NHSSP

Nepal Health Sector Support Programme III (NHSSP – III)

Post 2015 Earthquake Performance Appraisal Report

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Disclaimer

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Acronyms

BBB	Build Back Better
CDO	Chief District Officer
CDMM	Comprehensive Disaster Management Model
CLPCU	Centre level Project Coordination Unit
CNCRC	Central Natural Calamity Relief Committee
DDC/DCC	District Development Committee/District Coordination Committee
DEA	Detailed Engineering Assessments
DDMC	District Disaster Management Committee
DDRC	District Disaster Relief Committee
DFID	UK, Department for International Development
DHWG	Disaster Health Working Group
DP Net	Disaster Preparedness Network
DPRP	Disaster Preparedness and Response Plan
D(P)HO	District (Public) Health Office
DoHS	Department of Health Services
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRRT	District Rapid Response Team
DSLA	District Lead Support Agency
DUDBC	Department of Urban Development and Building Construction
EDCD	Epidemiology and Disease Control Division
EHA	Emergency Humanitarian Action
ERRP	Earthquake Risk Reduction and Recovery Preparedness Programme
EQ	Earthquake
GESI	Gender Equity and Social Inclusion
GON	Government of Nepal
HDAC	Health Disaster Risk Management Committee
HEOC	Health Emergency Operation Centre
HEPP	hospital and health facility emergency preparedness and disaster response plan
HFA	Hyogo Framework of Action
HP	Health Post
IDDM	Integrated Disaster Management Model
INGO	International Non-governmental Organisation
LDMC	Local Disaster management Committee
LDO	Local Development Officer
LDRMP	Local Disaster Risk Management Planning
LSGA	Local Self Governance Act
LNOB	Leaving No One Behind
MCM	Mass Causality Management
MoE	Ministry of Education
MoCTCA	Ministry of Commerce, Trade and Civil Aviation
MoHA	Ministry of Home Affairs
MoF	Ministry of Finance
MoFALD	Ministry of Federal Affairs and Local Development
MoH	Ministry of Health
MoI	Ministry of Irrigation
MoU	Memorandum of Understanding
MoUD	Ministry of Urban Development

NAPA	National Adaptation Programme of Action
NBC	Nepal Building Code
NRCS	Nepal Red Cross Society
NDRF	National Disaster Response Framework
NEOC	National Emergency Operation Centre
NGO	Non-government Organisation
NHSRP	Nepal Hospitals Seismic Retrofit Programme
NHSS	Nepal Health Sector Strategy
NHSSP	Nepal Health Sector Support Programme
NPC	National Planning Commission
NRRC	Nepal Risk Reduction Consortium
NRA	National Reconstruction Authority
NSET	National Society for Earthquake Technology
NSDRM	National Strategy for Disaster risk Management
PCU	Project Coordination Unit
PDNA	Post Disaster Needs Assessment and Recovery Plan
PDRF	Post Disaster Recovery Framework
PHCC	Primary Health Care Centre
RRT	Rapid Response Team
SAARC	South Asian Association for Regional Cooperation
SDE	Senior Divisional Engineer
SEARO	South East Asia Regional Office of WHO
SFDRR	UN Sendai Framework for Disaster Risk Reduction
T&T	Turner & Townsend
TUTH	Tribhuvan University Teaching Hospital
UN	United Nations
UNDP/BCPR	United Nations Development Programme/Bureau of Crisis Prevention and Recovery
UNISDR	United Nations Office for Disaster Risk reduction
WHO	World Health Organisation

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Executive Summary

The purpose of this report is to provide an overview of Disaster Risk Reduction (DRR) activities and policies in the Ministry of Health (MoH). It is prepared by the Nepal Health Sector Support Programme (NHSSP) and draws on a wide ranging assessment of effectiveness and performance for health services at four levels National, District, Municipal and Health facility. The report also uses short case studies as illustrative examples and illuminates variable degrees of performance and efficacy across the range institutions.

The Government of Nepal (GoN) has instituted various DRR measures and planning activities over the past 15 years. The MoH has gradually put in place hospital emergency preparedness plans, and a number of framework documents and guidelines to assist health institutions in contingency planning, capacity building and improving multi-sectoral coordination. While this is commendable and arrangements were seen to perform well in the aftermath of the Gorkha Earthquake, 2015, it appears that the emphasis remains on post-earthquake activities (rescue and relief, rehabilitation, and reconstruction). A more integrated approach is suggested by modern DRR practice, which would include measures for prevention and mitigation, as well as more robust actions of monitoring, evaluation, and feedback.

In summary, the report makes the following conclusions and recommendations:
- The MoH should ensure that the new national DRR policy and strategic action plan for the period up to 2030 should reflect aspects of the seismic resilience of health infrastructure and adaptation to climate change induced hazards.
- The new constitution establishes 744[1] local level authorities which will manage the hospitals and health facilities within their jurisdiction. The MoH should ensure each hospital has a hospital and health facility emergency preparedness and disaster response plan (HEPP) in place ready for incorporation with the local authority'sLocal Disaster Risk Management Planning (LDRMP) group.
- The MoH should ensure that examples of good practice relating to health sector DRR are circulated to provinces and local level authorities to strengthen the development of preparedness and response plans.
- It is recommended that the MoH include principles of Gender Equity and Social Inclusion (GESI) and Leave No One Behind (LNOB) as an integral part of health sector Disaster Risk Management (DRM) planning and implementation.
- While the MoH approach to DRR planning is improving, particularly in areas of preparedness and response, it can be argued that aspects of risk identification and management should be strengthened. The areas of disaster prevention and mitigation need to be considered equally as important as emergency response and relief. Monitoring, evaluation, and feedback activities also need to be strengthened. It is recommended that the MoH conducts a review of its current approach to DRR to identify areas for improvement and actions for implementation. Models for comprehensive integrated disaster management planning provide benchmarks against which the MoH's current practices can be tested.

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[1]This was increased to 753 in August 2017

Purpose of Study

The purpose of this report is to provide an overview of Disaster Risk Reduction (DRR) activities and policies in the Ministry of Health (MoH). This report makes a wide level assessment of effectiveness and performance for health services at four levels namely the national level, district level, municipal level, and health facility level. It also uses short case studies as illustrative examples for these aspects. The report illuminates variable degrees of performance and efficacy across the range of these institutions. It makes specific recommendations for areas of more detailed investigation and actions for the MoH.

Chapter One: Introduction

1.0 Background

1.1 Nepal Health Sector Strategy and Support Programmes

This report is produced under the Nepal Health Sector Support Programme (2016-2020). Performance in the Nepal health sector has gradually progressed over the past ten years under the first and second Nepal Health Sector Strategies (NHSS1 and NHSS2), as witnessed by annual reductions in the rates of maternal and under-fives mortality. The quality and performance of health infrastructure has steadily improved through better management by the MoH and support from Department of Urban Development and Building Construction (DUDBC). The Nepal Health Sector Support Programme (NHSSP) Health Infrastructure team has supported the MoH and DUDBC in strengthening the planning, programming, budgeting, and construction of health facilities.

The current phase of the NHSSP has three key performance areas:

- Building a strong policy environment, to ensure that the MoH and DUDBC adopt and implement relevant codes, standards, and guidelines for construction and maintenance of health facilities and infrastructure
- Enhancing the capacity of the MoH, DUDBC, and the private sector (including contractors and construction professionals) to be efficient, technically competent, and capable of implementing resilient design, construction, and maintenance
- Building resilient and effective health infrastructure to ensure that health facilities are retrofitted, rehabilitated, maintained, and monitored in earthquake affected districts, and that facilities are resilient to future seismic shocks, environmental impacts, and other natural disasters

These activities are intended to continue the improvements so far achieved in the MoH and DUDBC and maintained in the post-2015 earthquake period. The MoH's health infrastructure capital programme is the key to improving health infrastructure and generating employment and economic activity in the construction sector. To illustrate, the new build capital construction budget allocated from the MoH to the DUDBC for 2015/2016 was over 2.8 billion NPR. In addition to replacing the facilities destroyed or damaged in the earthquake, the MoH is required to upgrade and retrofit between 100 and 150 health facilities nationally each year, as part of the GoN's commitment to upgrading existing sub-par structures to higher standard health facilities. Consequently, the MoH's capital works programme will lead to the development of approximately 1,000 health facilities over the next five years, as part of ongoing improvements and to meet the health infrastructure roll out agreed under the new federal arrangement.

1.2 Disaster Risk Reduction Governance in Nepal

Risk

Nepal is highly vulnerable to different types of natural disaster including earthquakes and is in the top 20 of the most multi-hazard prone countries in the world. Its fragile geology, unplanned settlements, and poor construction practices mean that the country is ranked 11th in terms of earthquake risk (UNDP/BCPR, 2004 cited in MoHA & DPNet-Nepal, 2015). In addition, Kathmandu has been ranked as the most vulnerable amongst the 21 Megacities. (Uprety, 2009 cited in MoHA & DPNet-Nepal, 2015). Nepal has already faced several major earthquakes including A.D 1934, 1980, 1988 and 2015, which not only caused heavy loss of lives and properties but also adversely affected the development trajectory of the country as a whole.

