

Performance Audit of Disaster Management

(May - 2016)



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*“Reporting on Economy, Efficiency and Effectiveness
in the use of Public Resources”*



PERFORMANCE AUDIT OF DISASTER MANAGEMENT

MAY 2016

DISCLAIMER NOTE

The audit was conducted in accordance with the RAA's Auditing Standards, Performance Audit Guidelines and relevant ISSAIs series on disaster management. The review was confined to activities and operations pertaining to disaster management activities in the country during the past five years. The audit was based on the audit objectives and criteria determined in the audit plan and program prepared by RAA and the findings are based on the information and documents made available by the audited agencies.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.



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ROYAL AUDIT AUTHORITY
Bhutan Integrity House

Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources



RAA (TAD/PA-DM)/2015-2016/1469

13th May 2016

Hon'ble Chairperson
National Disaster Management Authority
C/O Prime Minister's Office
Thimphu

Subject: Report on Performance Audit of Disaster Management in Bhutan

Your Excellency,

Enclosed herewith please find a copy of audit report on the '**Performance Audit of Disaster Management in Bhutan**'. The Royal Audit Authority (RAA) conducted the audit under the mandate bestowed by the Constitution of Kingdom of Bhutan and the Audit Act of Bhutan 2006.

The audit was conducted with an objective to ascertain whether due regard was given in ensuring economy, efficiency and effectiveness in dealing with disaster management as well as ascertaining the extent of disaster preparedness of the country. As such the audit efforts were directed towards reviewing the systemic issues relevant for effective administration of disaster risk reductions. The audit was conducted primarily in the Department of Disaster Management (DDM)/Secretariat of the National Disaster Management Authority which functions as the national coordinating agency for the disaster management including the operations of the Dzongkhags and other relevant government agencies involved in disaster management activities. The audit intended to review the activities related to disaster management for the period from 2010 to 2015. However, owing to non-availability of centralized records and documentations on the disaster management activities in the country, the audit had to focus on records that were made available by the audited agencies.

With the blessings of the Triple Gem and the good fortune of the people of Bhutan, the country had not experienced any disaster that had crippling effect on the country and the people. While those that we experienced had been responded in effective manner all due to the strong welfare support system instituted by His Majesty the King. Besides the support system of His Majesty the King, the kind and volunteering Bhutanese have always come forward to help each other in times of emergencies or disaster. However, despite clear legal mandate, in absence of institutionalized, adequate and effective disaster

"Every individual must strive to be principled. And individuals in positions of responsibility must even strive harder."
-His Majesty the King Jigme Khesar Namgyel Wangchuck

management framework, we may not be able to respond effectively, especially in times of mega disaster.

Chapter 3 of the report contains both positive aspects and deficiencies in disaster management noted by the RAA. The significant findings include:

- Non-compliance to the critical provisions of the Disaster Management Act 2013,
- Lack of effective coordination in disaster management amongst various agencies,
- Absence of hazard zonation maps and vulnerability assessment reports,
- Lack of central database system on disaster management activities,
- Inadequate fire safety measures in Dzongs and public buildings,
- Non-establishment of Emergency Operation Centres (EOCs),
- Inadequacies and inconsistencies in funding arrangement for disaster management, and
- Inadequacies and lapses in project management pertaining to Disaster Management.

Based on the audit findings, the RAA has provided certain recommendations aimed at enhancing economy, efficiency and effectiveness in the operations of reducing disaster risks in the country.

We have issued the draft report to DDM, Ministry of Home and Cultural Affairs, for factual confirmation and comments, and also requiring the DDM to fix accountability on the individuals responsible for implementing the recommendations. However, we have received audit response in form of an acknowledgement letter without any detailed response and comments on the individual audit findings and recommendations. Further, the DDM has not identified the officials responsible for implementing the recommendations. Therefore, the Director, DDM, as the head of the nodal agency for disaster management, would be held responsible for implementing the recommendations until we receive Action Taken Report. The response is exhibited in this report as **Appendix-A**.

The RAA would appreciate receiving an **Action Taken Report** along with the recommendation-wise action plan indicating the identified accountable officials, definite timeframe and manner in which the audit recommendations are proposed to be implemented on or before **15th August 2016**.

We would once again like to acknowledge the co-operation and support rendered by officials of the DDM and other audited agencies which facilitated the smooth completion of the audit.

Yours respectfully,

(Tshering Kezang)

Auditor General of Bhutan

Copy to:

1. Hon'ble Lyonchhen, Royal Government of Bhutan, Thimphu
2. Hon'ble Gyalpoi Zimpon, Office of Gyalpoi Zimpon, Thimphu
3. Hon'ble Speaker, National Assembly of Bhutan, Thimphu
4. Hon'ble Chairperson, National Council, Thimphu
5. Hon'ble Opposition Leader, National Assembly of Bhutan, Thimphu
6. Hon'ble Vice Chairperson, National Disaster Management Authority, Thimphu
7. Hon'ble Minister, Ministry of Home and Cultural Affairs, Thimphu
8. Hon'ble Minister, Ministry of Finance, Thimphu
9. Hon'ble Chairperson, Public Accounts Committee, National Assembly of Bhutan, Thimphu (enclosed five copies of report)
10. Secretary, Cabinet Secretariat, Royal Government of Bhutan, Thimphu
11. Secretaries of all Ministries, Thimphu
12. Secretary, Gross National Happiness Commission, Thimphu
13. Secretary, National Environment Commission, Thimphu
14. President, Bhutan Chamber of Commerce and Industry, Thimphu
15. Dzongdags, (Twenty Dzongkhags)
16. Thrompons, (Gelephu, Phuentsholing, Samdrup Jongkhar & Thimphu, Thromdes)
17. Director, Department of Disaster Management, MoHCA, Thimphu for necessary action

TITLE SHEET

1. Title of the Report : Performance Audit of Disaster Management
2. Audit Identification Number : 13730
3. Audited Entities : Department of Disaster Management, Ministry of Home and Cultural Affairs
: Department of Engineering Services, Ministry of Works and Human Settlement
: Department of Hydromet Services, Ministry of Economic Affairs
: Royal Bhutan Police
: Dzongkhag Administration Offices
: Thromdes
4. Schedule of Audit : 1st September 2015 to 31st January 2016
5. Audit Team : Sonam Wangmo, Senior Audit Officer
: Bikram Gurung, Senior Audit Officer
6. Supervising Officer : Chandra Bdr. Gurung, Assistant Auditor General, Thematic Audit Division

LIST OF ABBREVIATIONS AND GLOSSARY

AWP	Annual Work Plan
BBR	Bhutan Building Rules 2002
BoQ	Bills of Quantities
BSB	Bhutan Standard Bureau
CBDRM	Community Based Disaster Risk Management
De-Suung	Guardians of Peace
DDM	Department of Disaster Management
DDMC	Dzongkhag Disaster Management Committee
DDMO	Dzongkhag Disaster Management Officer
DES	Department of Engineering Services
DGM	Department of Geology and Mines
DMIS	Disaster Management Information System
DM Act	Disaster Management Act 2013
DNB	Department of National Budget
DoFPS	Department of Forest and Park Services
DHMS	Department of Hydro-Met Services
DoR	Department of Roads
DRR	Disaster Risk Reduction
DSE	Department of School Education
DT	DzongkhagTshogdue
Dzongkhag	District
EIE	Education in Emergencies
EOCs	Emergency Operation Centers
EWS	Early Warning System
FEMD	Flood Engineering and Management Division
FYP	Five Year Plan
GEF	Global Environment Facility
Gewog	Block
GLOF	Glacial Lake Outburst Flood
GNH	Gross National Happiness
GNHC	Gross National Happiness Commission
IMTF	Inter-Ministerial Task Force
ISSAIs	International Standard for Supreme Audit Institutions
JDWNRH	JigmeDorjiWangchuck National Referral Hospital
JICA	Japan International Corporation Agency
LDCF	Least Developed Countries Fund
MHPA	Mangdechhu Hydro Power Authority
MoE	Ministry of Education
MoEA	Ministry of Economic Affairs
MoH	Ministry of Health
MoHCA	Ministry of Home and Cultural Affairs
MoWHS	Ministry of Works and Human Settlement
MRRH	Monggar Regional Referral Hospital
NaSaRT	National Search and Rescue Team
NAPA	National Adaptation Programme of Action
NDMA	National Disaster Management Authority
NEOC	National Emergency Operation Center
NECS	National Environment Commission Secretariat
NIM	National Implementation

PHPA	Pungnatshangchu Hydro Power Authority
PHRD	Policy and Human Resource Development
PPD	Policy and Planning Division
RAA	Royal Audit Authority
RBP	Royal Bhutan Police
RBA	Royal Bhutan Army
RCSC	Royal Civil Service Commission
RGoB	Royal Government of Bhutan
RICBL	Royal Insurance Corporation of Bhutan Limited
RVA	Rapid Visual Assessment
RVS	Rapid Visual Screening
SAR	Search and Rescue
SCI	Save the Children International
SQCA	Standard and Quality Control Authority
Thromde	City/Municipal administration
TVERMP	Thimphu Valley Earthquake Risk Management Project
UNDP	United Nations Development Programme
UNISDR	United Nations International Strategy for Disaster Reduction
UNICEF	United Nations Children Emergency Fund
UNV	United Nations Volunteers
UNOHCA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
WHO	World Health Organization

TABLE OF CONTENTS

Chapter 1: About the Audit	1
1.1 Mandate.....	1
1.2 Objectives of audit	1
1.3 Scope and limitations of audit.....	1
1.4 Audit methodology.....	2
Chapter 2: Introduction.....	3
2.1 Background on disaster management in bhutan.....	3
2.2 Institutional framework for disaster management.....	3
2.3 Past disasters and their impacts.....	5
2.4 Disaster risk reduction initiatives	6
2.5 Damages caused by major disasters.....	6
Chapter 3: Audit Findings	8
3.1 Initiatives and positive developments in disaster risk management	8
3.2 Lapses and deficiencies	9
3.2.1 Legislative and institutional framework.....	9
3.2.1.1 Non-compliance to the critical provisions of the DM Act 2013.....	9
3.2.1.2 Lack of national disaster management plan.....	12
3.2.1.3 Absence of disaster management unit in agencies.....	13
3.2.2 Governance and operations.....	13
3.2.2.1 Lack of effective coordination in disaster management.....	13
3.2.2.2 Absence of hazard zonation maps and vulnerability reports.....	15
3.2.2.3 Lack of central database system on disaster management.....	16
3.2.2.4 Inadequate risk transfer mechanism towards disaster risk reduction.....	17
3.2.2.5 Inadequate fire safety measures in dzongs and public buildings.....	19
3.2.2.6 Inadequate application of safe construction practices.....	21
3.2.2.7 Lack of proper planning, design and workmanship in construction	21
3.2.2.8 Non-establishment of emergency operation centres (EOCs)	23
3.2.2.9 Irregularities in management of equipments.....	24
3.2.3 Resource mobilization.....	26
3.2.3.1 Inadequacies and inconsistencies in funding arrangement for disaster management.....	26

