basin at a time, consideration is being given to plan similar efforts on a second river basin. This will be decided mutually between Ministry of Irrigation; DWIDP, DOI and NRRC members during the course of 2013.

TABLE 3.1 | Joint Programme Results Budget

TABLE 3.1 Joint Programme Results Budget			
Expected Outcome	Flagship 3: Flood Risk Management in Kosi River Basin		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
3.1.1 Flood Risk Assessment	3.1.1.1 Probabilistic risk and vulnerability assessment for flood and landslide hazards in the entire Kosi River Basin	1,000,000	DWIDP, WECS MoHA, WB, ADB, International NGOs (The risk assessment to be completed by FY 2013)
	3.1.1.2 Develop hydrological-hydrodynamic model in Kosi Basin		
	3.1.1.3 Develop spatial database for flood management for Nepal and the Kosi Basin		
	3.1.1.4 Assessment of river morphology including bed level rising and cross-sectional survey of the Kosi River in the flood plain section		
	Sub-total	1,000,000	
3.1.2 Structural Measures for Flood Mitigation	3.1.2.1 River bank protection works including strengthening of existing river training measures	17,000,000	DWIDP, WB, Government of India (All immediate infrastructure work completed with support from GoI)
	3.1.2.2 Construct minor drainage channel works		
	3.1.2.3 Provide culverts, flood-ways		
	Sub-total	18,000,000	
3.1.3 Non-Structural Measures for Flood Mitigation	3.1.3.1 Prepare flood-inundation maps	Included in above activities	DWIDP, WB, Government of India, DSCWM,
	3.1.3.2 Improve watershed management		
	3.1.3.3 Improve resiliency of local communities		
	Sub-total	18,000,000	

TABLE 3.1 | Joint Programme Results Budget

Expected Outcome	Flagship 3: Flood Risk Management in Kosi River Basin		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
3.1.4 Flood Forecasting and Early Warning System	3.1.4.1 Strengthening hydrological and meteorological data observation network	3,100,000	DHM, MoHA, UNDP, WB, DWIDP, ICIMOD, IFRC, NRCS and identified DDCs/VDCs
	3.1.4.2 Development of telemetric systems for real-time data transmission		
	3.1.4.3 Development of weather forecasting and flood forecasting model		
	3.1.4.4 Flood warning mechanism and community outreach for flood forecast dissemination		
	3.1.4.5 Equipment purchase for enhanced weather forecast		
	3.1.4.6 CBDRM component in the Kosi Basin		
	Sub-total	21,100,000	
3.1.5 Strengthening Institutional Capacity Building	3.1.5.1 Strengthening DWIDP and DHM including training	5,100,000	DWIDP, DHM, MoHA, WB, UNDP (DHM being strengthened through PPCR: Building Resilience to Climate Hazards Project)
	3.1.5.2 Establish Flood Forecasting Centre		
	3.1.5.3 Training to DHM staff		
	3.1.5.4 System Design and Integration, Project Management and Monitoring		
	3.1.5.5 'Twinning' operation support from advanced NMSs and WMO		
	Sub-total	26,200,000	
	Total	26,200,000	

This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org

“FLAGSHIP 4 target is the completion of Community Based DRR activities in 1,000 Village Development Committees (VDCs)/ municipalities over 5 years”



FLAGSHIP 4:
INTEGRATED
COMMUNITY - BASED
DISASTER RISK
REDUCTION

Aim of **FLAGSHIP 4**



FLAGSHIP 4 is a coordination and advocacy mechanism for community based disaster risk reduction/management (CBDRR/M) in Nepal. It aims to build a common understanding and approach among the many organisations contributing to CBDRR/M activities, to track progress against national targets and encourage greater investment for scaling up CBDRR/M across the country.

Background

Communities bear the brunt of most disasters in Nepal, which cost not only lives and property but also set back development gains. These same communities are also at the forefront of disaster risk reduction and response.

Community-based disaster risk reduction is a practical approach that supports community efforts to increase their own disaster resiliency and allows them to better withstand the impacts of disasters.

FLAGSHIP 4's Target

Completion of 1,000 CBDRR/M activities at village development committee /municipality level within 5 years.



Flagship 4 has an agreed set of minimum characteristics of a disaster resilient community in Nepal. This approach ensures that communities receive consistent CBDRR/M support and encourages greater investment for scaling up CBDRR/M.

Reducing the community's vulnerability to disasters is also a proven cost effective way of mitigating risks that threaten lives and livelihoods across Nepal. For instance, when disaster strikes, the community and those from neighbouring areas are always the first responders, so providing training and assembling taskforces enables communities to undertake light search and rescue, first aid and initiate relief measures to save lives.

Empowering communities to increase their resilience to disasters requires a sustained effort and tailored to the specific hazards in

each area, an approach that must be scaled up across the country to reach as many communities as possible. Nepal has over 39500 village development committees (VDCs) and 58 municipalities, each facing a range of risks to disasters, risks that are increasing due to climate change, improper land use, rapid population growth and urbanisation. Each VDC /municipality is unique, varying in size, density (rural versus urban settings) and landscapes that span mountainous, hill and flat Terai regions. The vulnerability of each community varies according to its geographical characteristics, topography, population, quality of infrastructure, access to services, existing economic opportunities and the level of social cohesion and social capital.

For example, a rural community at risk of flash flooding requires a different approach to an urban community at risk of a major earthquake.

There is also great diversity within each VDC /municipality and even within smaller communities, with multiple languages, ethnicities and religious groups represented. Such diversity in composition and capacity requires a customised strategy for disaster risk reduction.

With the adoption of the HFA, the Government of Nepal (GoN) has committed

International Federation of Red Cross and Red Crescent Societies (IFRC) leads flagship 4 in partnership with Nepal's Ministry of Federal Affairs and Local Development (MoFALD)

to disaster risk reduction at the national and local levels. Based on this framework, the government's National Strategy for Disaster Risk Management (NSDRM) acknowledges the role of the community in disaster risk management and prioritises local level implementation capacity.

In order to support communities becoming more disaster resilient, the GoN has been promoting community-based disaster risk management. This has been recognised in the Local Self-Governance Act (1999), which emphasises a number of risk reduction measures to be designed and implemented at the local level. The Local Disaster Risk Management Planning (LDRMP) guidelines (2011) were also approved by the Ministry of Federal Affairs and Local Development and describe the process for developing a disaster management plan at the VDC /municipality level in consultation with community members. However these initiatives face a number of challenges, including limited institutional structures, lack of trained personnel in disaster risk reduction and insufficient resource allocation.