Regulation

The 1988 earthquake led to the GoN producing the national building code 1994, Building Act 1998, and Building regulation 2009. Nonetheless, because of the lack of institutional capacity, monitoring the implementation of the building code has been a big challenge since 2005 when it was first legally enforced. The level of adoption and implementation of the building code across municipalities is variable. This brought the earthquake safety agenda into the building permit system, established the method and culture of peer review, the certification of construction practices, and monitoring building construction and development.

The GoN adopted the UN Hyogo Framework of Action (HFA) 2005-2015 which connected Nepal with the international DRR initiatives which motivated the GoN to put DRR into mainstream governance in the form of instruments, legislation, and institutionalisation. Subsequently, the GoN prepared the National Strategy for Disaster Risk Management (NSDRM) in 2009 which allowed the government to envision the prevention, mitigation, preparedness, response, and recovery actions through enabling policy and legal environment and strategic interventions. Further guidelines and action plans were produced, including the Nepal Disaster Response Framework (NDRF), National Adaptation Plan of Action (NAPA), Local Adaptation Plan of Action (LAPA), and Local Disaster Risk Management Planning Guidelines, 2068 (LDRMP Guideline). District level Disaster Preparedness and Response Plans (DPRPs) were prepared and different agencies and committees were formed at both local and community level. In addition, the Ministry of Physical Planning and works has implemented the Earthquake Risk Reduction and Recovery Preparedness Programme (ERRRP, 2007) that initiated updating some codes and capacity enhancement of the government and municipalities to enforce Nepal National Building Code. In 2009, Nepal Risk Reduction Consortium (NRRC) was created under the leadership of Ministry of Home Affairs (MoHA) to identify and implement key DRR interventions, with hospitals and schools as the first flagship priority area. The DUDBC have been doing peer reviews and design approval of hospitals and schools.

In 2015, the GoN adopted the UN Sendai Framework, incorporating DRR as a central tenet of its approach to disaster preparedness, reconstruction, and development (UN, 2015). In line with this framework, the GoN prepared the Post Disaster Recovery Framework (2016) and stresses the

importance of Building Back Better (BBB), with an integrated approach to reconstruction and community participation. The actions in the health sector over the next five years to 2022 include:

- Improving techno-legal requirements, such as building codes and standards
- Mainstreaming DRR into the development of the health sector and also including climate change adaptation
- Support for strengthening and retrofitting of hospitals and health posts
- Strengthening institutional capacity for disaster preparedness
- Applying BBB principles in the development of new health infrastructure, including a rigorous assessment of facilities' capacity, geography, and size of catchment

Institutional Capacity

The National Emergency Operation Centre (NEOC) was established in 2010 under MoHA. District Emergency Operation Centres in district level have been conceptualised, with 46 DEOCs already established. The NEOC aims to enhance national emergency and seismic response capacity in Nepal through effective operation of national and district emergency operations facilities and data systems. In line with NEOC's objective, the MoH set up the Health Emergency Operation Centre (HEOC) in 2012 as a central command and control facility for the effective administration of emergency preparedness and disaster management in any emergency situation. The HEOC hosts necessary resources and data for effective coordination and response during emergencies. The HEOC is designed to be equipped with communication and information technology material for communicating and coordinating with NEOC, Central Referral Hospitals, Regional hospitals, etc. so that HEOC can update data regularly and coordinate disaster response appropriately. HEOC also acts as the operational hub during emergency and non-emergency setting.

Health

The World Health Organisation (WHO) and National Society for Earthquake Technology (NSET) studies in the early 2000s revealed that 80% of hospitals were likely to perform poorly in earthquakes, while the remainder were at high risk of collapse. The MoH response has been to seek to strengthen disaster preparedness and improve the quality of infrastructure. Moreover, the Nepal Health Sector Strategy (NHSS) also emphasised the expansion of disaster preparedness at both district and local level and to promote modern innovative technologies to build disaster resilient health infrastructure (MoHP, 2015).

The NHSSP has provided assistance to the MoH and DUDBC to develop health facility standards and guidelines for quality assurance in the health sector (emphasising strict compliance with building codes), and support to apply these standard designs since 2005. Over 1400 new health facilities have been constructed according to these standards. The updated standard design guidelines were endorsed by the Council of Ministers in May 2017 (MoH, 2017).

In addition, DFID consultants conducted seismic vulnerability assessments of 59 hospitals in 2012. This was supplemented by damage assessments on nine hospitals in June 2015. Currently, the NHSSP is programmed to carry out retrofitting and rehabilitation of at least two hospitals, and provide support and capacity enhancement in designing and implementing retrofitting works by government staff.

Over the past ten years, the MoH has developed sets of standards and guidelines for the design, construction and maintenance of health infrastructure, while the GoN has introduced improved requirements for more robust infrastructure, including the Nepal National Building Code (NBC with amendment) (1994), National Strategy for Disaster Risk Management (2008) and the Reconstruction and Rehabilitation policy (2016), which promotes the principles of BBB in infrastructure provision.

The public health sector is restructuring under the transition to the new federal dispensation. This will require strong and consistent policy arrangements for health infrastructure across all structures of national and sub-national government, as well as support to the GoN's programme of continuous improvement.

1.3 Objectives of study
The objective of this exercise is to appraise and report on earthquake performance of the health sector in disaster preparedness and response to the Gorkha Earthquake 2015. The main aspects are:

- The MoH approach to disaster risk governance and disaster management
- Intergovernmental relations between district and local level government structures, External Development Partners (EDPs),and other concerned stakeholders regarding health sector preparedness and response to disaster
- A sample study of MoH and sub-national government responses to the Gorkha earthquake 2015, including recovery and reconstruction efforts
- Suggestions for interventions in comprehensive disaster planning and mainstreaming DRR in the health sector at all levels of governments

1.4 Scope of Study
The study involved visitsto the districts affected by the Gorkha earthquake to collect relevant data and to conduct interviews and consultations with representatives of the health sector at every level of government, EDPs,and stakeholders of health facilities. The limitations were imposed during the course of study are as follows:

a. Among the 14 crisis hit districts, only the districts of Kathmandu and Bhaktapur were considered in the study
b. In these twodistricts,four municipalitieswere selected as follows:
    a. Shankharapur Municipality
    b. Bhaktapur Municipality
    c. Kritipur Municipality
    d. Nagarjun Municiplaity
c. Amongst the health facilities in each municipality, only one of each type was considered in the study i.e. one Health Post (HP), one Primary Health Care Centre (PHCC), and one hospital.

Chapter Two: Methodology

2.1 Flow Chart of Methodology

The methodology of study undertaken in producing the earthquake performance appraisal report is presented in Figure (1) below.
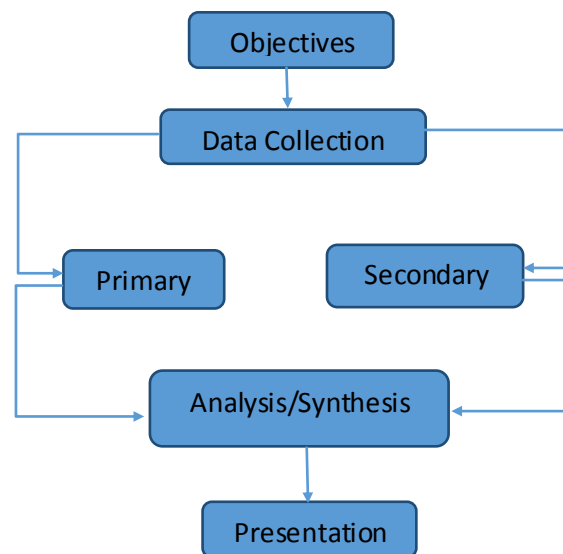

Figure (1): Research Methodology Flow Chart.

The study carried out the following activities:

- A review of the previous policies, studies, and documents with regard to DRR
- A review of damage assessments exercises post the Gorkha earthquake
- A review of coordination mechanisms regarding response to disaster situation
- Key informants interviews and consultation with relevant organisations
- An analysis and interpretation of findings
- Development of conclusions and recommendations for future policy inputs
- Ensuring the alignment with GESI and LNOB principles

2.2 Sources of Information for the Study

Central level information was collected from relevant health sectors stakeholders, including the MoH, MoFALD, MoHA, UN agencies, humanitarian agencies, EDPs, and Memorandum of Understanding (MoU) Partners on post-earthquake reconstruction (See list attached in Annex I).

The study sought to ensure that the information was collected from a representative selection of district, municipal, and local level structures. Two districts were selected from the 14 districts most severely affected by the Gorkha earthquake, namely, Kathmandu and Bhaktapur.

Kathmandu District was selected on the expectation that it would be a benchmark for good quality performance. Bhaktapur District included the Bhaktapur Hub Hospital which has also been identified as a target for NHSSP retrofitting support. The municipalities were identified using the following criteria:

a. Shankharapur Municipality : severely damaged by the Gorkha earthquake and far most municipality adjoining Sindhupalchowk District
b. Bhaktapur Municipality: majorly hit municipality and with a Hub Hospital i.e. Bhaktapur Hospital
c. Kritipur Municipality: geographically located in the hills and, as one of the oldest municipalities in Nepal, it was anticipated that it would have strong institutional arrangements
d. Nagarjun Municipality: adjoining with Dhadhing District, a new municipality, and nearest to the centre
e. Each Municipality should include facilities in categories of Health Posts, PHCCs and hospitals.