3.2.3.2 Inadequacies and lapses in project management.....	27
Chapter 4: Recommendations	29
Chapter 5: Conclusion	32

CHAPTER 1: ABOUT THE AUDIT

1.1 MANDATE

- a. Article 25 (1) of the Constitution of the Kingdom of Bhutan and Section 3 of the Audit Act of Bhutan 2006 provide *“There shall be a Royal Audit Authority to audit and report on the economy, efficiency, and effectiveness in the use of public resources”*.
- b. Section 38 (b) of the Audit Act of Bhutan 2006, under the ‘functions of the RAA’ states that, the Authority shall, *“Conduct Performance Audit to ascertain and report on the economy, efficiency and effectiveness of the operations of agencies audited”*. Therefore, in fulfillment of the constitutional mandate and the specific requirement of the Audit Act, the Royal Audit Authority (RAA) conducted the ‘Performance Audit of Disaster Management’. Further, the audit of disaster management is also a high priority topic as per the strategic plan 2015-2020 of the RAA.
- c. Section 91 of the Disaster Management Act of Bhutan 2013 provides *“The Royal Audit Authority shall be the auditor for all Disaster Management expenditures”*.

1.2 OBJECTIVES OF AUDIT

The RAA conducted the audit with an overarching objective to ascertain whether the agencies charged with the governance and management of disaster have geared their efforts towards ensuring that the country, in general is safe and resilient against potential disasters facing the country. The specific objectives of the audit are as provided below:

- a. To ascertain that the agencies concerned have exercised due regard in ensuring economy, efficiency and effectiveness in the use of resources in managing disaster;
- b. To review the effectiveness of the legislation, institutional and governance mechanism on disaster management in the country;
- c. To determine the existence and effectiveness of coordination amongst the authorities at various levels; and
- d. To ascertain whether the major projects and programs on disaster management have contributed in building up disaster resilient community.

1.3 SCOPE AND LIMITATIONS OF AUDIT

- a. The audit of disaster management covers only those issues related to management of natural disaster and not of man-made or any other disaster.

- b. As the Department of Disaster Management (DDM), Ministry of Home and Cultural Affairs (MoHCA) is the nodal agency for management of disaster in the country, the audit was conducted primarily concentrating on the records and information provided by the DDM.
- c. Nevertheless, given the cross-sectoral nature of the audit topic, the RAA also collected information from other relevant agencies such as Department of Engineering Services (DES), Ministry of Works and Human Settlement (MoWHS), Department of Hydromet Services (DHMS), Ministry of Economic Affairs (MoEA), Department of School Education (DSE), Ministry of Education (MoE), Royal Bhutan Police (RBP) -Headquarter and selected Divisional Offices, Thromdes, selected Schools, Mangdechhu Hydro-Power Authority (MHPA), Punatshangchhu Hydro- Power Authority (PHPA)- I& II, Monggar Regional Referral Hospital (MRRH), Jigme Dorji Wangchuk National Referral Hospital (JDWNRH) and 10 selected Dzongkhags. Further, the RAA collected required information from rest of the Dzongkhags through structured questionnaires.
- d. The audit was planned to cover the period from 2010- 2015. However, owing to non-availability of centralized records and documentations on the disaster management activities in the country, the audit findings and opinions are limited only to the available records and information.

1.4 AUDIT METHODOLOGY

The RAA applied the following audit methodologies:

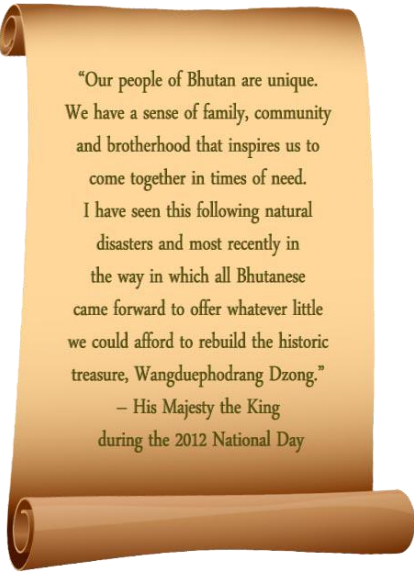
- a. Review of Disaster Management Act (DM Act) 2013, Disaster Management Rules and Regulations(DMRR) 2014, Guidelines on Disaster Management, Documents on various disaster-related projects and other relevant legislations such as Thromde Act, Bhutan Building Rules (BBR) 2002, etc.;
- b. Review of documents and records provided by other relevant agencies involved in disaster management;
- c. Personal interview with officials and staff engaged in disaster management in the country at various levels;
- d. Review of the Disaster Management Information System (DMIS) maintained by DDM;
- e. Physical verification of disaster-related activities and construction sites;
- f. Physical verification of Search and Rescue equipment; and
- g. Review and analysis of questionnaires distributed to Dzongkhag and Thromde focal persons.

CHAPTER 2: INTRODUCTION

2.1 BACKGROUND ON DISASTER MANAGEMENT IN BHUTAN

Geo-physically, Bhutan is vulnerable to multiple hazards such as Earthquake, Glacial Lake Outburst Flood (GLOF), Flash Flood, Windstorms, Forest Fire and Landslides that pose varying degrees of threat to lives and livelihood of our people. As per Section 144 of the DM Act of Bhutan 2013, *“Disaster means a natural or man-made occurrence which causes environmental loss, increased mortality, illness or injury, and destroys or disrupts livelihoods, affecting the people or an area”* and further classified as below:

- Section 93 stipulates *“A disaster shall be classified as Type I, if it can be managed with available resources and is within the coping capacity of the Gewog/Thromde concerned”*;
- Section 94 stipulates *“A disaster shall be classified as Type II, if it can be managed with the available resources and is within the coping capacity of the Dzongkhag concerned”*; and
- Section 95 stipulates *“A disaster shall be classified as Type III, if severity and magnitude is so great that it is beyond available resources and the coping capacity of the Dzongkhag concerned”*.

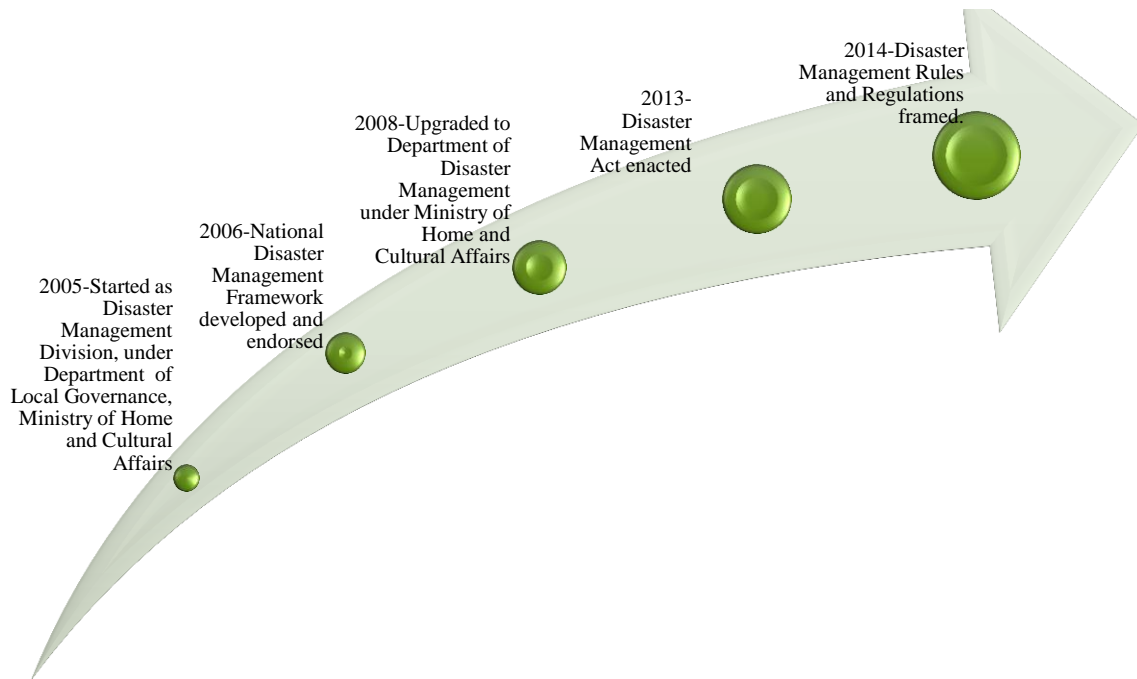


“Our people of Bhutan are unique. We have a sense of family, community and brotherhood that inspires us to come together in times of need. I have seen this following natural disasters and most recently in the way in which all Bhutanese came forward to offer whatever little we could afford to rebuild the historic treasure, Wangduephodrang Dzong.”
– His Majesty the King
during the 2012 National Day

2.2 INSTITUTIONAL FRAMEWORK FOR DISASTER MANAGEMENT

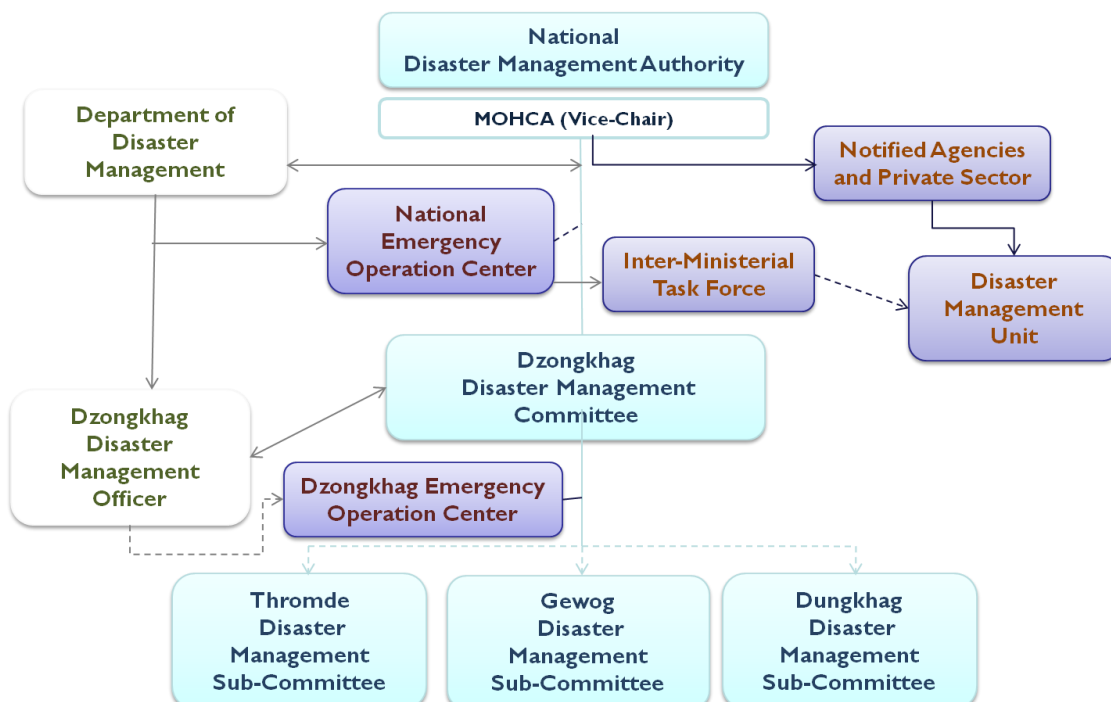
The above classification of disaster indicated that disaster management in the country is devolved to the lowest level of the government structure with varied responsibilities as per the availability of resources. The governance milestone of disaster management is depicted in **Figure 1**.