In addition to government mechanisms, an important contribution is being made by a large number of capable and experienced community-based organisations (CBOs), NGOs and other agencies, such as the Nepal Red Cross

FLAGSHIP 4 expected outcomes

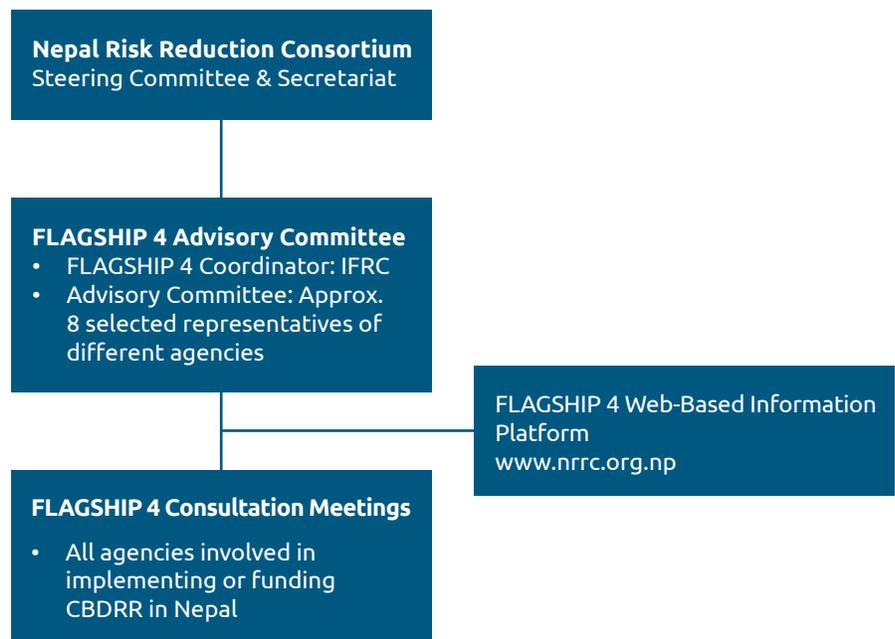
FLAGSHIP 4's strategy is to provide a technical framework and references to partners, to facilitate quality outcomes for on-going and planned CBDRR/M projects. The following seven outcomes have been identified so far:

- Establish a mechanism for coordination & collaboration of CBDRR/M issues
- Support development of common tools for CBDRR/M
- Identify hazard prone districts using secondary data
- Monitoring and evaluation of CBDRR/M progress nationally
- CBDRR/M advocacy at municipality, district & national level
- Information Platform for exchange of information on CBDRR/M in Nepal.
- Greater investment in CBDRR/M in Nepal



Society (NRCS). These organisations are helping at-risk communities to understand their vulnerabilities. They work with the community to undertake mitigation and adaptation actions, to act on hazard analysis and early warnings, and to plan and prepare for their eventual need to react to disaster events as first responders. Depending on the implementing organisation, many of these activities use different approaches, thematic emphases and target different stakeholders. This makes it difficult to track and evaluate overall progress towards creating nation-wide disaster-resilient communities and reinforces the need for FLAGSHIP 4 as a mechanism for building consensus and ensuring good coordination and information sharing.

FLAGSHIP 4 Coordination Mechanism



FLAGSHIP 4 Coordinator

The FLAGSHIP 4 coordinator, appointed by the International Federation of Red Cross and Red Crescent Societies (IFRC), provides coordination and technical support for FLAGSHIP 4, including coordination with stakeholders, managing annual work plan, and advocacy for FLAGSHIP 4.

FLAGSHIP 4 Advisory Committee

A small committee of representatives from IFRC, the Ministry of Federal Affairs and Local Development (MoFALD), Ministry of Home Affairs, UN, representatives from disaster management associations, and donors act as the Advisory committee and decision making body for FLAGSHIP 4. The Advisory committee meets regularly and has specific terms of reference.

FLAGSHIP 4 Consultation Meetings

There are meetings for all stakeholders interested in CBDRR/M, including representatives from Government, donors and implementing partners. These meetings are held periodically to develop and advocate the adoption of common approaches and tools for disaster risk management, as well as exchange information on the progress of FLAGSHIP 4.

Support development of common tools for CBDRR/M

FLAGSHIP 4 has developed common tools for CBDRR/M projects in Nepal, including minimum characteristics of a disaster resilient community and training packages.

Minimum Characteristics of a Disaster Resilient Community

FLAGSHIP 4 members have agreed 9 minimum characteristics of disaster-resilient communities in Nepal that should be included as a minimum component in all community based disaster



Integrated CBDRR/M requires a number of initiatives to ensure communities are prepared for disasters. An example may include flood platforms designed to provide a safer space for vulnerable groups when floods do occur.

risk reduction projects registered with FLAGSHIP 4. These agreed indicators have been designed in consultation with Government of Nepal, INGOs, NGOs, UN, donors and Red Cross / Red Crescent movement.

Using these 9 minimum characteristics of a disaster resilient community, FLAGSHIP 4 aims to ensure that communities receive consistent community based disaster risk reduction support. The minimum characteristics also provide a means through which FLAGSHIP 4 can effectively track progress towards increasing disaster resiliency at VDC /municipality level across the country.

FLAGSHIP 4 advocates to implementing partners, donors and government for the inclusion of these minimum characteristics into existing and planned CBDRR/M projects. For more information on each individual characteristic including case studies on the implementation and challenges of each of the characteristic, see the minimum characteristics handbook, available online www.nrrc.org.np

Develop training package

As part of development and advocacy of the minimum characteristics, a training package has been developed for partners that can be integrated into partner organisation trainings of project staff and incorporated into planning discussions with community and government members. The package includes information on the NRRC, FLAGSHIP 4, minimum characteristics and mapping of CBDRR/M projects. In addition, materials such as a minimum characteristic one-pager and notebook are also available for partner organisations to distribute during training sessions.

Common approach to vulnerability capacity assessment

FLAGSHIP 4 is assembling a virtual knowledge library of CBDRR/M materials specific to Nepal. As part of this, current vulnerability and capacity assessment models will be collected and analysed to identify commonalities and minimum elements recommended for inclusion in all assessments.

Minimum Characteristics of a disaster resilient community in Nepal

FLAGSHIP 4 – Integrated Community Based Disaster Risk Reduction

Flagship 4 on Community Based Disaster Risk Reduction (CBDRR) is one of the five flagships of the Nepal Risk Reduction Consortium. It aims to develop consensus among the many organisations contributing to CBDRR across the country towards a common approach to achieve national targets and encourage greater investment for scaling up CBDRR in Nepal. Flagship 4 is led by the Ministry of Local Development with support from the International Federation of Red Cross and Red Crescent Societies (IFRC) and is targeting the completion of 1,000 CBDRR projects at VDC level within 5 years. Projects can be tracked online at: <http://www.nrrc.org.np/>

These minimum characteristics are the agreed indicators for a disaster resilient community in Nepal which should be included as a minimum component in all Flagship 4 CBDRR projects. They were developed through a consultative process involving the Government of Nepal, INGOs, NGOs, UN, donors and Red Cross/Red Crescent movement. CBDRR projects are also encouraged to include additional indicators wherever possible.