The sample selection is shown in Figure (2) below.
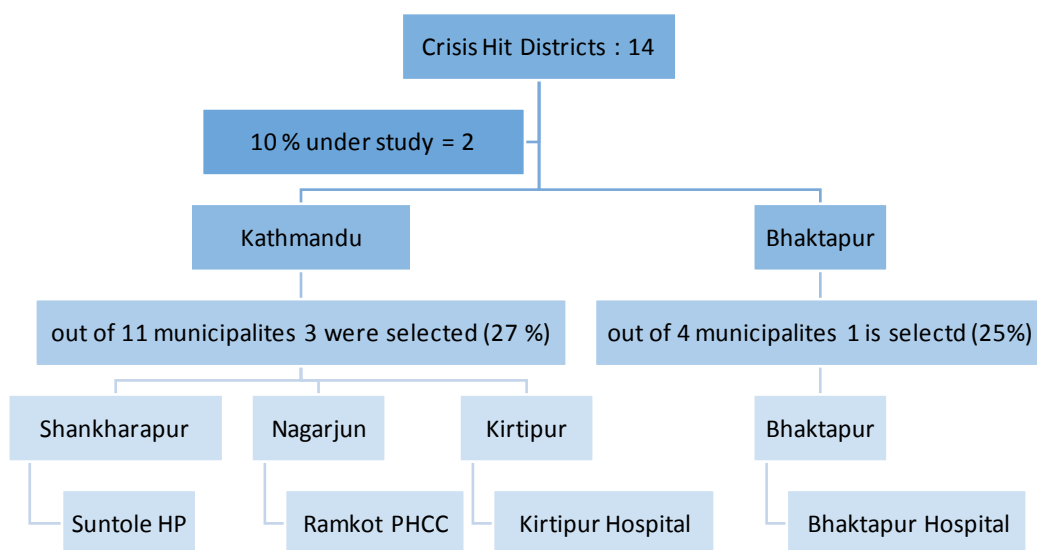
Figure (2):sample selection for the study

2.3 Performance Appraisal

The performance appraisal for this study uses the two categories of activities conducted pre-earthquake, and post-earthquake. This breakdown draws on the earthquake disaster management cycle model illustrated in figure (3)[2] below, which identifies five major components:

a. Pre Earthquake: prevention andmitigation and preparedness
b. Post- Earthquake: response (rescue & relief), rehabilitation, and reconstruction

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[2]Earthquake Resilient Model District Programme (Phase 1), National Disaster Management Authority, Government of India

Figure (3): Main aspects in Focus of the *Earthquake Disaster Management Cycle*

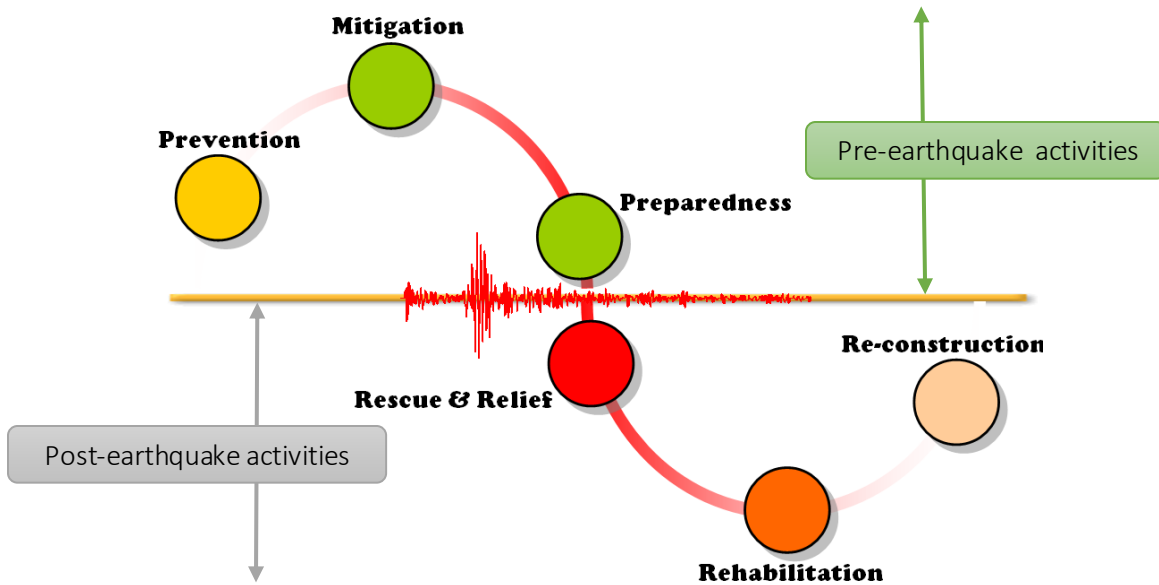The study considered these aspects in the context of central, district, local, and health facility levels. It was supported by a review and assessment of DRM and DRR polices and guidelines developed by the MoH and GoN over the past forty years.

Chapter Three: Earthquake Performance Appraisal

3.0   Earthquake Performance Appraisal

This section is structured as follows:

- Policies and guidelines (national, district, and municipal)
- Assessment of district level preparedness and response
- Assessments of municipal level preparedness and response
- Assessments of health facility level preparedness and response

3.1 National Level Mitigation and Preparedness Polices and Guidelines Relevant to Health Services

3.1.1 Natural Calamity Act 1982 (with amendments)

This Act made provision for relief work after natural calamities. It placed arrangements for the operation of relief work and maintenance of the population to protect lives and both private and public property[3].

The act was promulgated for the first time in 1982 with the objective of the smooth execution of pre- and post-disaster relief and rescue works by bringing the work of disaster management under the scope and responsibility of the government. The Act also made the provision of aninstitutional framework necessary for managing disasters. Despite two consecutive amendments to the act, it missed out the provision of proactive mitigation measures such as preparedness and the mainstreaming of hazards reduction in the development process. This made it imperative that a new act be drafted that internalises the paradigm shift in technology and development initiatives[4].

The natural calamity act highlights and focuses on the stage after a disaster. In this way, pre-disaster preparedness is not defined in the act.Key points highlighted by the act are:

- The role of the GoN during and after disaster
- Provisions of the Central Natural Calamity Relief Committee (CNCRC)
- Provisions of twodifferent sub committees: the Relief and Remedy sub-committee chaired by the Ministry of Health and Supplies (Now MoH),the Shelter andRehabilitation Sub- Committee chaired by the Ministry of Housing and Physical Planning (now the Ministry of Urban Development)
- Provisions of the regional, district, and local Natural Calamity Relief Committee as required
- Functions and duties of all committees as mentioned above

3.1.2 Disaster Health Working Group (DHWG), 1993

The DHWG was established by the GoN, after the major floods of 1993[5], as a short term working group. It was revived in 2000 as a task group to support the MoH in preparing the national Health Sector Emergency Preparedness and Disaster response plan[6].

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[3] Natural calamity (Relief Act. 2039 B.S (1982), www.lawcommission.gov.np
[4] NSDRM (2009) An unofficial Translation page number 16 : Ministry of Home Affairs/ Government of Nepal
[5] Source: Nepal Disaster report 2011, MoHA
[6] Source: Health Sector Emergency Preparedness and disaster response plan, 2002: MoH

3.1.3 Local Self Governance Act (LSGA, 1999)

The Local Self Governance Act, 1999,devolved decision making on local development matters to local entities. The act emphasised the relationship between development processes, environmental management, and disaster risk. The act also empowered the local entities, i.e., District Development Committees (DDCs), municipalities, and Village Development Committees (VDCs)[7]. The act has, in effect, been superseded by the move to the new federal structure and awaits repeal.

3.1.4 Emergency Preparedness and Disaster Management for Hospitals, 2002

In 2002, the MoH prepared and published guidelines on emergency and disaster management for hospitals. This was a milestone document dealing with emergency and disaster management for hospitals. The key highlights of these guidelines are as follows:

- Understanding disaster and hazard, emergency, vulnerability, and capacity
- Emergency preparedness and disaster response
- Preparing hospitals for an earthquake
- Personnel and patient safety
- Disaster planning for hospitals
- Hospital disaster response planning for hospitals

Despite the importance and value of implementing these guidelines, performance by individual hospitals has been patchy. According to the Department of Health Services (DoHS) annual report (2015/2016), the Epidemiology and Disease Control Division (EDCD) had put in place preparedness plans in 30 hospitals of a total of 85 (15 bedded/District/Sub-Regional/Regional/Zonal Hospitals)[8].