Figure 1: Governance milestone for disaster management in Bhutan



As disaster is a cross-sectoral issue and can widely vary in typology and magnitude, it invariably warrants engagement of multiple actors in managing and preparing for a disaster. The overall institutional framework for disaster management is shown in **Figure 2** and the roles and responsibilities of different agencies during disasters presented during the 2nd NDMA meeting in **Annexure I**.

Figure 2: Institutional framework for disaster management



2.3 PAST DISASTERS AND THEIR IMPACTS

Disaster threat and reducing vulnerability has always been a concern for a small and vulnerable country like Bhutan. The adverse effects of disaster are many-folds. Besides losing the lives and properties at personal level, the mega-disasters have the potential to push back the entire economy of the country. The existing infrastructure would not only be wasted, but planned socio-economic activities would be de-railed as funds need to be re-appropriated and re-adjusted for rebuilding new infrastructure.

Deeply aware of such adverse impacts of disaster for the country and its people, His Majesty the King has always laid utmost importance on the safety of people and community. His Majesty believes that even an isolated incident such as a loss of single life or any property would tantamount to disaster for a small country like Bhutan. His Majesty's care and concern for the people in such difficult times is epitomized through His Majesty's presence in person, being together with people and extending all assistance in rebuilding the lives of people.

Besides, many of the noble visions of His Majesty have been transformed into full-functioning institution and policies, which are reaping full benefits in times of disaster or any other emergencies. His Majesty has commanded and instituted Relief Fund, De-Suung, '*the Guardian of Peace and Happiness*' motivated through a sense of volunteerism and has made invaluable contribution during disaster. As of date, there are 2,264 fully trained De-Suung volunteers who are capable of acting as 'first responders'. His Majesty has also instituted the system of placing kidu (welfare) officers in all Dzongkhags so as to facilitate timely intervention during the times of disaster.

In general, disaster management in Bhutan receives high priority as evidenced from government's Five Year Plans (FYP), besides the vision and initiatives of His Majesty the King. One of the important initiatives of the government in the 11th FYP is to mainstream Disaster Risk Reduction (DRR) in their policies, plans and programmes. Mainstreaming of DRR initiatives in the 11th FYP suggest that Bhutan identifies DRR as a long term investment with increased benefits to the nation as a whole.

The parliament enacted the DM Act in 2013 with an objective to protect the lives and properties of people, ensuring safety and security of public assets and services by reducing and managing risk arising out of disaster. Further, the DMRR 2014 was framed to establish an administrative and regulatory framework for disaster management.

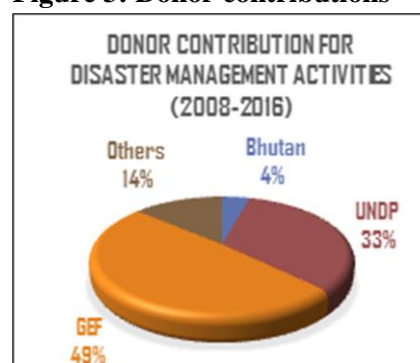
2.4 DISASTER RISK REDUCTION INITIATIVES

Disaster management in Bhutan follows a multi-sectoral approach with DDM acting as a national coordinating body with the National Disaster Management Authority (NDMA) as the highest decision making body on disaster management.

The government has embarked on creating awareness and training communities on the potential hazards in their localities. One of the major activities carried out is the installation of Automated Early Warning System (AEWS) in the vulnerable places for Glacial Lake Outburst Flood (GLOF) and identification of safe evacuation sites.

In addition to this, several DRR and mitigation projects and programmes were taken up by different agencies funded by various donors as depicted in **Figure 3** and detailed in **Annexure II**. Like any other country, Bhutan also suffers from natural hazards and is susceptible to many kinds of hazards. **Table 1** shows the disaster statistics of reported disasters in the country from 2000-2015.

Figure 3: Donor contributions



-Bhutan includes funding by MHPA and PHPA
 -Others include JICA, SCI, UNICEF, Bhutan Foundation, WHO, World Bank, Global Fund

Source: GNHC

Table 1: Disaster Statistics (2000-2015)

Disaster types	Total Disaster	Total Casualties	Damages
Earthquake	8	13	12,053 rural houses affected
Flood and Windstorm	4	70	3,778 homes affected
Land Slide	7	5	Highways disrupted and 28 acres of wetland affected
Fire in human settlement	7	3	150 houses and Wangdue Phodrang Dzong burnt down
Total	26	91	

Source: DDM

2.5 DAMAGES CAUSED BY MAJOR DISASTERS

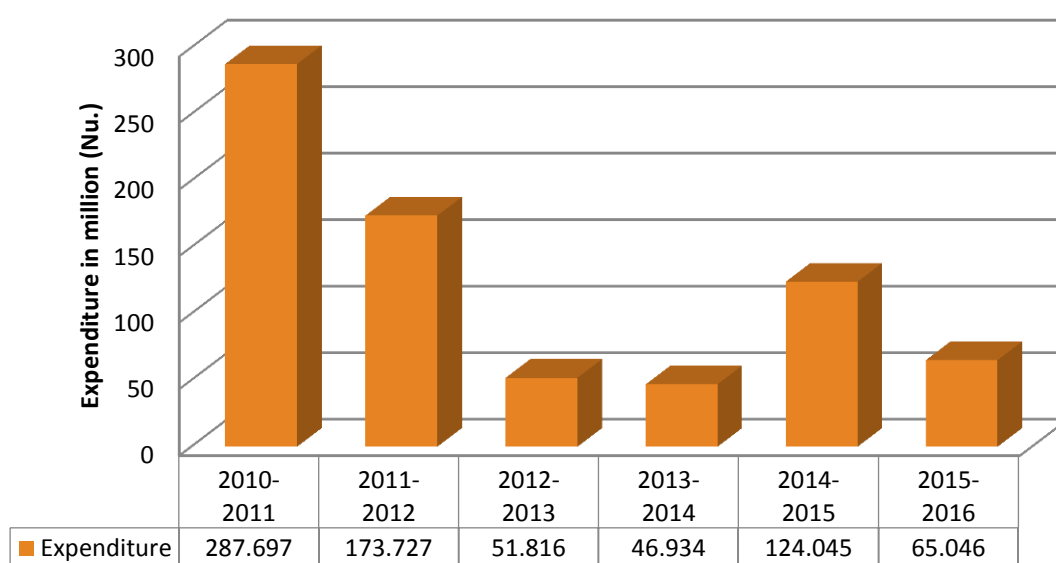
Bhutan experienced many natural disasters in the recent years and caused several damages. The damages caused by major disasters from 2009 to 2015 are provided in **Table 2** and the expenditure incurred by the Royal Government of Bhutan (RGoB) for disaster management from the financial years 2010-2011 to 2015-2016 is depicted in **Figure 4**.

Table 2: Damages caused by major disasters from 2009-2015

Sl. No.	Disaster	Families Affected	Loss of lives	Total Estimated loss (Nu. in Millions)
1.	Earthquake, September 21, 2009	4,950	12	2,501.00
2.	Cyclone Aila Floods, 2009	N/A	13	722.00
3.	Windstorm Damage Report, April 2011	2,424	0	39.07
4.	Earthquake, September 18, 2011	7,965	1	1,197.64
5.	Bumthang Chamkhar Fire incidences, 2010 & 2011	112	2	1,108.07
6.	Wangdue Phodrang Dzong Fire, 24 June 2012	Data not available		

Source: DDM

Figure 4: RGoB Expenditure on Disaster Management Activities



Source: Ministry of Finance

CHAPTER 3: AUDIT FINDINGS

The Chapter on the audit findings is divided into two parts. **Part 3.1** highlights on the initiatives of various agencies concerned and positive developments in disaster risk management in the country and **Part 3.2** discusses the lapses and deficiencies noted by the Royal Audit Authority.

3.1 INITIATIVES AND POSITIVE DEVELOPMENTS IN DISASTER RISK MANAGEMENT

While there were various deficiencies and shortcomings noted from the audit of disaster management in the country, there were also some significant initiatives and positive developments that were observed by the RAA. Some of the positive accomplishments are summarized below:

- i. The Parliament enacted the DM Act in 2013 which provided the legal framework in managing disasters in the country. The DM Act envisioned a strong legal framework and policy regime which is cross-sectoral;
- ii. One of the important initiatives of the government in the 11th FYP is to mainstream disaster risk reduction in their policies, plans and programmes;
- iii. DDM has been able to provide Community Based Disaster Risk Reduction and Management (CBDRM) training to all 20 Dzongkhags;
- iv. DHMS has successfully installed Automated Early Warning Systems for flood in the GLOF affected areas in Punakha, Wangdue, Mangdechu and Chamkhar Valleys;
- v. The Education in Emergencies (EIE) Unit in MoE in collaboration with DDM had successfully created awareness among school children on earthquake and fire hazards through “Disaster Preparedness and Response for safe school programme”;
- vi. All schools have developed school disaster management plan and contingency plan. The schools also conduct safety drills at least twice a year for multi hazards involving all students and staff;
- vii. The DDM had created awareness on potential disaster and its impact by way of advocacy and awareness programs disseminated through various media;
- viii. The agencies concerned were able to secure funds and other resources for management of disaster from various countries and donor agencies; and

- ix. The Government, represented by MoHCA and MoF has drawn a Memorandum of Understanding with Royal Insurance Corporation of Bhutan Limited (RICBL), on a scheme to extend insurance coverage to all the rural houses in the country.

