



Bhutan

National progress report on the implementation of the Hyogo Framework for Action (2013-2015) - Interim

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Outcomes

Strategic Outcome For Goal 1

Outcomes Statement

Disaster Management Act of Bhutan 2013 emphasizes integration of DRR into development policies and plans. Local governments and notified agencies are required to formulate DM plans and include priorities for risk reduction. The Department of Disaster Management (DDM) conducted several mainstreaming advocacy and training programs, including safe school and CBDRM, to raise awareness and enhance knowledge and capacities of decision makers and focal persons at various levels.

The Guidelines for Preparation of the Eleventh Five Year Plan (2013-2018), has “Improved disaster resilience and management mainstreamed” as one of the 16 National Key Result Areas and as a cross-cutting theme. NKRAs are delivered by all sectors, agencies and local governments through their programmes.

The Local Development Planning Manual has DRR as a criteria to be considered in the GNH Check Planning Tool, which requires, local plans and activities to consider ways to minimize vulnerabilities, prevent/mitigate risks and ensure sustainable development.

The Royal Government of Bhutan’s Protocol for Policy Formulation also requires mainstreaming of cross-cutting issues, including DRR, as appropriate to the policy. In addition, a mainstreaming reference group has been formed with representation from important sectors and agencies, including DDM, to review all new government policies and ensure incorporation of DRR concerns.

The Non-Formal and Continuing Education Programme of the Ministry of Education also incorporates DRR in its curriculum. The one year long post literacy programme has seven thematic areas, one being Disaster Management.

DDM with the Ministry of Health and Ministry of Education formulated National Action Plans for Earthquake Safe School and Health Facilities to provide necessary and urgent direction to the two most vulnerable sectors. The plans serve as mainstreaming tools to help prioritize risk reduction and preparedness initiatives for incorporation.

Strategic Outcome For Goal 2

Outcomes Statement



National Disaster Management Authority (NDMA) is formed and chaired by Prime Minister with all government Secretaries as members, ensuring coordination and mainstreaming of DM efforts. NDMA endorsed formation of Inter-Ministerial Task Force (IMTF) comprising of experts from various relevant line ministries and agencies responsible for providing technical guidance to DDM, District DM Committees (DDMCs) and sectors.

Through CBDRM process, DDMCs in 16 Districts, have been initiated. Executive Order from NDMA has been issued for formal establishment of DDMCs across the country. DDMCs shall be chaired by District Administrators, comprising of chairpersons of block administrations, armed forces and members from other sectors to ensure grassroots and multi-sector coordination. DDM functions as secretariat to NDMA and coordinates all disaster related activities. Disaster focal persons are identified in key agencies to provide technical and coordination support.

DM Rules and Regulations, being finalized, outline clear roles, responsibilities and procedures to further streamline processes and mechanisms. Disaster Information and Management System (DMIS) has been developed for collection/ dissemination of information for effective and efficient response. Link between the DMIS and the South Asia Disaster Knowledge Network has been initiated and IT officers and focal persons of all 20 districts are trained in its use.

Capacities in local governments and community level to plan and prepare is built through nation-wide implementation of CBDRM program. School children and staff are sensitized and trained under Disaster Preparedness and Response for Safe School Program. Engineers have been trained in use of various vulnerability assessment checklists and local masons/carpenters trained in safe construction practices.

Following establishment of National Search and Rescue Team, local level SAR teams are being formed, trained and provided with basic equipment. Response and early recovery procedures are being streamlined under Bhutan Disaster Assessment procedure.

Strategic Outcome For Goal 3

Outcomes Statement

DM Act 2013 requires all districts and notified agencies to develop DM and contingency plans. DM planning guidelines has components on preparedness, response and recovery and outlines the need to incorporate risk reduction approaches in these components. For example, the recovery component requires incorporation of building back better and more resilient options during re-construction after a disaster.

Contingency planning guidelines, currently being prepared, also requires to be linked to risk reduction and preparedness plans. Ultimately both the DM and the

contingency plans are integrated with the annual and five year development plans and the multi-sectoral district DM committees are responsible for ensuring implementation and coordination of these plans.