3.1.5 Health Sector Emergency Preparedness and Disaster Response Plan Nepal, 2003

The MoH Disaster Health Working Group (DHWG)[9]with the WHO strengthened the 2002 emergency preparedness guidelines with the production in 2003 of the "Health Sector Emergency Preparedness and Disaster Response Plan Nepal - Disaster Analysis, Management Framework and Planning Guidelines" (MoH 2003). These guidelines aimed to strengthen the coordination across the health sector and to develop operational capacity to respond to disasters. The key points of these guidelines are:

- Health effects of Hazards
- Preparedness guidelines and activities
    - Emergency Planning
    - Mass Casualty Management Training
    - Seismic Vulnerability Assessments of Hospitals
    - Training and Awareness Raising materials
- Response guidelines and activities
    - Rapid Health Assessment
    - Emergency Relief

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[7]NSDRM (2009) An unofficial Translation page number 16 : Ministry of Home Affairs/ Government of Nepal

8 Source: Annual Report (DoHS, 2014/2015)

[9]DHWG was established at the end of year 2000, Manifestation of Joint Government, UN, NGO and donor commitment in the field of health sector emergency planning

- Mass Casualty Management
- Curative Health
- Public Health
- Health sector's Disaster Management System (Central Level)
- Overall Co-ordination and Partnerships

3.1.6 Guidelines for non-structural safety in health facilities (March,2004)

Guidelines for non-structural seismic safety assessments of Hospitals were prepared by the MoH (with support from the WHO and NSET) in March 2004. This guidance set out an approach for assessment of the non-structural components of health facilities, and planned to reduce non-structural vulnerability.

3.1.7 Guidelines for seismic vulnerability assessments of hospitals (April, 2004)

Guidelines for seismic vulnerability assessments of hospitals were jointly prepared and published by the WHO and the NSET in April 2004. This document drew on a previous series of structural and non-structural assessments of hospitals, and covered data collection for vulnerability assessment, structural and non- structural assessment, hospital performance evaluation, and recommendations.

3.1.8 National Strategy for Disaster Risk Management (NSDRM, 2009)

The NSDRM[10]is a framework produced by the GoN as part of its compliance with the UN's "Hyogo Frame of Action" (HFA 2005-2015). The NSDRM covers five major priorities and objectives:

a. Establish a vibrant institutional framework for implementation by prioritising DRR at both the national and local levels
b. Strengthen assessment, identification, monitoring, and early warning system for potential disasters
c. Make use of knowledge, new ideas, and education for the development of safety and disaster resilient culture at all levels
d. Minimise existing risk factors
e. Make disaster preparedness strong enough for effective responses

Key points highlighted by the NSDRM 2009 are as follows:

a. A need to recognise the challenges faced by different sectors including health and nutrition in disaster management
b. The importance of establishing a decentralised working process for DRR governance (opening the window for the formulation of LDRMP guidelines)

3.1.9 Nepal District Level Contingency Planning Manual, 2009/2010

The MoH in coordination with the WHO prepared this manual in 2009/2010. Itrecognises that, while national level initiatives such as the "Health Sector Emergency Preparedness and Disaster Response Plan" (MoH 2003) had been formulated, there remained a need to operationalise this at district level. This foreshadows the devolution of powers to municipalities under the new federal system. The manual

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[10]NSDRM (2009) An unofficial Translation: Ministry of Home Affairs/ Government of Nepal

sets out the process for preparing a health sector contingency plan to deal with problems that typically arise during humanitarian response[11]. The key aspects are:

    a. Reviewing existing documents to ensure alignment
    b. Identifying relevant partners (DHO, health workers, NRCS, representatives from the DDRC, Military/Police/Armed Police, and others)
    c. Vulnerability and hazard analysis
    d. The DPHO as a Lead Agency in preparing a Health Sector Contingency Plan at district level

3.1.10 Local Disaster Risk Management Planning Guideline (LDRMP, 2011)

The NSDRM 2009 was subsequently enhanced by provisions for disaster risk management planning at the local level. The Ministry of Federal Affairs and Local Development (MoFALD) prepared guidelines for local disaster risk management planning for district and local level entities. These guidelines required stakeholders to take the initiative in building disaster resilient communities by mainstreaming DRR issues into development plans. In 2011, MoFALD prepared the LDRMP Guidelines (MoFALD 2011) to support the thrust of the NSDRM, 2009, and to make disaster management participatory, transparent, accountable, inclusive, and responsible by optimally mobilising local resources and capabilities, and by ascertaining the access and ownership of all affected classes, communities, and regions[12]. Main highlights of LDRMP guidelines are as follows:

- Step wise planning process (incorporating local level development planning process)
- Clear responsibilities of MoFALD, District Development Committees (Now District Coordination Committee), municipalities, and VDCS (now rural municipalities)
- Structure, function, duties, and scope of the Local Disaster Management Committee (LDMC)
- Task force formation, including one specifically for the health sector
- Training for communities for vulnerability and capacity assessment

3.1.11 Guidance Note Disaster Preparedness and Response Planning

The "Guidance Note for Disaster Preparedness and Response Planning"(MoHA 2011) sets out the process for developing and adopting a Disaster Preparedness and Response Plan at district level. It positioned the DDRC and DDC (Now DCC) as the lead institutions. It stresses intergovernmental and inter agency coordination. A locally based humanitarian agency is tasked to be the District Lead Support Agency (DSLA). Major highlights of this Guidance Note are:

    a. TargetingGovernment Officials, the Red-Cross movement, (I)NGOs, and UN agencies engaged in disaster preparedness and response planning process at district level
    b. The importance of commodity tracking during an emergency response
    c. Using a scenario based response planning to identify and formulate implications and responses to hazards

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[11]Inter-Agency Contingency Planning Guidelines for Humanitarian Assistance 2007)
[12]LDRMP Guideline, 2011: Ministry of Federal Affairs and Local Development

d. The identification of key clusters and sectors at district level including health, emergency health, and emergency nutrition
e. Identification of the Cluster Lead Agency (district level government organisations) and district lead support agencies (mainly humanitarian agencies)
f. Importance of coordination with the NEOC

3.1.12 Nepal Risk Reduction Consortium (NRRC, 2011)

The GoN Nepal launched the Nepal Disaster Risk Reduction Consortium (NRRC)in 2011. The NRRC is a unique arrangement that unites humanitarian and development partners with financial institutions in partnership with the GoN in order to reduce Nepal's vulnerability to natural disasters. Based on the Hyogo Framework and Nepal's National Strategy for Disaster Risk Management, the NRRC identified five flagship priorities for sustainable disaster risk management, including school and hospital safety.

School and hospital safety (Flagship One programme) focused on structural, non-structural, and functional assessments of hospitals in the Kathmandu valley, the development of a mass casualty management plan, the retrofitting of one government hospital, information sharing, and capacity enhancement.Flagship one was led by the WHO with close involvement of the MoH.

Flagship One aimed to conclude the retrofitting of ten government hospitals by the end of 2015. However, funding constraints and the 2015 Gorkha earthquake disrupted programme activities. This target has subsequently been converted to retrofitting a minimum of two hospitals under the DFID funded NHSSP.

3.1.13 National Disaster Response Framework (NDRF, 2013)

The "National Disaster Response Framework" (NDRF, 2013) has been prepared by MoHA for the effective coordination and implementation of disaster preparedness and response activities by Government and Non-Government agencies involved in disaster risk management in Nepal. Key highlights of the NDRF are:

a. A national and international assistance and co-ordination structure during emergencies
b. A national framework for disaster response defining the operational activities and responsibilities of concerned stakeholders
c. Actions steps for emergency response preparedness

3.1.14 Establishment of the Health Emergency Operation Centre (HEOC)

The establishment of the HEOC in 2014 was a major initiative of the MoH, seeking to address the challenges in disaster coordination and information management. The HEOC is aligned to the NEOC established by MoHA in December 2010/13. The HEOC serves as a command and control facility for the effective administration of emergency preparedness and disaster management.The major working areas and functions of the HEOCare:

a. Operational location within the Curative Service Division

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[13]HEOC, Concept Note: Ministry of Health, 2014

b. Hosting the necessary resources and data for effective coordination and response during emergencies

c. Communicating and Coordinating with NEOC, Central Referral Hospitals, and Regional Hospitals

d. Coordinating operational linkages for health sector preparedness and response planning between community, district, regional, and the central level disaster risk management structures

e. Mapping and preparedness planning including commodity identification, health facility databases, human resources availability, and hospital coordination

f. Acting as a Disaster Operation Centre to coordinate all health related analysis, assessments, and responses

g. Coordinating with the NEOC, relevant ministries, agencies, and hospitals under emergency response arrangements

3.2 MoH Preparedness ahead of Gorkha earthquake, 2015

As section 3.1 indicates, there have been a wide variety of disaster risk management initiatives affecting the MoH. In effect, responses have emerged in an incremental fashion, and have often been driven by the need to meet demands of integration and coordination with other departments and agencies. This section summarises the state of the MoH's disaster preparedness activities prior to the Gorkha earthquake. It draws on existing documents and key informant interviews for the summary:

- The MoH began forming Rapid Response Teams (RRTs) in 2000 as part of DHWG activities and these were mobilised to prepare health sector contingency plans. By the time of the Gorkha earthquake, an estimated 59 districts had a plan in place[14]. By 2016 this had increased to 64 districts[15].