3.2 LAPSES AND DEFICIENCIES

The RAA's review and analysis of the available documents and information on disaster management activities carried out in the country revealed various shortcomings and lapses as discussed below:

3.2.1 Legislative and institutional framework

3.2.1.1 NON-COMPLIANCE TO THE CRITICAL PROVISIONS OF THE DM ACT 2013

The core objective of having a legislative Act in place is to provide an overarching legal framework and basis for implementing any plans, policies and programmes. The intent of the DM Act 2013 was to have a well-coordinated disaster management system for the country through well-functioning committees and bodies at National, Dzongkhag, Thromde, and Gewog level. Review of DM Act and its subordinating rules and regulations vis-à-vis the existing practices revealed that the disaster management legislation was not found to be implemented completely both in letter and spirit, the instances of which are discussed below:

i. INADEQUATE FUNCTIONING OF NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

- a) Section 7 of the DM Act stipulates "*the NDMA shall be the highest decision making body on disaster management*". As NDMA is the highest decision making body, it is the responsibility of NDMA, supported by the DDM to provide strategic leadership on management of disaster in the country. It transpired from the provision of the Act that all matters relating to institutional and policy framework on disaster management should be directed by the NDMA. The NDMA was constituted on 26th February 2014 with the Prime Minister as the Chairperson of the Authority as required under the Act.
- b) Section 19 of the DM Act stipulates "*the NDMA shall meet at least once every six months*". This provision to meet at least once in six months was an important provision as this would provide appropriate platform to provide direction in disaster management and take stock of situations of disaster preparedness at various levels. However, despite the requirements of the Act, the NDMA had held only two

meetings, one in March 2014 and other in October 2015 since its constitution in February 2014.

- c) The RAA noted that the NDMA had delineated roles and responsibilities of various agencies involved in disaster management. However, those roles and responsibilities were neither found carried out nor there was any follow-up to verify the status by the DDM. Moreover, there was also lack of effective communication of roles and responsibilities of different agencies involved in disaster management.
- d) Absence of systematic and cohesive approach to implementation of disaster management activities both at central and local government levels would inevitably impede effectiveness of disaster management initiatives.

ii. NON-EXISTENCE OR NON-FUNCTIONING DZONGKHAG DISASTER MANAGEMENT COMMITTEES (DDMCs)

- a) Section 24 of the Disaster Management Act 2013 stipulates *“every Dzongkhag Administration shall constitute a Dzongkhag Disaster Management Committee”*. The Act further provides for the composition, roles and functions of the DDMC. However, most of the Dzongkhags have not initiated the formation of DDMC, despite the written instruction from government dated 15th May 2014.
- b) While many Dzongkhags have not even formed the committee, even those Dzongkhags that had constituted the committee had done very recently when the RAA raised concerns on non-formation of the DDMC. No Dzongkhag Administration had carried out any functions as laid down in the Act, thereby violating the entire provisions on functions, roles and responsibilities of the DDMC as provided in the Act.
- c) The Section 31 of the Act stipulates critical role of the DDMC in managing disaster at Dzongkhag, Dungkhag and Gewog level. Let alone carrying out their roles and responsibilities as per the Act, the Dzongkhags Administration have not even convened a single meeting to coordinate and manage the disaster related issues in their jurisdiction.
- d) While the Dzongkhags Administration have not adhered to the instruction of the government, the DDM has also not complied with their function provided under Section 60 of the DM Act, which

Stipulates “DDM shall facilitate the constitution of Disaster Management Committees and ensure its efficient functioning”.

- e) Such inaction or non-adherence to the provision of the Act indicated a total lack of seriousness in disaster management in the country by all parties concerned.

iii. NON-CONSTITUTION OF INTER-MINISTERIAL TASK FORCE (ITMF)

- a) Section 49 and 50 of the DM Act stipulate “the NDMA shall constitute an Inter-Ministerial Task Force comprising of technical experts from relevant agencies”. Amongst others, the task force as stipulated in the Act has crucial functions such as, reviewing of hazard zonation and vulnerability mapping, review of structural and non-structural measures, review of national standard, guideline and standard operating procedure for disaster management.
- b) Basically, the requirement to form the task force was to bring together a pool of qualified and competent people so as to assist all other relevant bodies in managing and preparing for any kind of disaster.
- c) Despite the requirement in the Act and importance of such team, the NDMA and the DDM had not finalized the constitution of IMTF even after lapse of two and a half years since the enactment of the DM Act.

iv. NON-RECRUITMENT OF DZONGKHAG DISASTER MANAGEMENT OFFICER (DDMO) LEADING TO UNCOORDINATED ACTIVITIES

- a) Section 63 of the DM Act stipulates “the Government shall recruit a Dzongkhag Disaster Management Officer in all the Dzongkhags”. However, the RAA observed that Dzongkhag Disaster Management Officer has not been recruited as of date in any Dzongkhag as required under the DM Act 2013.
- b) Considering the critical functions, roles, and responsibilities provided in the Act, it is very crucial to recruit DDMOs to assist the government to effectively facilitate and regulate disaster management. Thus, most of the inefficiencies in disaster management at the Dzongkhag level are attributed to the absence of a proper DM focal person or a DDMO.
- c) Previously, officials from different sectors were appointed as DM focal person to carry out the tasks of the DDMO mentioned in the Act. Nonetheless, these officials having to prioritize their primary work over disaster management related work, which is though important

and urgent, was given the secondary priority. As a result, this arrangement had apparently hampered the initiatives and efficiencies in carrying out activities related to disaster management.

- d) As per the questionnaires floated to the disaster focal persons in the Dzongkhags, most of them cited *'lack of fund and frequent change in focal person'* as the primary reasons for not being able to carry out the primary functions stated in the DM Act.
- e) Meetings and correspondences held between DDM and Royal Civil Service Commission (RCSC) indicated that the DDM had initiated the recruitment of DDMOs in all Dzongkhags. However, the DDM explained that RCSC did not encourage the recruitment of DDMOs on the principle of 'small, compact and efficient' civil service. Nevertheless, the RCSC recently had mandated the Dzongkhag Tshogdue (DT) Secretary to carry out the functions of the DDMOs in addition to their job conveyed vide letter number RCSC/PPD-40/2015/1761 dated 23rd December 2015.
- f) While the current arrangement to appoint DT Secretary to multi-task the functions of DDMO provides some sense of stability, there is no assurance that it will fulfill the core objectives as stipulated in the Act.
- g) As per section 64 of the Act, the DDMOs have huge responsibilities which form the basis for disaster management in the entire country; as the Act envisaged bottom-up approach in disaster management.

3.2.1.2 LACK OF NATIONAL DISASTER MANAGEMENT PLAN

- a) The DM Act requires preparation of disaster management and contingency plans at Gewog, Thromde, Dzongkhag and ultimately at National level. The Act envisages that once the disaster plans for all Gewogs, Thromdes and Dzongkhags are completed, which will form the basis for the national plan on disaster management.
- b) The Gewog disaster plans are found to be prepared primarily by the village folks with some assistance from focal person on disaster management and involvement of few other local civil servants. Following the completion of the plan at the Gewog level, the document is to be reviewed by the DDM.
- c) Of the 205 Gewogs, the disaster and contingency plan for 26 Gewogs, under Chhukha, Paro and Trongsa Dzongkhags have been initiated as of date.
- d) The draft plan documents of these Gewogs and PHPA were submitted to DDM for review and finalization. However, the RAA noted that

despite significant lapse of time, these draft plan documents remained status quo with DDM without any comments.

- e) On discussion with DDM for not being able to finalize these few plan documents, it was stated that there was lack of in-house capacity to conduct the review and finalize the Gewog disaster management plan.
- f) As a result these disaster plan documents were still in unrefined forms and in the process of compilation. Also there were no agreed deadlines on the completion of these plans, although the planning process at the Gewog level was initiated in 2014.
- g) With such progression, the RAA feels that the disaster management and contingency plans may not materialize.
- h) In absence of strategic planning, direction and holistic approach and lack of expertise at the Gewog level, the implementation of bottom up approach to disaster management planning has been rendered difficult.

3.2.1.3 ABSENCE OF DISASTER MANAGEMENT UNIT IN AGENCIES

- a) Section 66 of the DM Act stipulates *“every agency including the private sector notified by the NDMA shall institute a Disaster Management Unit in its organization”*. The agencies are supposed to prepare the disaster management and contingency plan, including institutional, structural and non-structural infrastructures that should reasonably ensure continuity of critical services in the event of disaster.
- b) In contravention to above provision of the Act, the RAA noted that most of the government and private agencies do not have a disaster management unit in place. Some agencies that have instituted disaster management unit are hydro-power projects and armed forces. On enquiry on the non-compliance to the critical provision of the Act, the overwhelming response was lack of fund and not being aware of such requirement.
- c) Most of the agencies had not established disaster management unit as they had not been notified by the NDMA.

3.2.2

Governance and Operations

3.2.2.1 LACK OF EFFECTIVE COORDINATION IN DISASTER MANAGEMENT

- a) Disaster being a cross-cutting issue it requires cooperation and coordination of various ministries, sectors and agencies. Primarily,

coordination amongst agencies such as DDM, Dzongkhags Administration, Royal Bhutan Police and relevant Ministries is essential in implementing disaster management activities and dealing with emergencies effectively. In cognizance of the above fact, the DM Act of the Kingdom of Bhutan also necessitates coordination amongst these agencies for an integrated and coordinated disaster management. The DDM as the Secretariat to the NDMA is required by the DM Act to facilitate and support relevant agencies by constituting Disaster Management Committees at various levels.