	Organisational base at Village Development Committee (VDC) / ward and community level	1
	Access to Disaster Risk Reduction (DRR) information	2
	Multi-hazard risk and capacity assessments	3
	Community preparedness / response teams	4
	Disaster Risk Reduction / management plan at Village Development Committee (VDC) / municipality level	5
	Disaster Risk Reduction (DRR) Funds	6
	Access to community managed Disaster Risk Reduction (DRR) resources	7
	Local level risk / vulnerability reduction measures	8
	Community based early warning systems	9

Identification of hazard prone districts

During 2010, FLAGSHIP 4 Consultation Meetings identified 47 of the most vulnerable districts in Nepal based on a number of key sources of secondary data. This data included the Nepal Multi-Hazard Scenario Assessment (Asian Disaster Pacific Centre, GeoHazards International, Centre for International Studies and Cooperation) and the Nepal Vulnerable Districts to Disasters, 1971-2007 (DesInventar: UNOCHA, GoN).

These 47 'focus districts' are designed to act as a guide only and do not take into account very recent disasters, such as the 18 September 2011 earthquake. Potential implementing partners and donors may wish to use this information to determine the location of new projects by identifying where work is not underway.

Projects taking place outside of the focus districts will still be included as part of FLAGSHIP 4 and will not be negatively impacted in any way.

Monitoring and Evaluation

Project Mapping of CBDRR/M activities in Nepal

One of FLAGSHIP 4's objectives is to map where CBDRR/M projects are being conducted throughout Nepal. Also included is such information as geographical location, funding, donors, implementing and local partners, number of beneficiaries and how the project may relate to such sectors as climate change or health.

This mapping can be used to identify geographical gaps in CBDRR/M in Nepal and inform implementing partners and donors of areas potentially in need of CBDRR/M projects.

To view the current results of the mapping, which is being continuously updated please visit www.nrrc.org.np

Project Tracking Survey

A FLAGSHIP 4 project tracking system working group has developed an online project tracking survey to track how CBDRR/M projects being implemented in Nepal are contributing to the disaster resiliency of communities and more broadly, nationally, including how projects are achieving FLAGSHIP 4's 9 minimum characteristics.

Any implementing partner of a CBDRR/M project or project with a component of CBDRR/M is encouraged to complete the 15 minute

online project survey. The survey was launched in August 2012 and several clinics were conducted in the 3rd quarter of 2012. Printable versions will also be available online in both Nepali and English.

An analysis of survey results, which will be available online, will provide information such as:

- which of the 9 minimum characteristics are most frequently achieved
- which communities /VDCs have
 - * completed disaster management plans
 - * trained in first aid, light search and rescue or other services
 - * a community-based early warning system

FLAGSHIP 4 will use the survey results to track national progress in CBDRR/M, promote good practices and seek to identify any significant gaps.

Advocacy

As part of FLAGSHIP 4's advocacy and coordination mandate, FLAGSHIP 4 has conducted multiple national workshops, district and municipality consultations, with more planned for the future.

Knowledge sharing workshops

Encouraging CBDRR/M partners to share new knowledge and learnings on CBDRR/M and other key issues, such as social inclusion and climate change, is an important role of FLAGSHIP 4. In 2012/13 there are several thematic workshops planned, that will focus on Urban DRR, links with CBDRR/M and education, health, climate change and early warning systems. FLAGSHIP 4 aims to link CBDRR/M with other FLAGSHIP programs and promote any synergies that may exist.

Cross partner field visits

FLAGSHIP 4 will facilitate field visits that visit multiple FLAGSHIP 4 implementing partner projects to discuss learnings, promote best practices, and identify how projects are integrating minimum characteristics into the community and what effects are they having. Field visits also serve to promote work of FLAGSHIP 4 members and demonstrate the effectiveness of scaling up CBDRR/M across Nepal.



Raising awareness and interacting with communities is crucial for ensuring sustained community resilience to disasters. Street drama performances are an effective and interactive way to communicate disaster risk, like this one shown in the slum area of Kathmandu where people are being taught about earthquake risk and the importance of preparedness.

District /municipality consultations

FLAGSHIP 4 conducts district level consultations to strengthen the involvement of community-based organisations with FLAGSHIP 4, advocate for the inclusion of the minimum characteristics in CBDRR/M projects, and to create awareness of the importance of CBDRR/M at the community and local government level.

Advice on methodologies and project proposals

When requested by partners, FLAGSHIP 4 is able to provide suggestions on methodologies and project design to facilitate the implementation of CBDRR/M projects. This includes reviewing projects to determine their compliance with the minimum characteristics of a disaster resilient community.

Online Information Platform

www.nrrc.org.np

FLAGSHIP 4 information platform details all of the FLAGSHIP information for donors, implementing partners, community members, government and other interested parties.

Information includes:

- Interactive map showing the location and details of CBDRR/M projects planned or currently underway
- Online project tracking survey and analysis of results
- 9 Minimum characteristics of a disaster resilient community in Nepal and related information
- Virtual knowledge library of CBDRR/M materials for Nepal, including best practices and case studies
- FLAGSHIP 4 documentary
- News, events and latest information on FLAGSHIP and CBDRR/M activities in Nepal
- Information and minutes from meetings

Materials

FLAGSHIP 4 actively promotes the work of the FLAGSHIP and NRRC to donors, implementing partners and other interested parties through the development of promotional materials, presentations and information sharing.

Resource mobilisation

FLAGSHIP 4 supports the identification of potential new funding sources for CBDRR/M activities and provides linkages with potential implementing partners. This includes the promotion of partner activities on the information platform and encouraging donors to promote their funding mechanisms on the information platform.

FLAGSHIP 4 does not itself implement any CBDRR/M projects but tracks CBDRR/M projects being implemented in Nepal.

TABLE 4.1 | Joint Programme Results Budget

Expected Outcome	Flagship 4: CBDRR		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
Establish a FLAGSHIP 4 Coordination Mechanism	Appoint FLAGSHIP 4 Coordinator	100,000	IFRC
	Establish F4 Advisory Committee with regular meetings		MOFALD, MOHA, UN, AINTGM, DIPECHO, DP-Net, IFRC
	Establish F4 Consultation group with at least 1 meeting per quarter		FLAGSHIP 4 members
	Establish a web-based information platform		
Identify hazard prone districts using secondary data	Identify hazard prone districts using secondary data	-	FLAGSHIP 4 members
Develop Common Tools for CBDRM Projects	Adopt a minimum set of indicators or characteristics of a disaster resilient community in Nepal	2150	FLAGSHIP 4
	Develop training package on the minimum characteristics for staff and volunteers		
	Analysis of Vulnerability and Capacity Assessment (VCAs) and minimum elements recommended for inclusion in all assessments		
	Sub-total	102,150	
Trainings/workshops for National, district and VDC/municipality level stakeholders	Training/workshops on thematic areas for all levels including urban disaster risk management. This also includes workshops for facilitators on Flagship 4 tools such as the minimum characteristics	40,000	
	Sub-total	40,000	
Implementation of DRM projects in 1,000 VDCs *(by implementing partners (Note. This is an estimation of costs of implementing a basic CBDRR/M project at VDC level)	At district level discuss and identify potential vulnerable VDCs to target	39,500	Implementing partners
	Establish VDC/ ward/ community coordination mechanism		
	Train community action teams / social mobilisers to conduct VCAs		
	Prepare a DRR/M plan including identification of hazards and prioritization of communities / wards of mitigation activities		
	Ensure all minimum characteristics of a disaster resilient community have been integrated into project plan		