- A total of 28 hospitals had emergency preparedness plans in place before the Gorkha earthquake[16]. By 2016 this had increased to 30 hospitals[17]

- Each year since 2010, the MoH allocated a substantial portion of the budget for emergency repair and maintenance of health facilities

- New PHCC, HP and other health related buildings have been designed by the DUDBC to stronger seismic resilience standards since 2005/2006

- Since 2011, private hospital licensing requirements have imposed similar resilience requirements on the design of private health institutions[18]

- Non-structural retrofitting of hospitals was initiated in 2001 with support from the NSET and the WHO

- Under the HOPE (Hospital Preparedness for Emergencies) programme, some hospitals maintained stocks of water supply, oxygen, and blood provisions for emergency

- Seven hospitals in the Kathmandu valley along with two hospitals in the west of the country had been designated emergency hubs to both treat patients and coordinate with other selected health facilities in crisis. These were the Birendra Army Hospital, Tribhuvan University Teaching Hospital

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[14]Source: Earthquake 2015 Health Sector Response & Lessons: A Photo Story Book: MoH
[15]Source: DoHS, Annual report (2015/2016)
[16]Source: DoHS, Annual Report 2014/2015
[17] Source: DoHS Annual Report (2015/2016)
[18]Source: Guidelines for Health Institutions Establishment, operation and Upgrade Standards, MoH (2013/2/14)

(TUTH), Bir hospital, Civil Service Hospital, Bhaktapur Hospital, Patan hospital, Dhulikhel Hospital, the Western Region Hospital, and the Bharatpur Hospital.

- Mass casualty management training and simulation exercises have been regularly performed at health facilities.
- Stock piling of necessary drugs and other essential supplies (including surgical and trauma kits, and rehabilitation equipment) had taken place at central, regional, and district levels[19]
- HEOC operational arrangements had been finalised and the committee was in place.

3.3 MoH response to theGorkha earthquake, 2015

Immediately after the Gorkha earthquake, the MoH instituted the HEOC response mechanism, and details of subsequent actions are set out in Box 1[20]. The institutional arrangements and mobilisation of designated managers and staff are believed to have worked well.

Box 1:MoH response to Gorkha earthquake 2015

- Immediately after the earthquake, the MoH activated the HEOC, which mobilised its technical sub-committee
- Multiple working groups were formed for communication, HR management (Foreign and National Medical Teams) and Logistics Management
- Emergency budget allocations were made to Hub- Hospitals
- The HEOC coordinated with the NEOC in implementing the national policy and guidelines
- Supplies' demand was identified and reported on for supply chain management
- Networking with Foreign and National Medical Team for the establishment of field hospitals
- MoH mobilised staff in all Hub hospitals and 14 hard hit districts for monitoring and gap analysis regarding service delivery
- Hospitals were supported to prepare temporary treatment arrangements through tents and other locally available materials.
- Emergency Hospital supplies were also swiftly dispatched to the hub sites and free services were provided to earthquake injured persons.
- The MoH instructed private hospitals to provide services as part of the disaster relief effort, with the reimbursement of cost of patients treated.

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[19]Source: DoHS, Annual report (2014/2015)
[20] Source: (Consultation with Dr. Gunanidhi Lohani and Earthquake 2015 health Sector Response & Lessons, A photo Story Book)

3.4 MoH Recovery, Rehabilitation, and Reconstruction activities after the Gorkha earthquake, 2015

3.4.1 Post Disaster Need Assessment and Recovery Plan (PDNA, 2015)
The National Planning Commission (NPC) conducted a rapid post disaster needs assessments in 2015 to identify and estimate reconstruction requirement and cost after the Gorkha earthquake. The MoH provided inputs into this exercise including:

- Pre-disaster situation and post-disaster situation analysis
- Estimation of damage (damage status of health facilities) and loss
- Recovery and reconstruction strategy
- Implementation strategy for recovery[21]

The PDNA report of the health and population sector was the initial document prepared by the HEOC for the GoN to start to plan the recovery and reconstruction of health facilities. The information in the document was based on field reporting and telephonic conversations with officials in the field.

3.4.2 Detailed Engineering Assessment (DEA) of 14 hard hit districts and 17 medium hit districts
Later in 2015 the MoH, supported by DFID, GIZ, and the NHSSP, produced a more Detailed Engineering Assessment (DEA) in the 14 hard hit districts which provided more precise data and repair and reconstruction costs. The DEA used deployed engineers, a structured assessment tool and advanced Information Communication Technology (ICT) to produce an improved picture of the state of health infrastructure. This approach was rolled out to a further 17 districts in 2017. The major features of the DEA report are:

- Health facility damage status categorisation by building blocks in each facility
- Seismic vulnerability
- Geographical location
- Accessibility (road access)
- Land ownership, size, topography, types of buildings, and floor area
- Utility status (electricity, water supply, sanitation, medical waste management etc.)

Additional activities under the NHSSP included the production of improved designs for pre-fab health facilities, and production of standard guidelines for design and construction of health infrastructure.

3.4.3 MoH Reconstruction initiatives and formation of the Project Coordination Unit (PCU)
The DEA formed the basis for the priority list for reconstruction and rehabilitation of health facilities. This was used to negotiate the deployment of targeted technical assistance from EDPs. These implementation agreements took the form of Memoranda of Understandings (MoUs).

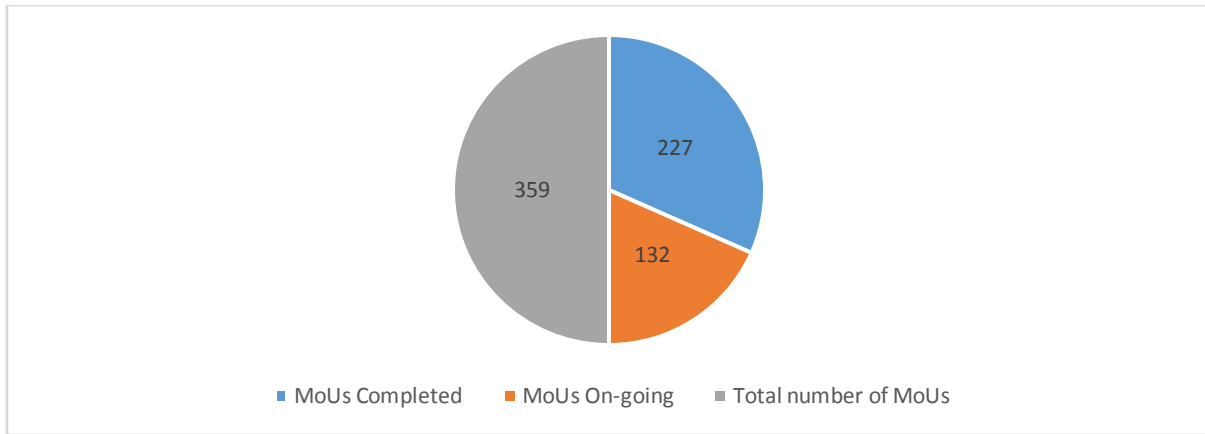[21]Source: PDNA plan of Health and Population Sector(2015)

Figure (4): Reconstruction Status of projects under MoUs at August 2017

In total, 68 EDPs have MoUs covering a total of 359 projects. Of this total, 342 relate to the repair rehabilitation and reconstruction of health facilities. Fifty MoUs were signed between the MoH and EDPs, with a further 18 tripartite MoUs betweenthe MoH, EDPs, and the newly formed National Reconstruction Authority (NRA).

The total numbers of health facilities in repaired/retrofitted/ reconstructed activities are shown in Figure 5 below.
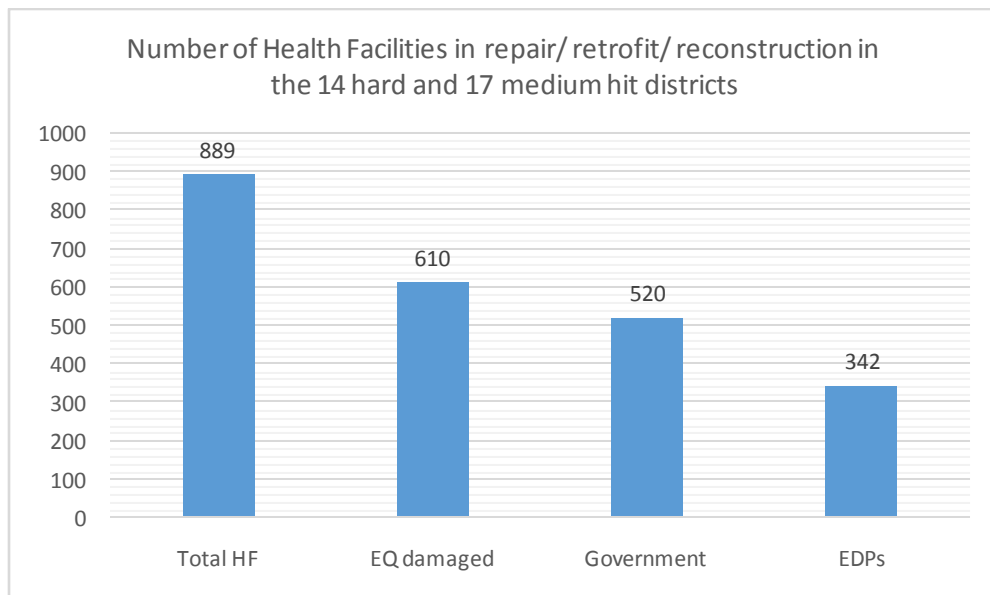
Figure(5): Number of Health facilities in repair/rehab/retrofitting

The Project Coordination Unit (PCU) was established in July 2017 by the MoH to execute reconstruction activities of health facilities in 14 crisis hit districts and 17 hard hit districts. The PCU implements each project as specified in the annual work plan prepared by the MoH, and approved by the GoN. In total, 96 projects have been scheduled for the year 2016/2017.