- b) The RAA, however observed that there was minimal or no coordination amongst these agencies in managing disaster in the country. While the RAA acknowledges that in times of disaster, not just authorities but even ordinary Bhutanese citizens show up to render whatever assistance, but it definitely lacked effectiveness in combating disaster. It is even more imperative in times of major disaster that we should have coordinated approach in handling disaster situations. Uncoordinated reaction to disaster situation as shown globally has the potential to raise more chaos and confusion which could be highly counter-productive.
- c) Under the high command of His Majesty the King, the Armed Force personnel and Desuups were always the first ones to respond to all kinds of disaster situations and also providing assistance in relief phase of the disaster. However, the RAA observed that the DDM as the nodal agency for disaster management has neither collaborated with armed forces and Desuups nor included them in its training programmes conducted for other civilians. In fact, the DDM does not even have basic information on the number of armed force personnel who could assist in different disaster situations, so as to plan on the overall disaster management in the country.
- d) Further, the DDM had failed to establish proper collaboration with other agencies in resource pooling for efficient and effective disaster management. For instance, the Hydro-power projects such as PHPA and MHPA have maintained substantial pool of resources both in terms of equipment and human resources; nevertheless, there is no formalized or coordinated approach in shared utilization of these resources in times of or impending disaster.
- e) As mentioned elsewhere, Ministries and other sectors were found working in the disaster activities in isolation. Ministries did not realize what DDM was doing and same was the case with DDM. As a

result, there were instances where some activities were being duplicated and some critical functions not taken care by any agency.

- f) The DDM had formed Search and Rescue Team (SaRT) at National and Dzongkhag level. Besides a few members from armed forces, majority of the SaRT members were regular employees in the government agencies, corporate and private entities. The RAA observed and the SaRT team also expressed that duty or responsibility in disaster management becomes secondary as they have their primary responsibilities in the parent organization. Further, the DDM had not coordinated any refresher courses and meetings for SaRT to maintain sustainability of the team.
- g) Considering the above inadequacies and lapses, it transpired that there is lack of coordination and also cooperation from agencies involved in disaster management. The lack of coordination is not just the apathetic attitude of the agencies concerned but also lack of direction and leadership in disaster management in the country. Being mindful that large-scale disasters will be beyond the capacity of one single agency and well established coordination amongst the relevant agencies is vital in proactive and successful disaster management.

3.2.2.2 ABSENCE OF HAZARD ZONATION MAPS AND VULNERABILITY REPORTS

- a) Generally, there are specific and sequential activities to be followed for effective and efficient disaster management. Logically, the disaster managers have to first understand the different types of disaster, the potential threats of these disasters to lives and properties, the vulnerable areas and so on. This vital information could be obtained through hazard zonation and vulnerability maps drawn through appropriate scientific studies conducted by pool of experts within their respective fields.
- b) The RAA noted that as of date, there is no fundamental baseline data on disaster in the country in the form of hazard zonation and vulnerability assessment reports. In absence of such primary information, the RAA could not authenticate and ascertain how the isolated and piece-meal activities would ultimately result in macro-objective of building a safe and resilient nation.
- c) In absence of a consolidated nation-wide hazard zonation and vulnerability assessment, the RAA observed that agencies have attempted to come out with hazard zonation on their own areas without having wider consultation with relevant agencies. Often,

these exercises had not resulted in any tangible outcome that can be applied for disaster preparedness and management.

- d) It is very crucial to have a common framework in order to avoid duplication of efforts which leads to wastage of government money without a tangible output. Often, the DDM, the nodal agency for disaster management is unaware of disaster-related activities being carried out by various agencies. DDM should spearhead the process and have the final database on hazard and vulnerability maps. This is because disaster management involves a multi-sectoral agencies and harmonization of the efforts is an important task.
- e) Thus, without the requisite information on hazard zonation and vulnerability mapping, the disaster management plans and contingency plans both at national and local level remain undeveloped. In absence of a strategic document on disaster management, all other plans, programs and activities carried out in isolation by various agencies may not be able to achieve the macro-objective of disaster risk reduction at national level.
- f) All the above inadequacies and lapses have apparently occurred due to lack of strategic focus in management and also lack of coordination amongst various agencies involved in disaster management. As of now, the authorities are not clear about which institution and activities should take precedence over others. For instance, DDM has already initiated preparation of disaster management plans for some Gewogs and Paro Dzongkhag, without the report on hazard zonation and vulnerability mapping.

3.2.2.3 LACK OF CENTRAL DATABASE SYSTEM ON DISASTER MANAGEMENT

- a) The DDM, as the nodal agency for disaster management should possess complete information on anything related to disaster in the country. Information such as the hazard zonation maps, vulnerability assessment reports, types of hazards and their likely impact, activities and functions of other agencies involved in disaster management, projects on disaster management, disaster preparedness of different sectors etc. should be readily available with the DDM.
- b) However, at the moment there is complete lack of information at the central level, due to which the RAA faced tremendous difficulties in gathering even basic information on disaster management in the country.

- c) Section 60 of the DM Act empowers the DDM to “develop, maintain and update Disaster Management Information System in coordination with relevant agencies”. Considering the importance of having real time and vibrant data on disaster situations across the country, the DDM had initiated the Disaster Management Information System (DMIS) hosted at DDM office in Thimphu. However, the system did not serve the purpose of updating the disaster related information on continuous basis, as envisaged in the Act.
- d) The DMIS was required to be implemented by all focal persons of twenty Dzongkhags, so that they can report and update on the disaster issues in the country. Contrarily, the focal persons in Dzongkhags were not even provided with user rights to use the DMIS. Many stated that they do not have any knowledge of the system. As a result, the DMIS did not appear to fulfill the real objective as initially planned.
- e) More importantly, such situation does not aid policy makers and implementers to make informed decisions based on risks and vulnerabilities.

3.2.2.4 INADEQUATE RISK TRANSFER MECHANISM TOWARDS DISASTER RISK REDUCTION

- a) Risk transfer mechanisms do not reduce actual vulnerability but reduce financial risk by ensuring that funds are available when losses occur.
- b) The RAA noted that as a step towards risk transfer, the government, represented by MoHCA and MoF has drawn a Memorandum of Understanding with Royal Insurance Corporation of Bhutan Limited (RICBL), on a scheme to extend insurance coverage to all the houses in the rural areas in the country. This initiative of the government has reduced the financial burden on rural household by insuring rural houses providing subsidy.
- c) The insurance scheme covers damages caused due to fire, earthquake, flood/landslide and storm/lightening. The details of the insurance premium are as provided in **Table 3**.

Table 3: Insurance Scheme on rural houses

SL. No.	CATEGORY	SUM INSURED	TOTAL PREMIUM (Nu.)	GOVT. SUBSIDY (Nu.)	INSURED'S SHARE (Nu.)
1	Category I	300,000	1,225	250	975
2	Category II	200,000	815	250	565
3	Category III	110,000	450	250	200
4	Category IV	60,000	250	150	100

Source: RICBL

- d) Through this arrangement the government has spent Nu. 42.785 million as government subsidy on rural house insurance for the year 2013-2015, while the benefit to the rural household was Nu 81.906 million as shown in the **Table 4** and **Table 5**.

Table 4: Total insurance premium collected from rural houses

SL. No.	Year	Policy period	Insured Share (Nu.)	Govt. subsidy (Nu.)	Total Premium
1	2013	01/04/2013 to 31/03/2014	18,507,715.00	13,962,250.00	32,469,965.00
2	2014	01/04/2013 to 31/03/2015	18,828,183.00	14,257,250.00	33,085,433.00
3	2015	01/04/2015 to 31/03/2016	19,601,730	14,565,275.00	34,167,005.00
Total			56,937,628.00	42,784,775.00	99,722,403.00

Source: RICBL

Table 5: Total insurance claims paid

SL. No.	Year	Policy period	No. of houses	Claim Amount (Nu.)
1	2013	01/04/2013 to 31/03/2014	1,306	30,173,030.00
2	2014	01/04/2013 to 31/03/2015	886	22,394,508.00
3	2015	01/04/2015 to 31/03/2016	1,556	29,338,419.00
Total			3,748	81,905,957.00

Source: RICBL

This has not only helped rural household to benefit from insurance to build better houses but also eased the burden on the Government by compensating the claims through premium subsidy.

- e) While the above initiative of the government is highly commendable, similar schemes have not been explored to cover risks to other

Figure 5: Smoke detector cap not removed



critical government assets such as government owned buildings, important monuments and structures. As a result, all rebuilding and reconstruction cost of damaged infrastructure was found to be borne solely by the government .

f) In order to ensure that the key infrastructure can be rebuilt or rehabilitated, critical public assets should be insured. The selection of assets that merit insurance coverage should be based on careful prioritization of public facilities and on comprehensive facility vulnerability assessments.

3.2.2.5 INADEQUATE FIRE SAFETY MEASURES IN DZONGS AND PUBLIC BUILDINGS

- a) Fire safety is the set of practices intended to prevent and reduce the destruction caused by fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing, and those that are taught to occupants of the building.
- b) On review of the fire safety measures in Dzongs and public buildings such as hospitals, government housings and offices, it was observed that implementation of fire safety measures are either absent or very minimal. Specifically, the RAA observed the following lapses and inadequacies in preparedness and management of fire in the country.
- c) As a measure to safeguard Dzongs from fire hazard, smoke detection and alarm systems and fire hydrants were installed in seven Dzongs, of which the RAA visited and inspected five of them. The smoke detection and alarm systems were installed by MoHCA and manned by Fire Service Division of RBP.
- d) Generally, the RBP officials operating the smoke detection and alarm systems in Dzongs are not adequately trained to understand all the functions in system. The RAA observed that even to correct a minor fault related to the system, expertise needs to be hired from India or the whole system needs to be sent to India for mending. For instance, compact disk of the whole smoke detection and fire alarm system of Trongsa Dzong was sent to Kolkata for repair and it was found not brought back during the audit field visit, even after lapse of six

months. As a result, the fire detection system in Trongsa Dzong was non-existent.

- e) Smoke detection and fire alarm system and fire hydrant were found installed in Chhukha Dzong. However, during the field inspection the RAA noticed that plastic packs (covers) were not removed from many installed smoke detectors. Thus, defeating the very purpose of installing such expensive fire alarm system.
- f) In most of the Dzongs, the RAA noticed that the electric wirings and fittings are all old and worn out. Moreover, the increasing numbers of users have far crossed the capacity of the wiring, thus, posing threat of short circuit.
- g) The fire and emergencies services in Dzongs were not adequately staffed and equipped to provide immediate and quick response in case of any disaster. No firefighting gears were kept readily available.

Figure 6: Poor wiring done in Dzongs



- h) As a part of action against the lesson learnt after Wangdue Dzong tragedy, the Dzongkhag Administration had made it compulsory for the last person leaving his or her office to put off all the electrical appliances and record the same in the register maintained by the management. However, the good practice was found followed diligently only for a few months; now the practice was at the most a forgotten formality.
- i) Although Section 7.8 on fire safety in the BBR 2002 requires installation of fire safety measures in buildings, but huge public as well as commercial buildings stand without any fire safety measures being installed.
- j) This not only poses fire hazard threats to the occupants of the building, but also poses risks to the lives and properties surrounding the building.