TABLE 4.1 | Joint Programme Results Budget

Expected Outcome	Flagship 4: CBDRR		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
	Establish a DRR fund		
	Establish / strengthen DRR information mechanisms at VDC/ ward/ Community level		
	Conduct feasibility of EWS in community and set up link to EWS at minimum		
	Establish / strengthen VDC/ community preparedness and response mechanisms		
Sub-total	1000 VDCs / municipalities	39,500,000	
Additional implementation activities (optional)* (Note. This is an estimation of costs of implementing additional aspects of a CBDRR/M project at VDC / municipality level)	Prepositioning of boats	9,300	Implementing partners
	Identification / construction and management of evacuation shelters		
	Identification of community level small scale mitigation measures and develop mitigation plans		
Sub-total	500 VDCs	4,650,000	
Advocacy	National level workshops	50,000	Flagship 4
	District level consultations and workshops		Flagship 4
	Website development and maintenance	6,000	Flagship 4
	Materials for training and advocacy	8,000	Flagship 4
	Sub-total	64,000	
Monitoring and Evaluation	Establish project tracking working group	700	Flagship 4
	Develop and implement project tracking survey	4,000	Flagship 4
	Field visits to 50 VDCs / municipalities (5 per year)	20,000	Flagship 4
	Sub-total	24,700	
	Total	44,380,850	

This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org

- The budget figures do not include indirect costs for implementing agencies which would be included as part of specific project budgets.

“FLAGSHIP 5 will integrate DRM in plans, policies and programmes at national, district and local levels and strengthen the enforcement and compliance of building codes”



FLAGSHIP 5:
POLICY & INSTITUTIONAL
SUPPORT FOR DISASTER
RISK MANAGEMENT

Use of building codes, which are crucial for earthquake resilient construction, are compulsory in municipal areas but the implementation process lacks definition and enforcement is weak. Sustaining the integration of DRM and protecting investments made in development require a strong, implementable and results-based system.

FLAGSHIP 5 will partner the government with key institutional stakeholders and the private sector to help Nepal implement a safe, risk-resilient development pathway. FLAGSHIP5 will support the implementation of the NSDRM with a focus on updating and upgrading the various legislation, policies and plans which need to be made consistent with the strategy. This will be accompanied by a comprehensive mainstreaming process and support to capacity implementation development.

Joint Programme Implementation and Outcomes

Institutional and Policy Support to implement the National Strategy for Disaster Risk Management

The approval of the NSDRM in 2009 was a major achievement for the government. The various instruments—legislation, policies, and plans – now need to be harmonised with it for consistency, as they were originally developed through separate processes and mechanisms. This mainstreaming needs to take place not only at national level, but also at the district and local government levels. Policies to be considered include, but are not limited to, the Environment Policy, Land-Use Policy, National Shelter Policy and National Urban Policy. It is necessary to support individual sectors to develop guidelines and frameworks for mainstreaming DRR into their strategies, planning guidelines and development control regulations. This requires developing sectoral planning guidelines and action plans to integrate DRR into a range of key government ministries including MoPPW, MoFALD and the Ministry of Forest and Soil Conservation, Agriculture and Cooperation. As the central focal agency for disaster response and relief issues, MoHA will require additional capacity-building support to oversee the coordination and implementation of the NSDRM and its identified priorities. The strengthening and formalisation of this network will facilitate sector mainstreaming of DRM and improve inter-agency cooperation. This will allow MoHA to guide and support other ministries, sector-specific agencies and local



Kathmandu Valley is rapidly urbanising. However, this urbanisation is being done in an haphazard manner, which is creating new risk.

authorities on DRM issues. Support will also be provided for upgrading the equipment and facilities within the ministry, as well as to activities which enhance cooperation among ministries, local government and non-state actors as well as the IASC cluster system and international humanitarian actors. Considering the key areas of the national strategy, partnerships to support the government to create a national DRM authority that is adequately resourced will also be required.

In order to develop effective DRM structures in Nepal, it is essential to ensure the level of consistency in the way in which hazard, vulnerability and risk assessments are undertaken. Basic national guidance on how to assess multi-hazard risk will be necessary. One activity to be performed

will be practical trials to apply multi-hazard, vulnerability and risk assessments in new development projects at the VDC level.

Strengthening the application of building codes and supporting risk-sensitive land use planning

As the most rapidly urbanising country in South Asia, Nepal has the opportunity to make sure that new constructions and urban settlements reduce, not exacerbate, urban risk. Ensuring that new constructions are built to code will reduce the future need for retrofitting key infrastructure (see FLAGSHIP 1).

FLAGSHIP 5 will support the review of existing building by-laws, the development

of necessary guidelines in areas like retrofitting, control regulations and planning acts. It will enhance the government's capacity to implement the Nepal Building Code, train engineers and masons on seismic construction, train municipalities in conducting hazard, risk and vulnerability assessments, update sections of the code in line with national needs and strengthen implementation of the building permit process. The approach has been developed based on previous projects that have begun to review the building code, develop training curricula and pilot capacity-building and awareness-raising activities. These activities must be based on the realities of the existing building practices in Nepal, where the majority of building stock is non-engineered and often built by non-trained owner-builders.

Building codes is just one component of a shift that has begun in Nepal towards supporting risk-sensitive land-use planning (RSLUP). Land-use planning is a core function of local government and a key instrument of urban development, environmental protection, resource conservation, historic and cultural preservation, and social advancement. A good risk-sensitive land-use plan will explicitly incorporate risk reduction in reaching sustainable development and climate change adaptation goals.

FLAGSHIP 5 will support the finalisation of RSLUP for Kathmandu City and replicate



FLAGSHIP 5 is supporting efforts to strengthen the compliance and enforcement of building codes. This includes working with municipalities and local masons on earthquake resistant construction techniques.

the concept to the entire Kathmandu Valley as one megacity. It will mainstream DRR in urban development in the context of both new, often high-rise, developments and the re-development of existing urban neighbourhoods. Many of these are at high risk of collapse from an earthquake, and house the poor and the underprivileged that have no prospect to invest in renovations. The approach builds on a pilot initiative undertaken in 2007 by Kathmandu Municipal Council with technical and management support from Earthquake and Megacities Initiative (EMI) and NSET.