3.5 District Level Preparedness and Response to the Gorkha earthquake, 2015

This section makes summary assessments of preparedness and response to the Gorkha earthquake, 2015, at district level. As described previously, two districts, Kathmandu and Bhaktapur, were selected as suitable candidates for this exercise. The "District Disaster Preparedness and Response Plan" (DPRP) prepared by the District Disaster Management Committee (District Disaster Relief Committee) and the District Level Contingency Plans were taken as benchmark indicators of levels of preparedness.

Particular attention was paid to finding out whether the DPRP included the health sector contingency plan before the Gorkha earthquake. In addition, the study sought information on the depth and content of health sector disaster preparedness and response plan, and how well this worked in the aftermath of Gorkha earthquake. The assessment below describes district level preparedness before the Gorkha earthquake, followed by observations on how well those plans performed in practice.

3.5.1 Case of Kathmandu district

(a) Health Sector Preparedness and Response plan in Kathmandu District

The DDRC of Kathmandu district prepared the DDRP in 2012/13, with support from NSET. The plan included a Health Sector preparedness and response plan with the main details:

- The DPRP was prepared in line with the Guidance Note Disaster Preparedness and Response Planning, 2011, MoHA
- The DPRP defined eight different clusters, with the Emergency Health and Treatment cluster under the leadership of District Public Health Office (DPHO), Kathmandu
- The main features of the Emergency Health and Treatment Cluster plan are as follows:
  - Mobilisation of pre-formed Rapid Response Team (RRT) headed by Chief of DPHO
  - Contacts details of all health facilities and hospitals within district for emergency and referral
  - Number of ambulances (total 177) and location at health facilities
  - Cumulative stock piling of medicines required for emergency

- The coordination and institutional arrangements between the key actors in the emergency health and treatment cluster are shown in Figure 6
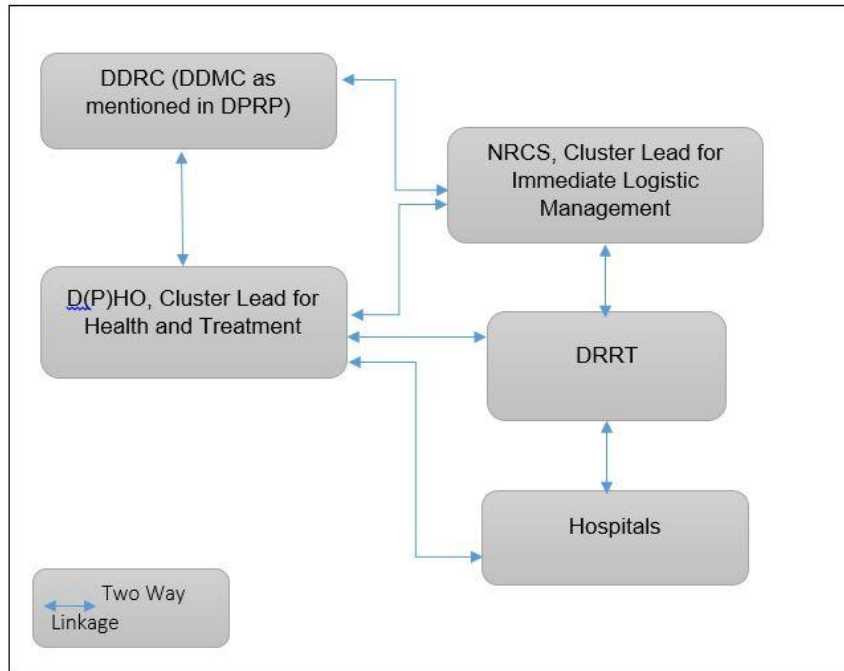
Figure(6): Coordination and institutional arrangements for district level emergency Health and Treatment Cluster, Kathmandu

(b)Observed activities and impacts in implementing preparedness and response plan after the Gorkha earthquake[22]

In the immediate post-earthquake response period, the DRRT mobilisation and impact of RRTs were considered to be effective in rescue and immediate treatment of earthquake casualties. The majority of health facilities were able to function, even when infrastructure had been damaged.

The Hub hospitals in the Kathmandu district were self-mobilised, and performed efficiently in handling mass casualties. Furthermore, the DPHO authorised and supervised medicine distribution and emergency treatment in coordination with the DDRC. Activity monitoring was carried out on site at major hospitals by the DDRC chair person.

When assessing performance in the Kathmandu district, it appears that preparedness plans were in place at district level, in both the Kathmandu metropolitan city and for major hospitals. However, the smaller health facilities generally lacked these plans. Even when health facilities had a preparedness plan in place, it was observed that not all personal had been orientated or trained for a precise immediate response.

Hub-hospitals had major inflow of patients as they are centrally located and easily accessible. These hospitals were able to handle high patient numbers due to their greater capacity and forward planning.

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[22] Source: DPRP, Kathmandu and Consultation meeting with Disaster Focal Point of Kathmandu District (Mr. Pravin Pyakurel

The referral system between health facilities came under strain. It appears that coordination between the smaller and higher level health facilities was weak, and referral procedures were undermined by patients taking themselves to the facilities where they felt they had the best chance of treatment.

Of the 11 municipalities in the Kathmandu district, nine had not prepared a local level disaster preparedness plan before the Gorkha earthquake. Only Kathmandu metropolitan city and Kritipur municipality had such plans in place. This low level of coverage is partially explained by the fact that the nine municipalities in question had only been formed in December 2014. Although there was some coordination between these municipalities and the health facilities in their areas, the fact that institutional direction was weak meant that responses were often ad-hoc.

3.5.2 Case of Bhaktapur District:

(a) Health Sector Preparedness and Response Plan in Bhaktapur District
The DDRC prepared the Disaster Preparedness and Response Plan in 2012/13 in coordination with DLSA Red Cross Society Bhaktapur. It included the Health Sector preparedness and response plan with THE main features described below:

- The Health and Nutrition cluster is led by THE DPHO, Bhaktapur
- Assessment of probable impact of disaster in human life
- Emergency preparedness activities during disaster
  - Coordination and information dissemination
  - Capacity assessment, enhancement, and resource mobilisation
  - Awareness campaign, sensitisation, community empowerment
  - Monitoring and evaluation
- Provisions of health surveillance, RRT, and the referral system.
- Response plan for actions immediately after the earthquake to two months post disaster
- Contacts details of all health facilities and hospitals within the district
- The coordination and institutional arrangements between the key actors in the emergency health and treatment cluster are shown in Figure 7
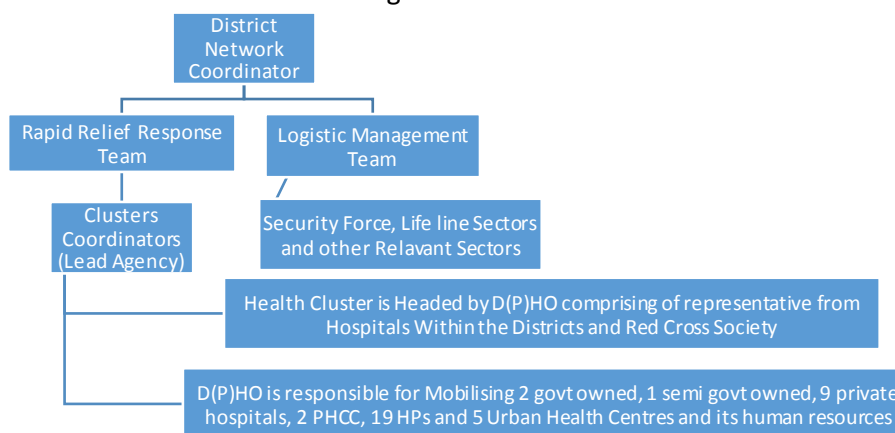

Figure (7): Coordination and institutional arrangements for district level emergency Health and Treatment Cluster, Bhaktapur

(b) Observed activities and impacts in implementing preparedness and response plan after Gorkha earthquake[23]

Bhaktapur Hospital initiated efficient coordination with the MoH and DDRC in mobilising staff and emergency services. It was observed that the number of patients being treated put pressure on the stores and stock piling of medicines and supplies.

Of the four municipalities in the Bhaktapur district, two had not prepared a local level disaster preparedness plan before the Gorkha earthquake. Only Bhaktapur and Madheypur Thimi municipalities had a plan in place. This is partially explained by the fact that these two municipalities had only been formed in December 2014. Although there was some coordination between these municipalities and the health facilities in their areas, the fact that institutional direction was weak meant that responses were often ad-hoc.