3.2.2.6 INADEQUATE APPLICATION OF SAFE CONSTRUCTION PRACTICES

- a) Geo-physically, Bhutan lies in one of the most seismically active zones of the world making its people and properties highly vulnerable to the hazards of earthquake. The country has so far experienced approximately 33 earthquakes starting from 1937 to the recent one being in 2015, which had its epicenter in Nepal.
- b) For a seismically active country like Bhutan, safe construction practices for construction of infrastructure are of utmost priority. In absence of its own seismic hazard map, the country currently follows the Indian Standards (IS 1893) for earthquake resistant construction based on the seismic zonation of India, which is incorporated in the BBR 2002. The BBR 2002 provides some generic requirements of specifications on the physical infrastructure constructions in urban areas. However, due to shortage of human resources in the Thromdes, adherence to BBR 2002 for constructions in urban areas cannot be monitored and supervised effectively.
- c) While there are minimal construction standards for structures in urban areas, the construction practices in rural areas which are generally of mud, remained highly vulnerable to the hazards of earthquake. Although the MoWHS had developed guideline on proper construction practices for non-engineered buildings and Rural Construction Rules 2013, these are yet to be implemented at the field. At the moment, there was no mechanism put in place to monitor and supervise the construction in rural areas. As a result, a vast majority of Bhutanese population is still exposed to threats of disaster.
- d) The DDM in coordination with MoWHS and other relevant agencies should initiate the implementation of Rural Construction Rules and the guideline at the earliest as a preventive measure to respond to the hazards of earthquake.

3.2.2.7 LACK OF PROPER PLANNING, DESIGN AND WORKMANSHIP IN CONSTRUCTION

- a) The RAA on verification of some of the activities carried out under disaster funding revealed that there was lack of proper planning and design in the construction of capital infrastructure. As a result, the government had incurred huge expenditure leading to wastages and inefficiencies.
- b) The RAA observed that agencies had comfortably attributed all construction failures to disaster and requested for additional funding

under disaster budget. Further, the construction failures had apparently aggravated due to completion of construction towards monsoon season.

- c) Despite the flaws in planning, design and ill- timing of construction, the authorities had not verified the cause of construction failures; but had rather insisted on additional funding to re-construct those infrastructures.
- d) While the agencies submit the budget proposal to MoF under disaster funding, the MoF does not have adequate measures in place to verify whether the damage to infrastructure was genuinely due to natural disaster or due to some other man-made factors.
- e) Some of the instances of construction activities are briefly discussed below:
 1. The Dzongkhag Administration, Trashigang had constructed a retaining wall for expansion of football ground at Trashigang Middle Secondary School at a cost of Nu. 2.089 million in 2012. However, following the complete collapse of the wall reportedly due to heavy rainfall, an additional amount of Nu. 37.106 million had been approved for the re-construction of the same wall, which was under construction during the site visit.

Figure 7: Collapsed wall at Trashigang Middle Secondary School.



2. The Dzongkhag Administration, Trashigang had constructed a bailey bridge (Pangzam) over Merak Ama River at a cost of Nu. 12.413 million in 2013. After 10 months (October 2014) of taking over the bridge from the contractor, the bridge was found defective and unusable and currently barred from public commuting. While the defective works was apparently due to lack of proper feasibility study, design, monitoring and supervision of the work, it was again attributed to natural disaster and budget

was approved by the MoF for the reconstruction of the bridge at the same location.

Figure 8: Scoured abutment of Pangzam



3. A retaining wall at Dratshang, Pemagatshel was constructed in 2012 at a cost of Nu. 8.9 million. However, the wall could sustain only till monsoon and collapsed in July 2012. Later, the wall was re-constructed at an additional cost of Nu. 3.7 million.
4. The Dzongkhag Administration, Trongsa had constructed a truck parking at a cost of Nu.5.4 million. The construction got washed away due to mudslides originating above the construction sites. While the Dzongkhag Administration has not requested for additional funds for re-construction, the initial contract amount of Nu. 5.4 million tantamount to wastage of government resource.
- f) The prevalence of such practices seems to have been facilitated by absence of proper disaster budgeting system and collaboration between the Dzongkhag and the relevant ministry in planning and designing the construction activities. Apparently such failures were due to lack of expertise in designing and planning infrastructures, especially of mega size and of complex nature.

3.2.2.8 NON-ESTABLISHMENT OF EMERGENCY OPERATION CENTRES (EOCs)

Section 105 of the DM Act stipulates “*there shall be a National Emergency Operation Centre (NEOC) established by the DDM including Dzongkhag Emergency Operation Centres (DEOCs)*”. The Act further provides that DDMC may establish Emergency Operation Centres (EOCs) at Dungkhag, Gewog or Thromde level, if necessary. These EOCs are meant to be the primary information and coordination centre for management of disaster, especially during the times of disaster. Some of the important functions of EOCs are briefly described below:

- ★ Receive disaster alerts and warnings and communicate the same to all relevant agencies;
- ★ Issue incident specific information and instructions to all concerned;
- ★ Facilitate and Monitor response and relief operations; and
- ★ Requisition of resources during disaster.

- a) Considering the above functions, the establishment of EOC is a fundamental infrastructure that should be in place during threatening disaster situation or disaster. Let alone the construction of EOCs at Dzongkhag and other levels, the EOC at the National Level is not found constructed.
- b) The Dzongkhag Administration, Punakha had constructed a building as EOC through UNDP- GLOF funding, which was found unutilized at the time of audit inspection.

Figure 9: Unutilized DEOC



- c) It appeared that the activities carried out by DDM and other agencies involved in disaster management are in total disconnect and poorly sequenced. It is logical that infrastructure of such important functions should have been established at the outset so as to facilitate effective management.

3.2.2.9 IRREGULARITIES IN MANAGEMENT OF EQUIPMENT

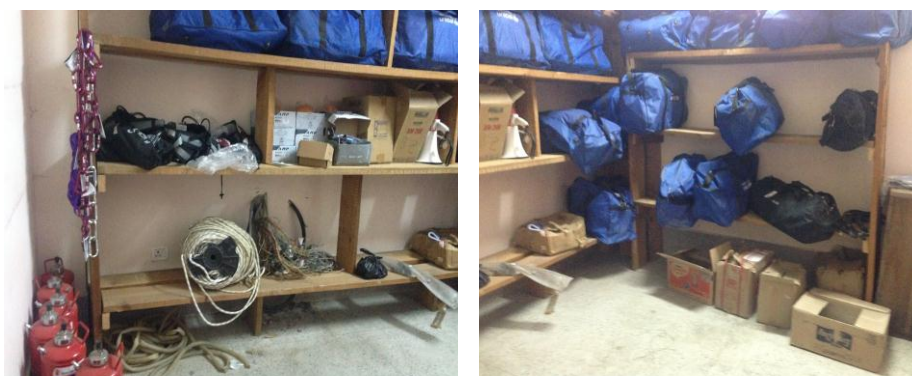
The DDM had procured Search and Rescue and other basic disaster related equipment amounting to Nu. 16.602 million through the Royal Government of Bhutan (RGoB) funding. Most of these equipment, especially the Search and Rescue equipment had been distributed to all twenty Dzongkhags to facilitate basic search and rescue operation in emergency situations. Review of the procurement system and physical verification of these equipment revealed following lapses and inadequacies.

- a) There were frequent reshuffle in disaster focal persons in Dzongkhags. Moreover, many of them have not been provided any

training and awareness on use of search and rescue equipment. Those people who had been provided some basic training once had stated that due to lack of refresher courses many of them had forgotten what they learnt. As a result, the utilization of such equipment in times of disaster may be rendered difficult.

- b) Almost all equipment were found stored in poor conditions without proper storage facilities. There were some instances of misuse, damage and breakage of the equipment supplied to the Dzongkhags, especially the digital cameras and emergency communication sets. Ideally, the construction of EOCs should have preceded the procurement of equipment which could then be stored and managed properly. In fact, most of the equipment were meant to be installed at the EOCs to coordinate response and recovery actions and resources during the time of disaster.

Figure 10: Equipment supplied by DDM poorly stored in Dzongkhags



- c) There was no proper accountability in managing these equipment. The RAA observed that the Dzongkhags Administration had not accounted the equipment in the stock register maintained in the Dzongkhag. For instance, there is no accountability for the lost cameras and damaged search lights that were non-functional.
- d) It also transpired that there were no adequate feasibilities or consultations done prior to procuring certain equipment. For instance, the DDM had procured satellite phones costing Nu. 0.232 million, which was not utilized since it was not registered with the Bhutan Telecom Limited. Further, an electric power generator procured at a cost of Nu. 0.420 million was found out of order and not usable.
- e) It appeared that DDM had not carried out proper need assessment prior to investing in such critical equipment. The way the equipment were managed revealed that there is minimal regard for the scarce

government resources, which literally led to wastage and mismanagement of funds.

3.2.3 Resource mobilization

3.2.3.1 INADEQUACIES AND INCONSISTENCIES IN FUNDING ARRANGEMENT FOR DISASTER MANAGEMENT

The intent of the DM Act 2013 was to provide adequate financial support with necessary institutional mechanisms for disaster management at all levels including the Dzongkhags and Gewogs. The RAA reviewed the current practice of funds management with regard to disaster management in the government vis-à-vis the provisions of the DM Act and subsequently observed the following inconsistencies.

i. DEVIATION IN APPLICATION OF RESPONSE AND RELIEF EXPENDITURE

- a) The Section 80 and 81 of the DM Act stipulate that the Dzongkhag Disaster Management Committee shall, as an emergency measure, meet the expenses for 'response and relief' operation from the annual budget of the Dzongkhag in accordance with the guideline formulated jointly by NDMA and MoF, upon approval from MoF submitted through NDMA.
- b) However, the current practice revealed that the Dzongkhag Administration/DDMC had been requesting Department of National Budget (DNB) for separate release to be used for disaster-related activities, thus, deviating the provisions of the DM Act. Moreover, there was no expenditure guideline formulated so far.

ii. LACK OF SEPARATE BUDGET FOR NATIONAL DISASTER MANAGEMENT ACTIVITIES

- a) The Section 82, 83 and 84 of the DM Act stipulate "*there shall be a separate budget head to be called the budget for National Disaster Management Activities and it shall receive adequate budgetary allocation. This budget is mainly for the immediate restoration of essential public infrastructure and service centers, which is to be managed and operated by the DDM*".
- b) Review of the current system revealed that there is no separate budget allocated for national disaster management activities, which was in deviation to the provisions of the DM Act. In fact, different agencies put up a separate request to DNB for any ad-hoc disaster activities as and when required. Nevertheless, in the Annual Budget Report 2015-16, Nu. 200 million has allocated for disaster relief budget to be released to the agencies/Dzongkhags concerned on case by case basis by the DNB.