Future activities will build on this experience and will extend the concept to the other municipalities of KV. The process will provide a framework for development, land allocations and related strategies, policies and regulatory tools and procedures for controlling future growth



Haphazard construction, like the building in the photo, is common in Nepal. These practices are putting lives and livelihoods at risk.

and safeguarding it from natural hazards. The development of a land-use plan will be supported by a training program to improve the qualifications of planners, regulators and other allied professional groups. It will include an awareness campaign to explain the necessity for planning principles and regulation to be respected by all stakeholders. This component of the program will establish regulatory controls for the location and design of future schools, hospitals and other critical facilities, thus ensuring long term sustainability.

The plan will be adopted by government institutions that have mandate over land use in the country such as the Kathmandu Valley Town Development Authority, MoFALD, MoHA and MoPPW. It will become a model for other cities.

The two components (RSLUP and future critical infrastructure) have been scheduled for a 3-year period, with the third year extending the project from Kathmandu City to the Kathmandu Valley.

Another component of the project is to support strengthening of DRM capacity within the municipalities, and to learn lessons from systems recently developed in Kathmandu Metropolitan City (KMC). This component will develop regulations, operational procedures, contingency plans and other related elements. It will

support FLAGSHIPS 2 and 4 in testing basic emergency plans, developing drills and exercises and developing a community awareness program. The project will extend to community level by reinforcing the current ward-level disaster management committees and their capacity, which, for the most part, are ineffective. The project will build staff competency through a hands-on 34-hour training course and complete and test a city-wide Emergency Operation Plan.

Strengthening National Institutions for DRM Capacity Building

DRM requires a strong technical human resource base for achieving national DRM and for enhancing program effectiveness. An important programme goal is to develop DRM skills amongst government officials, professionals, NGOs, civil society and other stakeholders. Increasing the in-country technical capacity for a range of DRM functions will be critical to the success and sustainability of consortium efforts. FLAGSHIP 5 aims to work with key existing training institutions including the Staff Training College, Local Development Training Academy, Engineering Council and top academic institutions to expand the range and increase the quality of DRM related training services available in country.



Government officials meet to discuss mainstreaming DRM into development planning

Including DRM as part of regular institutional courses for civil servants, police and army, and promoting official certification where possible, will increase the sustainability, cost effectiveness and demand for skills upgrading. Specific programs tailored to the technical needs of engineers, masons, planners and designers will also be designed.

Directed research scholarships where Nepali graduates research specific DRM issues and problems pertinent to national and local DRM issues will also be supported. Efforts will also be made to further include DRM in the school curriculum.

Orienting Financial Mechanisms Towards Risk Reduction & Risk Management

Nepal is largely relief and response oriented. To shift to a pro-active, long-term

risk reduction and mitigation approach, advocacy, sensitisation and practical trials are required. In this intervention, the program expects to work with key stakeholders including the Ministry of Finance (MoF), National Planning Commission (NPC) and Nepal Rastra Bank (NRB) to provide technical advice on financing and facilitating pro-active risk reduction.

It will also explore different ways in which appropriate budgetary support can be provided to the national government, local administration and self-governing institutions for reducing disaster risk at each level.

Actions to encourage appropriate mechanisms for risk transfer, micro-insurance and micro-finance to build a culture of risk reduction and mitigation at community level will also be supported. Some of the financial services may be used to provide incentives for hazard resistant construction or livelihood practices.

Active engagement with private sector stakeholders such as banks and insurance companies is a key element to achieve real progress in this regard. It will involve market assessments of customer needs, as well as a review of domestic and international best practice products with a view to developing and testing micro-insurance and micro-financing products that might be useful in a Nepal consumer context.

Support Mainstreaming DRM & Climate Change Adaptation into Development Planning Process at all Levels

Nepal is impacted by climate change and climate variability, partly evidenced by the increasing number, frequency, and intensity of hydro-meteorological disasters. As a consequence, the susceptibility of local communities and their livelihood patterns is likely to increase further in coming decades. This flagship will support the formulation and implementation of feasible and sustainable local level climate adaptation and risk reduction measures. This will ensure that sectors such as agriculture, water, environment and health are better prepared to cope with climate related hazard events. It will also include the development of local-level climate risk management interventions helping communities to adopt sustainable farming, water use practices, alternative livelihoods and disaster preparedness.

HIGH PRIORITY AREAS FOR FLAGSHIP 5

- Institutional & policy support for NSDRM
- Increasing use of building codes & supporting RSLUP
- Strengthening national institutions for DRM capacity building
- Aiming financial mechanisms to risk reduction & management
- Mainstreaming DRM & climate change adaptation in the development planning process



This intervention is expected to proceed on several fronts, bringing the DRM and climate change adaptation (CCA) communities together to develop functional cooperation mechanisms. A practical, mutually agreed agenda is pivotal to mainstreaming DRM and CCA. This will start at the central level between MoHA, MoEST and focal agencies for DRM and CCA respectively.

Entry points and modalities for mainstreaming DRM and CCA within local government strategies and plans will be identified by a technical working group looking at key sectors. Activities to be supported include building natural hazard and climate change impact assessments into the existing national environmental impact assessment, and providing training and mentoring support to key government departments working on CCA and risk reduction.

TABLE 5.1 | Joint Programme Results Budget

Expected Outcome	Flagship 5: Policy/Institutional Support for DRM		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
5.1.1 Institutional and policy support to bring policies in line with the National Strategy for Disaster Risk Management	5.1.1.1 Upgrade relevant policies at local & national levels; integrate DRM into periodic planning process	800,000	MoHA, NPC, MoFALD, MoFSC, MoAC, UNDP, UNICEF, ADPC, NSET, other national and international NGOs
	5.1.1.2 Mainstream DRR guidelines in strategies for NPC, MoPPW, MoFALD, MOHA and key sectoral ministries and departments	550,000	
	5.1.1.3 Capacity building for MoHA for the implementation of NSDRM, including data management upgrades	500,000	
	5.1.1.4 Develop & update government system and database for disaster information	200,000	
	5.1.1.5 Strengthen system of DRM/ CRM focal points in key government ministries through targeted training and advocacy	600,000	
	5.1.1.6 Support government change processes as per the Emergency Response Framework, and key new policies and legislation based on the NSDRM	350,000	
	Sub-total	3,000,000	
5.1.2 Strengthen the application of building codes and support risk sensitive land use planning	5.1.2.1 Review of National Building Codes, by-laws, regulations and planning acts; enhance GoN and municipalities' capacity to implement the code	1,120,000	Municipalities, MoHA, MoFALD, DUDBC, MoPPW, KVTDC, NPC, UNDP, NSET
	5.1.2.2 Scale up certified masons training in line with curricula; expand technical training opportunities in seismic resilience for Engineers and specialists	500,000	
	5.1.2.3 Development of RSLUPs for Kathmandu City and KV Megacity	2,080,000	
	5.1.1.4 Implement government building code compliance strategy, including digitization of the permit approval process and GIS mapping of all buildings in KV	1,300,000	
Sub-total	5,000,000		