3.6 Municipal Level Disaster Preparedness and Response

This section makes a summary assessment of the preparedness for and response to the Gorkha earthquake, 2015, at the municipal level. As described previously, two districts Kathmandu and Bhaktapurwere selected as suitable candidates for this exercise. Three municipalities, namelyShankhrapur, Nagarjun, and Kritipur were chosen in the Kathmandu district, while Bhaktapur municipality was selected from the Bhaktapur district. The Local Disaster Preparedness and Response Plan (LDRP) was taken as a benchmark indicator of the level of preparedness.

The assessment below describes municipal level preparedness before the Gorkha earthquake, followed by observations on how well those plans performed in practice.

3.6.1 Shankharapur Municipality Preparedness and Response

The Local Disaster Risk Management Committee was in place before the Gorkha earthquake, but had not yet formulated its local disaster preparedness and response plan. The LDRMC did, however, conduct a disaster awareness campaign at the community level in coordination with locally based organisations.

In response to the earthquake, the municipality carried out the following main activities:

- Coordination with health facilities, local level NRCS, NGOs, and community based organisations to provide immediate treatment of casualties
- Information collection on the functioning of health facilities and levels of service
- Establishing medical camps in coordination with different health service providers
- At the time of writing, the municipality is planning to develop its LDRP, incorporating its experiences since 2015

3.6.2 Kirtipur Municipality Preparedness and Response[24]

The main features of the municipality's preparedness level were as follows:

- The LDRP had been prepared with the support of Lumanti (OXFAM Nepal).

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[23] Source: DPRP, Bhaktapur (2017) and Consultation meeting with Disaster Focal Point of Bhaktapur (Mr. Jauvan Koju)
[24]Source: Consultation with Disaster Focal point of Municipality (Er. Krishna Bhola Maharjan)

- Mock drills of rescue, treatment, and response scenarios had been conducted before the earthquake.
- The municipality had trained 125 community based volunteers in disaster response procedures, including immediate search and rescue and first aid treatment.
- The municipality had identified open spaces required for emergency evacuation and shelter, as well as drilling advance boreholes for water supply if needed.

Activities carried out by the municipality in response to the Gorkha earthquake:

- Activation of LDRP and mobilisation of previously identified stakeholders
- Operational arrangements were implemented according to the preparedness plan for response
- Mobilisation of health volunteers in participation with health centres was carried out
- Networking with Kirtipur Hospital to support treatment of mass casualties

3.6.3 NagarjunMunicipality Preparedness and Response

The Nagarjun municipalitywas only established in December 2014 and it had not yet formed the LDRMC and its LDRP was not yet in place. The municipality had conducted disaster awareness campaigns at community level in coordination with locally based organisations.

The key features of the municipality's response to the earthquake:

- Coordination with health facilities, local level NRCS, NGOs, and community based organisations to provide immediate treatment of casualties
- Information collection on the functioning of health facilities and levels of service
- Establishing medical camps in coordination with different health service providers
- Network was established with district level agencies including DDRC (DDMC), D(P)HO, and NRCS for response activities[25]

3.6.4 Bhaktapur Municipality Preparedness and Response

The LDRP was in place and the LDRMC had been established by the municipality with the support of the NCRS. However, the Bhaktapur Hospital disaster preparedness and response plan had not been recognised within the municipal LDRP.

The key features of the municipality's response to the earthquake:

- The municipality's health Section (urban health centres and staff) was mobilised for disaster response activities.
- Coordination arrangements were established between the Bhaktapur Hospital and the urban health centres. While this functioned adequately in the emergency context, improved performance may have been possible had the hospital disaster preparedness and response plan been previously incorporated within the municipal LDRP[26].

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[25]Source: Consultation with Disaster Focal Point of Municiplaity (Er. Sandeep Giri)
[26]Source: Consultation with Disaster Focal point of Municiplaity (Er. Omhari Tha)

3.7 Health Facility Level Disaster Preparedness and Response

This section makes a summary assessment of preparedness and response to the Gorkha earthquake, 2015, at health facility level. As described previously, the municipalities Shankhrapur, Nagarjun, Kritipur, and Bhaktapur were selected, and a health facility from each chosen as the case study. The facilities were Suntole Health Post (Shankhapur), Ramkot PHCC (Nagarjun), Bhaktapur Hospital, and Kritipur Hospital. The HEPPwas taken as a benchmark indicator for the level of preparedness.

3.7.1 Disaster Preparedness and Response of Suntole Health Post and Ramkot PHCC
- Facility management and staff were aware of disaster risk issues, but had not prepared the HEPP due to capacity and resource constraints

The key features of the health facility's response to the earthquake:

- Both facilities continue to function and provided first line emergency treatment for casualties
- Both facilities provided staff and supplies to support operations at emergency camps
- Coordination with municipality, NRCS, and Private Hospitals in treatment response[27]

3.7.2 Disaster Preparedness and Response of Bhaktapur and Kritipur Hospitals[28]
- Both hospitals had prepared their HEPPS
- Stockpiling of medicines and other disaster related supplies had taken place
- Each HEPP was characterised by the following features: :
  - Establishment of executive and disaster preparedness committees
  - Prediction of disaster management plan and implementation of Hospital Incident Command System (HICS)
  - Arrangements for triage
  - Team work, team captains, and treatment areas
  - Crowd controland management of disaster victims
  - Maintenance of emergency disaster supplies
  - Annual mock drill of disaster response actions, debriefing, and feedback
  - Management of media and relatives
  - Patient flow route
  - Hospital capacity management, including water supply, power backup, food stocks, sanitation, and waste disposal
  - Hospital evacuation plan
  - Responsibilities for communication and coordination

The key features of the hospital's response to the earthquake:

- The overall service delivery performance of each hospital was generally in line with that anticipated in the HEPP. However, hospital staff experienced insecurity and anxiety due to recurrent aftershocks.

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[27] Source: Source: Consultation with Staff of HP and PHCC
[28]Source: Hospital Emergency preparedness & response plan and consultation with Matron of both of the Hospitals

- Despite staff mobilisation, the human resource capacity available struggled at times to meet surge numbers and mass casualties.
- Open spaces on hospital grounds were used for triage and treatment.
- At Bhaktapur hospital, it was observed that lifeline services (particularly water supply and sanitation) struggled to cope with demand.
- Although the Bhaktapur hospital building was red tagged as unsound immediately after the earthquake, triage facilities were established on adjacent open spaces. When the hospital structure was subsequently assessed at a safer level, functions inside the building were rapidly reopened.

Chapter Four: Key Findings and Analysis

4.0 Key Findings and Analysis

This sectionsets out the key findings from the study, with an emphasis on identifying the main aspects of relevance to the MoH and its governance of risk. The findings relate to the various administrative levels of government.

4.1 Central level

1. Using the earthquake Disaster Management Cycle framework, it appears that, while there is an ongoing improvement in the effectiveness of preparedness planning, the identification and implementation of mitigation measures such as structural, non-structural,and functionality strengthening are still lagging behind.

2. DRM is globally considered to be a multi-sectoral approach. At the central level, the MoH has its own major responsibilities and priorities in this context and also has to ensure alignment with the complementary requirements of MoHA and MoFALD disaster planning. While it is comparatively straight forward to develop national level frameworks and regulations, the test of effective governance of risk is whether there is compliance at sub-national levels. More emphasis needs to be paid to prevention, mitigation, and preparedness for disasters in comparison with the relatively easier focus on response, rescue, and relief.

3. Rehabilitation and reconstructionof health facilities post-earthquake provides an opportunity to implement progressive prevention and mitigation standards. The NHSSP infrastructure team management of the EDP MoUs for construction and repair of health facilities enables the application of higher standards. This is the implementation of BBB principles applied to external agencies as well as the MoH's own programme. For major hub facilities, Patan Hospital has undergone seismic retrofitting by the GoN while Bhaktapur and Western regional hospitals are being retrofitted in partnership with DFID.

4. Mitigation activities have also begun to receive greater attention building on the early structural safety reports on Kathmandu valley hospitals conducted for the MoH by the NSET and the WHO. As mentioned previously, DFID consultants assessed 59 major hospitals in Nepal and produced a shortlist for seismic retrofitting and rehabilitation works[29].

4.2 District level, Municipality and Health facility Level

1. Disaster preparedness and response planning at district level appears to be improving, and the general implementation of such plans within the case study was satisfactory. Newly-formed municipalities struggle to meet their disaster risk management responsibilities, having other immediate priorities and lower levels of capacity. Networking and communication between the various district, municipal, and health facility institutions stands in need of improvement.

2. Not all health facilities had a HEPP. However, they were able to respond in an ad-hoc fashion to provide services and treatments post-earthquake while this is commendable, it is quite likely that responses and service delivery could have been improved if such plans had been in place.

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[29]Source: DFID, 2015: Earthquake Damage assessments of hospitals

Chapter Five: Conclusion and Recommendations

5.0 Conclusions and Recommendations

This section draws out condusions from the study and the analysis and makesrecommendations for strengthening and mainstreaming DRR and the governance of risk in health sector.