3.2.3.2 INADEQUACIES AND LAPSES IN PROJECT MANAGEMENT

The RAA observed that the government had secured a substantial amount of funds through various donors for disaster management in the country. As of date, the government had implemented 22 projects amounting to Nu. 895.065 million and 11 projects are still under implementation amounting to Nu.1,910.878 million. These secured projects included capacity building in disaster risk reduction and disaster risk reduction activities related to earthquake, GLOF, flood, etc., in the country. Review of these projects by the RAA revealed inconsistencies and inadequacies as discussed below:

i. LACK OF COMPREHENSIVE DATA OR DOCUMENTATION ON PROJECTS

- a) DDM had not compiled the details of the projects relating to disaster management implemented by different agencies. The DDM lacked basic information on the projects such as the total amount of fund, details of activities carried out under the project, area of project etc.. Therefore, a list of projects on disaster management was obtained from the Gross National Happiness Commission.
- b) Absence of such key information would impede informed and efficient decision making in selecting and approving disaster management projects in the future.
- c) The DDM, as a nodal agency for disaster management, should have compiled the entire information on all the disaster management projects implemented by various agencies. Only then, the DDM would be in a better position to manage and prepare for disaster in entirety.

ii. DUPLICATION OF PROJECT ACTIVITIES

- a) As the projects were carried out in isolation by different agencies, there was no harmonization of disaster activities as a country. As a result, there was clear indication of duplication of efforts in various projects.
- b) For instance, under Thimphu Valley Earthquake Risk Management Project (TVERMP) funded by UNDP in 2005, engineers from Bhutan Standard Bureau (BSB), erstwhile, Standard Quality and Certification Authority (SQCA) were trained in carrying out vulnerability assessment of buildings by the consultants and the UNV in RADIUS tool and rapid visual screening of buildings. However, the Policy and Human Resource Development (PHRD) project and Earthquake Risk Reduction and Recovery Program funded by World Bank and UNDP respectively had similar component on vulnerability assessment guidelines and retrofitting of buildings.

iii. HIRING OF CONSULTANCY SERVICES

- a) Review of disaster-related documents such as standards, guidelines and plans revealed that the DDM had hired consultancy services for drafting almost all documents under DDM. On the other hand, review of project activities and training availed by the officials of DDM showed that the officials were adequately trained in numerous subjects of disaster management.
- b) It is evidently paradoxical that despite spending huge amount on capacity building, such routine tasks were regularly outsourced. The RAA could not monetize the value of such outsourcing services in absence of documents.

iv. CAPACITY BUILDING- A REGULAR FEATURE OF ALL PROJECTS

- a) Review of project components of various disaster related projects revealed that almost all projects had the component of 'Capacity Building'. The absence of Human Resource Policy would impede the effective use of resources.
- b) There was also no system of following-up on the outcome of the training. As such the benefits and impacts of the training were not ascertained and documented.
- c) The DDM also did not have the system of capturing the amount spent on training and capacity building under various projects as well as assigning responsibilities to various officials undergoing trainings. The training needs of the officials were not assessed and prioritized.

CHAPTER 4: RECOMMENDATIONS

1. Enforcement of provision of Disaster Management Act 2013 should be ensured

Review of provisions of the Disaster Management Act and its implementation showed that the Act had not been enforced in earnest. Most of the provisions of the Act were not enforced at all. The DDM, as the nodal agency for disaster management in the country, should ensure enforcement and implementation of the provisions of the Act in consultation with relevant authorities. Besides, the DDM, under the directives of the NDMA should also establish the institutions envisaged in the Act for effective disaster management.

2. Strategic framework for disaster management should be instituted

The DDM lacks a comprehensive strategic framework for disaster management. The DDM should, therefore, develop strategic policy document, including inter-alia, strategies, vision, policies, clear roles and responsibilities that would guide different agencies in managing disaster.

3. Effective inter-agency/sector coordination for disaster management should be established

Disaster management being a cross-cutting issue requires coordination and cooperation amongst multiple agencies. There was, however, lack of effective coordination and cooperation amongst various agencies. The DDM, as the nodal agency, should play a pivotal role in promoting greater coordination and cooperation amongst all relevant agencies for a holistic and coordinated approach to disaster management.

4. Updated information on disaster management should be maintained

Updated and adequate information is critical for effective planning, decision making and allocation of resources. The DDM, however, lacked complete and updated information on disaster management and related activities. The DDM should maintain updated information on all disaster-related activities in the country.

5. Holistic study on the preparedness on disaster management should be conducted

Hazard zonation and vulnerability assessment are prerequisites for planning and focusing efforts towards disaster preparedness. The country does not have this fundamental requirement such as the hazard zonation maps and vulnerability reports on various disasters. The DDM should, therefore, ensure that such basic information and reports are prepared sooner so that resources and efforts can be directed appropriately to the most vulnerable areas.

6. Effective coordination mechanism for disaster related projects should be instituted

The disaster-related projects were found implemented by various agencies in isolation. The DDM did not have records of the projects implemented by other agencies.

Since such documents are essential for proper coordination, the DDM should institute an appropriate coordination mechanism to capture the records and information of disaster related projects implemented in the country. This would also facilitate prioritization and allocation of resources.

7. Financial arrangements for disaster management should be reviewed

The Disaster Management Act required that a separate budget styled as Budget for National Disaster Management Activities shall be established, managed and operated by the DDM. The same was, however, not established and funds were provided as and when required, which was in deviation to the provision of the Disaster Management Act. The DDM, MoF and concerned authorities should review the current practice of funding for disaster management activities to ensure compliance to the Act.

8. Alternative financing arrangement for disaster management could be explored

Our country is geo-physically vulnerable to multiple hazards posing varying degrees of threat to lives and livelihood of the people. It would seem prudent and necessary to establish earmarked fund similar to environmental trust fund and health trust fund for the long-term and sustainable funding of the disaster management operations and activities. Therefore, an alternative financing arrangement, such as the establishment of trust funds for disaster management could be explored.

9. Appropriate policies and plans on fire safety measures should be developed

Despite clear requirements under the Bhutan Building Rules 2002 to have adequate fire safety measures, most buildings including Dzongs, monuments and schools do not have such safety measures or plans in place thereby posing fire hazard threats to lives and properties.

The DDM and relevant authorities should enforce the fire safety regulations in all earnestness as fire is one of the regular hazards plaguing the country.

10. Capacity building in disaster management should be rationalized

Capacity building is one of the integral components of successful disaster management. While most of the officials of the DDM had been trained on disaster management in varied subjects, there was no appropriate strategy and plans in managing this pool of human resources. Further, every donor-funded project also had a component of capacity building.

The DDM should review, assess and rationalize the human resource capacity building in disaster management in the country.

11. Possibilities of insuring important government assets should be explored

Currently, there is no system in place to insure critical public assets and infrastructures covering against losses arising from major disasters. Therefore, the DDM in consultation with relevant agencies should explore possibilities of insuring critical public infrastructures so that the government does not have to bear the entire cost of reconstruction.

CHAPTER 5: CONCLUSION

Bhutan, due to its fragile geophysical condition, is highly prone to hazards like Earthquake, Glacial Lake Outburst Floods (GLOF), Flash Floods, Windstorms, Forest Fires and Landslides. Thus, a holistic management of disaster becomes even more urgent and important. Mega disasters have the potential to cripple the entire economy of a country annulling the collective hard works of a nation in a moment.

Realizing the importance of disaster management in the country, His Majesty the King instituted numerous initiatives, which has immensely benefitted the citizens of the country.

Further, the disaster management was institutionalized in 2005 as Disaster Management Division, which was upgraded to the current Department in 2008, under the Ministry of Home and Cultural Affairs. The Disaster Management Act came into force in the year 2013. However, despite institutionalizing disaster management since 2005 and existence of Disaster Management Act since 2013, most of the fundamental provisions under the Act geared towards better disaster management remained unenforced.

Despite having established distinct institution such as the NDMA and DDM, the country still does not have an effective disaster management institutional framework as required by the Disaster Management Act 2013. In absence of institutionalized framework, there was no strategic focus on disaster management in the country as a whole.

So far hazard zonation and vulnerability mapping have not been carried out and the disaster management plans and contingency plans are also not developed at national as well as local levels.

The main focus of the Government had been on post disaster relief activities and only few initiatives were taken on prevention, preparedness and rehabilitation. There were inadequate considerations for constructions of critical infrastructures, such as Emergency Operation Centers at National and Dzongkhag levels.

The DDM, as the nodal agency for disaster management has not played proactive role in managing disaster in the country. In addition, the department has not facilitated proper coordination amongst sectors and agencies, which impeded efficient and effective management of disaster in a holistic manner.

Considering the inadequacies and lapses in disaster management, it appeared that the disaster institutions may not be well positioned to respond to major disasters in the country.

ANNEXURES

Annexure I : Roles and Responsibilities of Agencies in Disaster Management

Annexure II : Projects on Disaster Management

Roles and Responsibilities of Agencies in Disaster Management:

1. Ministry of Finance

- Facilitate release of Emergency Response Fund
- In accordance with the Public Finance Act, 2007, MoF to authorize the use of public funds to defray expenditure if no budget appropriation has been made or insufficient.
- Mobilize funds from international donors and financial institutions.