TABLE 5.1 | Joint Programme Results Budget

Expected Outcome	Flagship 5: Policy/Institutional Support for DRM		
Joint Programme Outcomes	Outputs/Activities	Budget (US\$)	Potential Partners
5.1.3 Strengthen National Institutions for Disaster Risk Management Capacity Building	5.1.3.1 Assess municipal, district, and national DRR training needs; develop programmes and implement training	1,000,000	MoHA, NRCS, MoFALD, TU, KU, MoE, NPC, NSET, DPNet, OCHA, UNDP, IFRC
	5.1.3.2 Extend training program to state institutions - police and civil service	350,000	
	5.1.3.3 Develop certified technical programs for the construction sector - planners, designers, engineers, masons	350,000	
	5.1.3.4 DRM in school curriculum	1,050,000	
	5.1.3.5 Expand higher education opportunities on improved disaster resilience; improve access to small academic research grants for Nepal-focused DRM related analysis	250,000	
	Sub-total	3,000,000	
5.1.4 Orienting financial mechanisms towards risk reduction and risk management	5.1.4.1 Move to pro-active risk reduction with MoF, NPC and NRB	200,000	NRC, MoF, NPC, private sector, UNDP
	5.1.4.2 Review district and national calamity relief funds; explore budgetary support and options for all levels	100,000	
	5.1.4.3 Redirect or establish financial mechanisms for VDC, DDC and national DRM activities	400,000	
	5.1.4.4 Work with key private sectors (mortgage, insurance) to assess and develop initiatives to expand the range of risk transfer products in Nepal	300,000	
	Sub-total	1,000,000	
5.1.5 Support mainstreaming DRM and Climate Change Adaptation into development planning processes at all levels	5.1.5.1 Mainstream DRM and CCA with MoHA, MoEST and focal agencies	250,000	MoEST, MoHA, MoI, NPC, MoFALD, MoPPW, MoE, DHM, Early Warning Network Members, UNDP
	5.1.5.2 Review environment impact assessments to include DRR and CCA; train and mentor GoN departments	400,000	
	5.1.5.3 Develop minimum standards for hazard analysis and risk assessment across government	350,000	
	Sub-total	1,000,000	
	Total	13,000,000	

This workplan does not reflect achievements to date. For the latest updated results, please visit www.un.org.np/coordinationmechanism/nrrc or contact Giovanni Congi, Public Information Coordinator at giovanni.congi@one.un.org

ANNEXES



ANNEX 1

Composition and Functions of NRRC Steering Committee

Composition of Steering Committee

The Ministry of Home Affairs has the responsibility to make a congenial environment to ensure the effective implementation of the NSDRM. The strategy suggests the creation of a National Disaster Management Authority to coordinate with concerned government authorities and agencies in implementing the strategy. The MoHA is in the final stages of developing a new Bill to replace the current Natural Calamities Act, 1982. This will facilitate the creation of the new Authority. To manage the interim period, MoHA and the NRRC have proposed the Inter-Ministerial and Consortium Steering Committee to provide vision, strategic guidelines and technical support to implement the activities identified by the NSDRM, composed as follows:

National Steering Committee for Implementation of Flagship Programme

Secretary, Ministry of Home Affairs	Coordinator
Joint Secretary, Ministry of Finance	Member
Joint Secretary, Ministry of Education	Member
Joint Secretary, Ministry of Irrigation	Member
Joint Secretary, Ministry of Federal Affairs and Local Development	Member
Joint Secretary, Ministry of Physical Planning & Works	Member
Joint Secretary, Ministry of Health and Population	Member
Joint Secretary, National Planning Commission	Member
Resident and Humanitarian Coordinator, United Nations	Member
Resident Representative, AusAID	Member
Resident Representative, ADB	Member
Resident Representative, DFID	Member

Resident Representative, EU	Member
Resident Representative, IFRC	Member
Resident Representative, Japanese Embassy	Member
Resident Representative, UNDP	Member
Resident Representative, UNOCHA	Member
Resident Representative, USAID	Member
Resident Representative, World Bank	Member
Resident Representative, WHO	Member
Nepal Red Cross	Member
DPNet	Member
Joint Secretary, Ministry of Home Affairs	Member Secretary

Functions of the National Steering Committee

- Fund-raising and identification of funding sources & mechanisms
- Guidance on resource utilization and mobilization
- Provide strategic vision, guidelines and prioritization to the agencies
- Coordinate the government authorities and UN agencies
- Provide technical and administrative support to the concerned authorities
- Monitoring and evaluation of the five Flagship programmes

Operational Modalities

The committee shall function under the direction and guidelines of the government as per the NSDRM. The committee shall meet every first Monday of each quarter. MoHA shall function as a secretariat office of the committee. To support the secretariat, the consortium members shall deploy a senior officer as a national liaison officer.

Given that the nature of each Flagship is different, it is expected that sectoral authorities will guide and provide technical and administrative support. For proper implementation of the activities, a sub-committee comprised of representatives from the implementation partners shall assist the National Steering Committee for regular monitoring and evaluation activities.

ANNEX 2

NRRC Flagship Counterparts

	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5
Coordinator (Agency)	ADB & WHO	OCHA	World Bank	IFRC	UNDP
GoN Focal Point (Ministry) * Lead Focal point in bold	MoE MoHP MoPPW	MoHA	Mol - Dept of Water Induced Disasters MoEnv – Dept. of Hydrology & Meteorology	MoFALD	MoHA Office of the Prime Minister NPC MoLJ

Annex 3

Terms of Reference NRRC Secretariat

Objective

To provide technical and advisory support to the NRRC Steering Committee and consortium members for implementation of the Flagship programmes.

Functions

- Support the strategic planning functions of the Steering Committee (arrange meetings, minutes etc)
- Act as liaison between the Steering Committee, consortium members and relevant ministries
- Conduct joint work-planning activities and support coordinators of each Flagship in managing annual work-planning processes
- Develop and implement a communications/media strategy in coordination with NRRC communication focal points as needed
- Support the development and implementation of a resource mobilization strategy and explore financial mechanisms
- Organise events as required (donor meetings, public information, trainings etc.)
- Provide templates for tracking on-going activities related to the programme, assist in tracking overall activities
- Prepare Consortium-wide reporting on progress and results
- Develop and provide regular updates of the Flagships internally to the consortium
- Develop and maintain a financial database of income and expenditures on behalf of the consortium
- Support monitoring and evaluation on the progress of project implementation

- Maintain documentation related to consortium activities and programmes, on-line and available in hard copy as needed
- Ensure coordination of NRRC efforts with other risk reduction efforts in Nepal
- Mobilise and supervise technical support as required

Operational Modalities

The Secretariat shall function under the direction of the Steering Committee and in close cooperation with designated consortium focal points to develop and coordinate programme activities with all implementing partners.