For impending threats like Glacial Lake Outburst Flood (GLOF), Bhutan has instituted end-to-end automatic early warning systems and educated affected communities on risks, risk reduction strategies and put in place emergency response measures. This has been done in Punatsangchhu river basin which spans across five districts. Similar GLOF risk reduction and capacity building project is ongoing for two other high-risk river basins.

To further enhance emergency preparedness and response capacities, Bhutan established National Search and Rescue Team comprising 20 members and became member of the International Search and Rescue Group (INSARAG). Bhutan has also signed the UN customs facilitation agreement and ratified the SAARC Rapid Response Agreement. Local SAR teams are also being formed, trained and equipped. Bhutan has also, in principle, adopted the Incident Command System and is in the process of contextualizing it and has trained focal persons at national and districts level.

Lessons learned in coordinating response in recent earthquake events, led to the formulation of Bhutan Disaster Assessment Tool and streamlining of procedures to receive humanitarian assistance and relief. Response system in Bhutan would be further clarified and enhanced with the current efforts to formulate disaster management rules and regulations and contingency planning guidelines.

Strategic goals

Strategic Goal Area 1

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

Strategic Goal Statement 2013-2015

DDM has conducted several mainstreaming advocacy and training programs to raise awareness and enhance knowledge and capacities of decision makers at various levels. DM Act 2013 supports DRR mainstreaming and “Improved disaster resilience” is included as one of the 16 National Key Result Areas (NKRAs) for the 11th Five year Plan (2013-2018). NKRAs will be delivered by all sectors and local governments through their plans and programs.

Local Development Planning Manual has DRR as a criteria in the GNH Check Planning Tool and the Protocol for Policy Formulation requires mainstreaming of cross-cutting issues and a reference group, including DDM, has been formed to ensure incorporation of cross-cutting concerns.

Vulnerability assessment checklists for schools and basic health units are developed and assessment of buildings have commenced. Various capacity building activities have been conducted to build capacities of engineers and local artisans. Such capacity building activities, especially at the community level, will be a focus in the next five year.

Hazard assessment and mapping is done for GLOF in Punatsangchu, Chamkharchu and Mangdechu river basins and Department of Geology and Mines is mapping seismic faults and aims to develop a seismic hazard map for Bhutan by the end of 11th FYP.

DDM along with relevant agencies will further develop such vulnerability and risk assessment tools and formulate multi-hazard atlas for Bhutan to inform development and land use planning decisions.

Ministries of Health and Education have formulated National Action Plans for Earthquake Safety to reduce risks, enhance preparedness and serve as a mainstreaming tool to prioritize incorporation of activities into five year and annual plans. With development of disaster management and contingency planning guidelines, the formulation of disaster management plans and contingency plans is foreseen in the 11th FYP period.

Strategic Goal Area 2

The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.

Strategic Goal Statement 2013-2015

National Disaster Management Authority (NDMA) headed by the Prime Minister with all government Secretaries is formed. Inter-Ministerial Task Force (IMTF), will be formed of technical experts from various agencies to guide NDMA, DDM, local governments and sectors on technical issues. DDM serves as national coordinating agency and secretariat to the NDMA.

Major effort in the 11th FYP will be to facilitate set up of a disaster management and response system and the establishment of National Emergency Operation Centre and setting up of a network of emergency operation centres in various districts, as required by the DM Act. This network would enable communication set up and facilitate coordination during emergencies.

To strengthen resilience, there is also need to institute early warning systems, especially at the community level. Automatic end-to-end early warning systems for GLOF has been established in the Punatsangchu river basin and is being established in Chamkhar chu and Mangde chu river basins. In addition to this, capacities of climate and weather forecasting agencies need to be developed to enhance the data and science behind reliable forecasts to be translated into early warnings. With increasing climate change impacts and increased frequency and intensity of natural hazards, building capacities of these technical agencies and linking technical knowledge to communities has become crucial, not only to avert disasters but also to protect people's livelihoods.