- The MoH has prepared eight separate disaster related guidelines to support preparedness and contingency planning and emergency response (see annexes)[30]. These policies and frameworks are a valuable resource and have proved their effectiveness in disaster situations. They now need to be revisited to take account of the new federal structure and the role that the MoH will play in this. The MoHA is preparing a National Disaster Risk Reduction Policy and strategic action plan for the time period up to 2030. Given the new area of work being developed under the NHSSP on seismic resilience of health infrastructure and adaptation to climate change induced hazards, it is important that these areas are reflected in the new national policy and action plan.
- The new constitutionestablishes 744 local level authorities which will manage the hospitals and health facilities within their jurisdiction. The MoH should ensure each hospital has a HEPP in place ready for incorporation with the local authority LDRM.
- Information and experiences on good practice in disaster risk management are essential in improving performance in this area. The MoH should ensure that examples of good practice relating to health sector are circulated to provinces and local level authorities to strengthen the development of preparedness and response plans.
- The GoN has adopted the Sustainable Development Goals (SDG) with targets reaching up to 2030. SDG Five is about achieving gender equality and empowering all women and girls. Disaster impact and societal inequalities increase risks for women and girls, induding gender based violence, trafficking, and exploitation. Other deprived communities face similar risks and exdusions. It is recommended that principles of GESIand LNOB are incorporated as an integral part of health sector DRM planning an implementation.
- While the MoH approach to DRR planning is improving, particularly in areas of preparedness and response, it can be argued that aspects of risk identification and management should be strengthened. The areas of disaster prevention and mitigation need to be considered equally as important as emergency response and relief. Monitoring, evaluation, and feedback activities also need to be strengthened. It is recommended that the MoH conducts a review of its current approach to DRR to identify areas for improvement and actions for implementation. Models for comprehensive integrated disaster management planning provide benchmarks against which the MoH's current practices can be tested.

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[30]Source: DoHs Annual Report (2015/2016)

Annex I

SN	Name of documents	Published Year
1	Emergency Preparedness & Disaster Management for Hospitals	2002
2	Emergency Preparedness and Disaster Response Plan	2003
3	Public health Guidelines in Emergency	2004
4	Guidelines for seismic vulnerability assessment of	2004
5	Non-structural Safety in Health Institution	2006
6	Standard Operating Procedure for DHWG 2010 (Draft)	2010
7	Nepal District Level Contingency Planning Manual	2010
8	Guidelines & Tools for Conducting Integrated Training of Rapid Response Teams(RRT) on emergency Preparedness and Response	2011

Annex II: List of Organisations Visited During Study

Government Owned Organisations
Central Level Organisations
1. Ministry of Home Affairs, National Emergency Operation Centre (MoHA/NEOC)
2. Ministry of Health (MoH)
3. Ministry of Federal Affairs and Local Development (MoFALD)
4. Department of Health Services
5. Disaster Management Section, Epidemiology and Disease Control Division (EDCD), Department of Health Services
6. Health Emergency Operation Centre

District Level Organisations
7. District Coordination Committee, Kathmandu
8. District Coordination committee, Bhaktapur
9. District Public Health Office (Telephone Inquiry)
10. District Public Health office, Bhaktapur (Telephone Inquiry)

Local Level Organisations
11. Kirtipur Municipality
12. Bhaktapur Municipality
13. Shankharapur Municipality
14. Nagarjun Municipality

Health Facilities
15. Suntole Healthpost
16. Ramkot PHCC
17. Bhaktapur Hospital
18. Kritipur Hospital

Non-Government Owned Organisations
Donor Partners
1. DFID
2. USAID
3. WHO
4. UNICEF

International Non-Governmental Organisations
1. Mercy Corps
2. OXFAM (Telephone Conversation)
3. Tere de Homes

Non-Governmental /Humanitarian Agencies
1. Nepal Red Cross Society
2. Possible Health Nepal

Annex III: References

References

Virginie Le Masson, Sheri Lim, Mirianna Budimir, Jasna Selih Podboj (2016).*Disasters and violence against women and girls, Can disasters shake social norms and power relations?* Working Paper. Overseas Development Institute (ODI)

NRRC (2013) *Review of the Nepal Risk Reduction Consortium (NRRC). Glyn Taylor - Humanitarian Outcomes (Team leader) Krishna Vatsa - UNDP / BCPR Mahendra Gurung - World Bank Elisabeth Couture - Humanitarian Outcomes.* Nepal Risk Reduction Consortium

Government of Nepal. *Developing National Disaster Risk Reduction Policy and Strategic Action Plan in Nepal: 2016- 2030. Lessons Learned from Recent Major Disasters in Nepal.* United Nations Development Programme

François Grünewald & Anne Burlat, 2016. *NEPAL EARTHQUAKE: A RAPID REVIEW OF THE RESPONSE AND A FEW LESSONS LEARNT.* Groupe URD: Evaluation, research and training institute for international aid organisations

EMI 2015. M7.6 Gorkha Earthquake Response and Early Recovery Case Study. First Five Months. 2015 Nepal Earthquake. Earthquakes and Megacities Initiative. http://emi-megacities.org/

J. Mitrani-Reiser, M. Mieler, H. Kumar(3), S. Shrestha, Michael Germaraad, K. O'Conor, T.D. Kirsch (2017). *Investigating Community Resilience in Nepal: A Healthcare Focus.* 16th World Conference on Earthquake Engineering, 16WCEE 2017

Bret Lizundia, Surya Narayan Shrestha, John Bevington, Rachel Davidson, Kishor Jaiswal, Ganesh Kumar Jimee, Hemant Kaushik, Hari Kumar, Jan Kupec, Judy Mitrani-Reiser, Chris Poland, Suraj Shrestha, Courtney Welton-Mitchell, Heidi Tremayne, and Maggie Ortiz. *EERI Earthquake Reconnaissance Team Report: M7.8 Gorkha, Nepal Earthquake on April 25, 2015 and its Aftershocks*. Earthquake Reconnaissance Team

DCC(2017). *Disaster Preparedness and Response Plan of Kathmandu District*. District Coordination Committee, Kathmandu and NSET

DCC(2017). *Disaster Preparedness and Response Plan of Bhaktapur District*. District Coordination Committee, Bhaktapur an NRCS

UNITED NATIONS (2015) *United Nations International Strategy for Disaster Reduction: Sendai Framework for Disaster Risk Reduction 2015–2030.* United Nations Office for Disaster Risk Reduction (UNISDR)

Government of Nepal. *Constitution of Nepal* (2015). Ministry of law justice and parliamentary affairs

Government of Nepal. *Natural Calamity (Relief) Act, 1982.* Ministry of Home Affairs

Government of Nepal. *Consultation Report on National Disaster Risk Reduction Policy and Strategic Action Plan - Nepal 2016- 2030.* Ministry of Home Affairs

Government of Nepal. *Local Disaster Risk Management Planning Guidelines, 2011.* Ministry of Federal Affairs and Local Development

Government of Nepal. *Nepal District level Contingency Planning Manual, 2011.* Ministry of Health

Government of Nepal. *Health Sector Emergency Preparedness and Disaster Response Plan Nepal (Disaster Analysis, Management Framework and Planning Guidelines), 2003.* Ministry of Health

Government of Nepal. *National Disaster Response Framework (NDRF), 2013.* Ministry of Home Affairs

Government of Nepal. *Guidance Note Disaster Preparedness and Response Planning, 2011.* Ministry of Home Affairs

Government of Nepal. *Post Disaster Needs Assessments and Recovery Plan of Health and Population Sector, 2015.* National Planning Commission

Government of Nepal. *CONCEPT NOTE Health Emergency Operation Centre (HEOC), 2014.* Ministry of Health

Government of Nepal. *A report on Detailed Engineering Assessment (DEA) of Health Infrastructure in 17 Earthquake Affected Districts, 2017.* National Health Sector Support Programme/Ministry of Health.

Government of Nepal. *A report on Detailed Engineering Assessment (DEA) of Health Infrastructure in 14 Earthquake Affected Districts, 2015.* National Health Sector Support Programme/Ministry of Health.

Government of Nepal. *National Plan of Action for Safer Building Construction (NaPA), 2015.* Ministry of Urban Development

Government of Nepal. *Gorkha Earthquake (Experience and Lessons), 2016.* Ministry of Home Affairs

Government of Nepal. *Earthquake 2015, Health Sector Response and Lessons, A photo Story Book, 2016.* Ministry of Health

Government of Nepal, UNITED NATIONS, EUROPEAN UNIONS. *National Strategy for Disaster Risk Management* (2008). National Society for Earthquake Technology (NSET)

Department of Health Services. *Annual Report 2071/72 (2014/2015).* Ministry of Health

Department of Health Services. *Annual Report 2071/72 (2015/2016).* Ministry of Health

Government of Nepal. *Post Disaster Recover Framework* (2015). National Reconstruction Authority

Government of Nepal. *National Health Sector Strategy(2015-2020).* Ministry of Health

Government of Nepal. *Standard Guidelines for Design and Construction of Health Infrastructure* (2017) Ministry of Health

Government of Nepal. *Maintenance Strategy for Infrastructure in the Health Sector* (2007). Ministry of Health

Government of Nepal. *Standards Guidelines for retrofitting of existing buildings* (2016). Department of Urban Development and Building Construction

Government of Nepal. *Health Sector Gender Equality and Social Inclusion Strategy* (2009). Ministry of Health

Bhaktapur Hospital. Emergency Preparedness and Response Plan. Bhaktapur Hospital