Composition

- Joint Secretary, MOHA
- Under Secretary, MOHA
- Senior Disaster Risk Reduction Advisor, UN ISDR
- Additional members may be designated as needed.

Support

Contributions from consortium members, both financial and in-kind (e.g. office space, computers, information management support, etc.) are expected.

Annex 4

Terms of Reference: Flagship 2 Advisory Committee

Purpose

The Advisory Committee will act as the decision-making body for Flagship 2 and will oversee the development, implementation, monitoring and reporting of the FLAGSHIP 2 Joint Programme Results. The Advisory Committee will also provide technical guidance on specific aspects of emergency first responder disaster risk reduction activities.

Composition of the Committee

Chair	Representative of MoHA
Secretary	FLAGSHIP 2 Coordinator (UN OCHA)
Members	Representative of IASC Clusters
	Representative from NRCS
	Representative from UNDP
	Representative of AIN/DPNET
	Representative from USAID/OFDA
Standing Invitee	NRRC Secretariat Coordinator

Specific tasks and responsibilities

Coordination

- Ensure effective coordination with the wider stakeholder group of FLAGSHIP 2 (government, implementing partners, and donors) through regular meetings.
- Develop a detailed annual work plan for FLAGSHIP 2 based on actual and expected funding and planned projects.
- Set priorities for implementation, and identify gaps in response activities and address funding gaps.

Technical support

- Develop and adopt additional standardized guidelines, tools, trainings and methodologies appropriate for the implementation of FLAGSHIP 2, with the expertise available from the INSARAG and UNDAC networks.
- Review project proposals, guidelines and materials of implementing partners to ensure conformity with proposals in FLAGSHIP 2.
- Provide suggestions on methodologies and project design to facilitate the implementation of emergency preparedness and response projects when requested by FLAGSHIP 2 partners.

Monitoring, evaluation and reporting

- Provide input into the establishment and maintenance of an effective tracking system for projects to capture key data such as geographical location, funding, donors/ implementing partners and scope of activities, in line with other NRRC tracking and reporting mechanisms.
- Provide input on FLAGSHIP 2 activities for NRRC Quarterly Updates.
- Provide input to FLAGSHIP 2 annual reports to the NRRC Steering Committee.
- Develop and implement an effective monitoring and evaluation mechanism to measure the overall progress of FLAGSHIP 2 Joint Programme Results.
- Encourage FLAGSHIP 2 implementing partners to implement a system of self-monitoring and evaluation to ensure that projects meet the agreed minimum standards.

Advocacy

- Provide input into the development of a web-based information platform.
- Actively promote the work of FLAGSHIP 2 and the NRRC to donors and other interested parties through the development of promotion materials, presentation and information sharing.
- Support strategic planning, advocacy and other initiatives of the NRRC as required.

Resource mobilisation

- Support the identification of potential new funding sources for FLAGSHIP 2 activities and provide linkages with potential implementing partners.
- Support the development of a pooled funding mechanism for partners, in consultation with the FLAGSHIP 2 Coordinator, NRRC Secretariat and NRRC Steering Committee.

Annex 5

Terms of Reference: Flagship 4 Advisory Committee

Overall purpose

The Advisory Committee will act as the decision-making body for FLAGSHIP 4 and will oversee the development, implementation, monitoring and reporting of the FLAGSHIP 4 Joint Programme Results. The Advisory Committee will also provide technical guidance on specific aspects of community-based disaster risk reduction based on feedback from the FLAGSHIP 4 Consultation Group.

Composition of the Committee

Chair	Representative of MoLD
Secretary	FLAGSHIP 4 Coordinator (IFRC)
Members	Representative of MoHA
	Representative from NRCS
	Representative from UNDP
	Representative of DIPECHO partners
	Representative of AIN
Standing Invitee	Representative from DFID
	NRRC Secretariat Coordinator

Specific tasks and responsibilities

Coordination

- Ensure effective coordination with the wider stakeholder group of FLAGSHIP 4 (government, implementing partners, donors) through regular meetings of the FLAGSHIP 4 Consultation Group.
- Develop a more detailed annual work plan for FLAGSHIP 4 based on actual and expected funding and planned projects.

Technical support

- Finalize and adopt a set of minimum characteristics for disaster-resilient communities and minimum common elements to be included in all FLAGSHIP 4 CBDRM projects, after receiving the necessary input from the FLAGSHIP 4 Consultation Group.
- Develop and adopt any additional standardized guidelines, tools, trainings and methodologies, as deemed appropriate for the implementation of FLAGSHIP 4, based on recommendations from the FLAGSHIP 4 Consultation Group
- Review project proposals, guidelines and materials of donors and implementing partners to determine conformity with the minimum characteristics and other standards described above.
- Providesuggestionsonmethodologiesandprojectdesigntofacilitate the implementation of CBDRM projects when requested by F4 partners.

Monitoring, evaluation and reporting

- Provide input into the establishment and maintenance of an effective tracking system for FLAGSHIP 4 projects to capture key data such as geographical location, funding, donors/implementing partners and scope of activities, in line with other NRRC tracking and reporting mechanisms.
- Provide input on FLAGSHIP 4 activities for NRRC Quarterly Updates.
- Provide input into FLAGSHIP 4 annual reports to the NRRC Steering Committee.
- Develop and implement an effective monitoring and evaluation mechanism to measure the overall progress of FLAGSHIP 4 Joint Programme Results.
- Encourage FLAGSHIP 4 implementing partners to implement a system of self-monitoring and evaluation to ensure that projects meet the agreed minimum standards for FLAGSHIP 4.

Advocacy

- Provide input into the development of a web-based information platform for FLAGSHIP 4.
- Actively promote the work of FLAGSHIP 4 and the NRRC, to donors and other interested parties through the development of promotion materials, presentation and information sharing.
- Encourage FLAGSHIP 4 partners to share new knowledge and learning on CBDRR and other key issues such as climate change, for dissemination at national and international level.
- Support strategic planning, advocacy and other initiatives of the NRRC as required.

Resource mobilisation

- Support the identification of potential new funding sources for FLAGSHIP 4 activities and provide linkages with potential implementing partners.
- Support the development of a pooled funding mechanism for FLAGSHIP 4 partners if required, in consultation with the FLAGSHIP 4 Coordinator, NRRC Secretariat and NRRC Steering Committee.

ANNEX 6

Terms of Reference: NRRC Communications Group

Background

The NRRC Secretariat (with support from UNISDR) commissioned a communications strategy in 2011 which was then endorsed by a subset of the NRRC Steering Committee. The report recommended that communication on DRR should be harmonized to avoid mixed messages to the public, avoid confusion, and maximize impact.