2. Ministry of Health

- Mobilize medical teams and paramedical personnel
- Medical camps to provide assistance to the affected population.
- Triage of victims
- Trauma/ psycho-social support
- Carry out assessment on health availability and needs.
- Control epidemics

3. Ministry of Agriculture

- Assessment damage to crops
- Assist operation relating to the rescue and shifting of livestock
- Arrange for quick vaccination and treatment of livestock at shelter places
- Arrange for sustainability of livestock population
- Supply fodder and cattle-feed to cattle camps
- Supply seeds, agriculture inputs and services
- Provide technical expertise and measures to control the outbreak of pest and diseases

4. Ministry of Economic Affairs

- Provide hydro-met data required for flood and weather forecasting
- Provide Flood early warning
- Assistance to the damage assessment teams for survey of damage to infrastructure
- Clear debris and assist search and rescue team
- Monitor glacial lakes
- Suggest immediate mitigation measures for the flood prone areas

5. Ministry of Information and Communication

- Curtail normal programmes to broadcast essential information on disaster
- Operate communication systems round the clock (24 hrs)
- Establish emergency communication links/ provide additional communication links in the affected areas

- Provide measures for satellite and other wireless communication from the disaster affected areas
- Damage assessment and immediate restoration of critical communication infrastructure
- 6. Ministry of Education**
 - Ensure safety of all school children
 - Make available required number of education institutions and buildings for use
 - Students and staffs - provide local voluntary assistance for distribution of relief materials and assistance to needy people in the locality
- 7. Ministry of Works and Human Settlement**
 - Damage assessment teams for survey of damage to roads infrastructure
 - Launch emergency repair operations
 - Take steps to clear debris
 - Assist search and rescue team
 - Operational safe routes and alternate routes
 - Provide vital information regarding status of available equipment/ infrastructures and deploy them for use
- 8. Ministry of Labour and Human Resources**
 - Provide labor to other departments for relief supply and distribution
 - Provide skilled labors for maintenance of equipment and tools/ infrastructure
 - Help in establishment of camps
 - Assist in search and rescue
- 9. Ministry of Foreign Affairs**
 - Coordinate/ liaison with international organizations
 - Mobilize funds
 - Necessary clearance for entry of international relief items and response personnel
- 10. Dzongkhags**
 - Sharing first information
 - Rapid assessment
 - Immediate response needs
 - Distribution of relief items
 - Early warning
- 11. Media**
 - Give true report of the field situation
 - Sensitize the public and not create panic by sensationalizing the news

- Display precautionary messages/ warnings regularly
- Declaration of disasters

12. Road Safety Transport Authority

- Transport of relief personnel and materials to the affected areas
- Take steps for movement of affected people to the safer areas
- Collect and disseminate information regarding fuel and transport availability etc. to personnel operating in the field
- Give information on condition and safety of roads

13. Armed Forces

- Fire and other rescue services
- Security of scene and effective cordon within the disaster zone
- Evacuation of casualties and people
- Safeguarding properties from pilferage
- Maintain law and order/ traffic control
- Deploy Search and Rescue Teams
- Distribute emergency relief material

14. CSOs, NGOs and Volunteers

- Distribute relief items
- Counseling and psycho-social support
- Establish relief camps
- Take steps for the safety of women and children in the affected areas

15. Business Community and General Public

- Article 8 (6) of the Constitution- “A person shall have the responsibility to provide help, to the greatest possible extent, to victims of accidents and in times of natural calamity.”
- Social support
- Business community- contribution in terms of ration, clothing, funds, transportation, etc.
- Volunteer

Projects on Disaster Management

Sl No.	Name of the Project	Duration	Amount (in USD, Euro & Nu.)	Currency	Amount (in Nu.)	Implementing Agency	Donor	Remarks
1	The Capacity development of GLOF and rainstorm flood forecasting & early warning	2013-2016	220,000,000.00	Nu.	220,000,000.00	Dept. of Hydromet Services	JICA	On-going
2	NAPA II	2012-2018	11,490,000.00	USD	776,724,000.00	P/ling Thromde, DGM, Mongar Dzongkag, Tarayana Foundation, NEC, DDM, DoFPS, DHMS	GEF	On-going
3	Institutional strengthening and Setting up of GLOF Early Warning & Rainstorm Flood Forecasting in Mangdechhu and Chamkharchhu Basin	1 Jan, 2014-30 June 2016	40,800,000.00	Nu.	40,800,000.00	DHMS & DDM	MHPA	On-going
4	Comprehensive Disaster Management Project for the Education Sector	1 May, 2015-30 June, 2016	3,878,000.00	Nu.	3,878,000.00	DSE, MOE	SCI	On-going
5	Strengthening of School Disaster Management Plan (SDMP) in line with Education Sector Contingency Plan in 4 Districts	2015-2016	108,000.00	Nu.	108,000.00	DSE, MoE	UNICEF AWP - 2015	On-going
6	Flood mitigation and land reclamation works	July 2013-June 2015	728,000,000.00	Nu.	728,000,000.00	Flood Engineering and Management Division, DES, MoWHS	RGoB	On-going
7	Policy and Human Resource Development for Improving Resilience to Seismic Risks	23 May, 2013-23 May, 2017	195,500.00	USD	13,215,800.00	DDM	World Bank	On-going
8	Climate Risk Management	1 Jan- 31 Dec, 2014	236,000.00	USD	15,953,600.00	DDM	UNDP	On-going
9	National Adaption Programme of Action (NAPA II)	July 2014 - July 2018	638,200.00	USD	43,142,320.00	DDM	UNDP	On-going
10	Risk assessment and mitigation of disasters like earthquake, fire and cyclone	July 2013-June 2015	58,930,000.00	Nu.	58,930,000.00	Engineering Adaptation and Risk Reduction Division, DES, MoWHS	UNDP	On-going
11	Capacity Building in Disaster and Climate Resilient Construction	2008-2013	149,800.00	USD	10,126,480.00	DES, MoWHS,	USAID	On-going
Total Amount - On-going projects (A)					1,910,878,200.00			

12	GLOF Projects	2008-2012	3,906,000.00	USD	264,045,600.00	DGM, DHMS & DDM	GEF	Completed
13	GLOF early warning system in Punakha-Wangdue Valley	2011-2012	20,000,000.00	Nu.	20,000,000.00	DHMS	PHPA I	Completed
14	Orientation of Education In Emergency (EiE) manual to NFE, ECCD & SEN in 5 Districts	2015-2016	1,200,000.00	Nu.	1,200,000.00	DSE, MoE	UNICEF - AWP 2015	Completed
15	Bhutan Foundation	200-2012	300,000.00	USD	20,280,000.00	MoH	Bhutan Foundation	Completed
16	DIPECHO Project	2013-2014	200,000.00	USD	13,520,000.00	MoH	WHO	Completed
17	Health Disaster management activities	2012-2013	50,000.00	USD	3,380,000.00	MoH	Global Fund	Completed
18	Response and Recovery Preparedness in Bhutan	August 2014 - July 2016	260,000.00	USD	17,576,000.00	DDM	UNDP-BCRP	Completed
19	Support to School based Disaster Preparedness in Bhutan Through DDM, MoHCA	July 2015-June 2016	3,409,000.00	Nu.	3,409,000.00	DDM	Save the Children	Completed
20	Thimphu Valley earthquake Risk Management Project	2008-2012	66,150.00	USD	4,471,740.00	SQCA, DDM	UNDP	Completed
21	Reducing Climate Change-induced Risks and Vulnerabilities from GLOF	2008-2012	4,245,050.00	USD	286,965,380.00	DDM, DGM	UNDP	Completed
22	Regional GLOF Risk Reduction Initiative in the Himalayas		295,000.00	EUR	22,567,500.00		UNDP	Completed
23	Earthquake Risk Reduction and Recovery Programme	2008-2012	503,000.00	USD	34,002,800.00	SQCA, DDM	UNDP	Completed
24	Regional Climate Risk Reduction Project (RCRRP)	2008-2012	572,182.00	EUR	43,771,923.00	DDM, MoHCA & UNICEF	UNDP	Completed
25	TRAC 1.1.3 earthquake response coordination, including CERF grant	2008-2012	563,845.00	USD	38,115,922.00	DDM, MoHCA, UNDP-NIM/UNICEF	UNDP, GEF, LDCF	Completed
26	Bhutan Recovery and Reconstruction Project (BRRP)	2008-2012	546,641.00	USD	36,952,931.60	DDM, MoHCA, DoC MoHCA, UNDP	UNDP-BCPR	Completed
27	Pandemic Preparedness Project (CFIA)	2008-2012	130,000.00	USD	8,788,000.00	UNDP-NIM	CFIA	Completed
28	TRAC 1.1.3 earthquake response coordination, including CERF grant	2008-2012	874,535.00	USD	59,118,566.00	DDM, MoHCA, UNDP-NIM/UNICEF	UNDP, GEF, LDCF	Completed

29	Build Back Better Project – following the Sept 18, 2011 Earthquake (UNDP)	2008-2012	50,000.00	USD	3,380,000.00	DDM, DES & DoC	UNDP	Completed
30	Support to 2012 Bumthang Fire Victims (UNOCHA)	2008-2012	50,000.00	USD	3,380,000.00	DDM	UNOCHA	Completed
31	Support to 2011 Windstorm event (UNOCHA)	2008-2012	50,000.00	USD	3,380,000.00	DDM	UNOHCA	Completed
32	2012 Wangdue Dzong Fire Incident (UNOCHA)	2008-2012	50,000.00	USD	3,380,000.00	DDM	UNOHCA	Completed
33	2013 Windstorm Disaster (UNOCHA)	2008-2012	50,000.00	USD	3,380,000.00	DDM	UNOHCA	Completed
	Total Amount -Completed projects (B)				895,065,362.60			
	Grand Total (A+B)				2,805,943,562.60			

Note: Exchange rate 1 USD = Nu. 67.6 & 1 EUR = 76.5 as on April 8, 2016

APPENDIX

Appendix A : Response from Department of Disaster Management



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ROYAL GOVERNMENT OF BHUTAN
Ministry of Home and Cultural Affairs
Department of Disaster Management
P.O Box: 1493, Thimphu-11001



"Reducing Disaster Risks for a Safe and Happy Bhutan"

MoHCA/DDM (CB-05)2016/ 766

May 4, 2016

The Hon'ble Auditor General,
Royal Audit Authority,
Kawangjangsa: Thimphu.

Sub: **Acknowledgement**

Hon'ble Dasho,

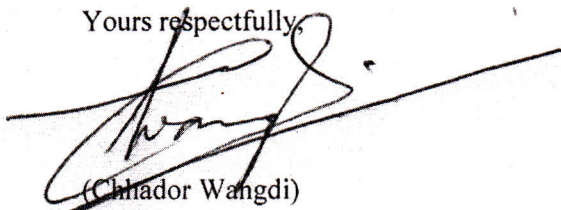
This is to acknowledge the receipt of Draft Performance Audit of Disaster Management. The Department of Disaster Management would like to thank the Royal Audit Authority for frank and valuable observation and recommendations. These recommendations would highly facilitate to enhance and carry out the mandates entrusted to this Department by the Act 2013. We are of the view that the Parliament will take the observations and recommendations seriously and render due guidance to the government to strengthen the preparedness for the Disaster Risk Management.

In regard to sectoral coordination, we will take appropriate action as recommended to fix responsibilities to concerned stakeholders after we receive further directives from the Parliament or National Disaster Management Authority (NDMA).

We look forward for further support.

Thanking you.

Yours respectfully,


(Chhador Wangdi)
Director

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PS AD

Cc:

1. Office copy.

Fax: +975-2-334944, Director 327098, Preparedness & Mitigation 326910, 321004, Response & Early Warning 327319, 322904, Relief & Reconstruction 321792, Administration 322945, Hot line 233

Royal Audit Authority
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