The report identified two streams of work which could be improved upon. The first of these is to increase communication regarding the structure, objectives and progress of the NRRC and members. It was agreed that this should be undertaken by the NRRC Secretariat. The second work-stream is to present improved, coordinated and sustained public information campaigns. Work related to this currently exists under all Flagships and is carried out through a variety of mechanisms by multiple partners. As with all NRRC activity, the intention is to support the work of partners rather than to replace it. By better coordinating such public information work, sharing information on work already planned and harmonizing messages and approaches, the projects will have greater reach and more sustained impact. The messaging will be even stronger if it can be delivered in the name of the Government.

An initial stakeholders workshop was held in March 2012. There was agreement that this approach would be the most beneficial and there was willingness among the participants to coordinate. An initial mapping of who is doing what where was conducted at the workshop. Subsequently, the NRRC subgroup agreed that the second work-stream should be coordinated out of the NRRC Secretariat and, after deliberations, that BBC Media Action would operate as technical advisor to the group due to their relevant experience and self-funding ability.

Structure and Composition

The NRRC communications group will comprise of all interested NRCC members, project officers or others. The Chair will be the Section Chief, Disaster Management Section, Ministry of Home Affairs with BBC Media Action acting as a technical lead and supporting the coordination. The Communication Officer from BBC Media Action will give service meetings of the Communications group as well as monitor the implementation of its decisions.

Initial Objectives of the NRRC Communication Group

- Create a workplan for the group indicating the existing budget and identifying gaps. It will be subject to approval by the NRRC subgroup, MoHA and the NRRC Secretariat.
- To agree key messages ensuring that the group communicates with consistent information to encourage agreed behavioural change related to DRR.
- To liaise with the 5 Flagship Leads to better to support programmes and objectives.
- Undertake and keep updated a thorough mapping of NRRC communication partners and media to ensure that NRRC activities are coordinated.
- Undertake a humanitarian communications needs assessment of media, government, partners, private sector and beneficiaries.

Basic principles of the message

- The substance of key messages will be agreed and approved by the NRRC communication group before communication can begin.
- Means of communication will be the responsibility of the individual agencies but information on plans and time lines will be coordinated through the NRRC communication group.
- All messages are communicated on behalf of the Government of Nepal.
- All messages will respect national integrity, sovereignty, ethnic and religious cohesiveness and national interest.
- All messages should be directly related to disaster risk reduction.

ANNEX 7

DRR Definitions¹⁷

Adaptation	The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Building Code	A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.
Capacity	The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.
Capacity Building/ Development	The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.
Critical Infrastructure	The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.
Disaster	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.
Disaster Risk	The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.
Disaster Risk Management	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.
Disaster Risk Reduction	The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

¹⁷ Definitions from Terminology on Disaster Risk Reduction, NSET, Asian Disaster Reduction and Response Network, and UNISDR. 2010.

Early Warning System	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.
Exposure	People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.
Geological Hazard	Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Hydro-meteorological Hazard	Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Land Use Planning	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.
Mitigation	The lessening or limitation of the adverse impacts of hazards and related disasters.
Natural Hazards	Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Preparedness	The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.
Prevention	The outright avoidance of adverse impacts of hazards and related disasters.
Resilience	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.
Response	The provisions of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.
Retrofitting	Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.
Risk	The combination of the probability of an event and its negative consequences.

Risk Assessment	A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.
Structural and non-structural measures	Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard resistance and resilience in structures or systems.
	Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Annex 8

NRRC Current Partners

Action Aid, ADPC, ADRA Nepal, AIN, BBC Media Action, Care, Caritas, Cluster Partners, DIPECHO, Earthquake Without Frontiers, ECO Nepal, FAO, Handicap International, ICIMOD, ILO, IOM, Jagaran Media, John Sanday and Associates, Lutheran World Federation, Mercy Corps, Merlin, Mission East, NDRC, Nepal Rastra Bank, NSET, Oxfam, Plan, Practical Action, Private Sector (NCELL, Chamber of Commerce), Red Cross Societies, Save the Children, SCDRR, SOCOD, UNAIDS, UNESCO, UNFPA, UNHabitat, UNICEF, WFP, World Vision.



BIBLIOGRAPHY

BIBLIOGRAPHY

ADRC. (1998). Disaster Management Policies, Problems And Measures: The Case Of Nepal.

INEE, ISDR, GFDRR (2009). Guidance Notes on Safer School Construction.

MoHA (2009). National Strategy for Disaster Risk Management.

MoHA (2009). Nepal Disaster Report.

Central Bureau of Statistics. (n.d.). Central Bureau of Statistics. Retrieved from <http://census.gov.np/>

DesInventar. (n.d.). Desinventar Database. Retrieved from http://www.desinventar.net/DesInventar/profiletab.jsp#more_info

DesInventar. (n.d.). DesInventar Database Nepal. Retrieved from <http://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=np>

Dixit, A., Pokhrel, A., & Moench, M. (2007). Costs and Benefits of Flood Mitigation in the Lower Bagmati Basin: Case of Nepal Tarai and North Bihar. (M. Moench, & E. P. Caspari, Eds.) Risk to Resilience Working Paper No. 5.

GeoHazards International. (2001). Global Earthquake Safety Initiative (GESI).

GoN, Dept. of Agriculture. (n.d.). WEBPAGE TITLE? Retrieved from <http://www.doanepal.gov.np/>

Hyogo Framework for Action 2005-2015.

Joint Secretary, MoHA. (20??). Learning lessons from the past by preparing for the future. GoN.

Marasini, S. P. (2008). Country Paper on Disaster Risk Management in Nepal.

- MOE. (2004). Nepal Initial National Communication to the Conference of the Parties of the United Nations Framework Convention on Climate Change.
- NSET. (2008). ISDR Global Assessment Report on Poverty and Disaster Risk 2009: Global Assessment of Risk - Nepal Country Report.
- NSET. (2011). Snapshot Study for School Safety in Nepal.
- NSET, GeoHazards International. (2000). Seismic Vulnerability of the Public School Buildings of Kathmandu Valley and Methods for Reducing it.
- NSET, WHO-Nepal. (2003). Non-Structural Vulnerability Assessment of Hospitals in Nepal.
- NSET, WHO-Nepal. (2003). Structural Assessment of Hospitals and Health Institutions of Kathmandu Valley.
- Prathap, P. (2007). Country Approaches to Disaster Risk Mitigation in Nepal: From Vision to Implementation. Presentation, Regional Conference on Hazards of Nature, Risks and Opportunities for Development in South Asian countries.
- Regmi, B. R. (2007). Human Development Report 2007/2008 - Fighting climate change: Human solidarity in a divided world - Country Case Study - Nepal.
- Shrestha. (2008). Flash Flood Risk Management: Module 1: Community-Based Management..
- UNDP,BCPR. (2004). Reducing Disaster Risk: A Challenge for Development. UNDP/BCPR. 2004.
- UNESCO. (2009). Rapid Hazard and Risk Assessment, Post-flood Return Analysis.
- World Bank. (2005). Natural Disaster Hotspots: A Global Risk Analysis.