Response capacities, especially at community level need to be built. Beginning with the NASART, teams at the district, city and then community levels need to be formed, trained and equipped to undertake response and SAR activities during emergencies.

Within the 11th FYP period, institutions, mechanisms and capacities will be further developed with formulation of disaster management and contingency plans, following finalization of the guidelines.

Strategic Goal Area 3

The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Strategic Goal Statement 2013-2015

In terms of emergency preparedness, DM Act outlines establishment of critical facilities such as the National Emergency Operation Centre (EOC) and a network of district EOCs that would facilitate communication and early warning systems. The establishment of this network and strengthening of community based early warning systems would be a priority in the next few years. DM plans at district and community levels and development of contingency plans at various levels will also be a priority. Guidelines for DM planning and Contingency planning are being developed currently. These guidelines are being framed keeping DRR principles in mind and will support any opportunity for risk reduction under its components.

In terms of response, the National SAR Team (NaSART) has been formed and efforts are underway to establish local SAR teams in districts and municipalities along with training and basic equipment. This will be a continued effort and the aim will be to have SAR capacities at community level.

Similarly, for effective response and quick recovery the Bhutan Disaster Assessment (BDA) procedures are in place and teams are being trained in the use of the format to conduct rapid post disaster assessments. Capacity to undertake the BDA and to institutionalize the process will continue.

As in the past Bhutan will formulate post-disaster Recovery and Reconstruction plans that are integrated with the five year development plans. These plans will ensure "Building Back Better" concepts to reduce existing risks as well as avoiding the building of new ones.

Priority for Action 1

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Core indicator 1

National policy and legal framework for disaster risk reduction exists with decentralised responsibilities and capacities at all levels.

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Is disaster risk taken into account in public investment and planning decisions? Yes

National development plan	Yes
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· [Eleventh Five Year Plan - Main Document](#)

Sector strategies and plans	Yes
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· [National Action Plan for School Earthquake Safety](#)

· [National Action Plan for Earthquake Safety of health Facilities](#)

Climate change policy and strategy	Yes
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· [Second National Communication to the UNFCCC](#)

· [NAPA - Updated projects and profiles](#)

Poverty reduction strategy papers	Yes
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CCA/ UNDAF (Common Country Assessment/ UN Development Assistance Framework)	Yes
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Civil defence policy, strategy and contingency planning	No
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Have legislative and/or regulatory provisions been made for managing disaster risk?
Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The Disaster Management Act for Bhutan was enacted in 2013. This act has provided the required legal basis for pro-active risk reduction and disaster management in the country. It provides for institutional setup at various levels, establishment of critical facilities and outlines the procedures to be put in place. There are also existing policies such as the environment policies, policies related to climate change adaptation and poverty reduction and economic development strategies that are linked to disaster risk reduction and also help in creating an enabling environment for DRR.

Flowing from the Act, currently efforts are being made to formulate related disaster management planning guidelines, contingency planning guidelines, various other coordinating procedures and rules and regulations. The National Disaster Risk Management Framework 2006, is also being revised to include emerging risks and challenges for endorsement at the earliest.

Similarly, in line with the Act, institutions and mechanisms are being formed at various levels and establishment of critical facilities initiated. Awareness and education programs are being carried out in earnest and capacities, especially with a focus on community level, are being built.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

Though the legislative and enabling environment has been created, there are still constraints and challenges.

The foremost being lack of financial resources. The Act outlines various funds and budget for disaster management and risk reduction and also mandates sectors and local governments to mainstream DRR concerns into their plans and programs. However, Bhutan has not been able to completely set up the funds and funding procedures due to lack of financial resources. Mainstreaming of DRR components also become difficult as these come with additional financial costs.

Another major challenge is the dearth of technical capacities and human resource, especially at the local government level. Due to this, it is difficult to effectively

facilitate and monitor disaster management programs, resulting in low impact and results.

However, Bhutan is trying to meet these challenges. The DDM is working with the relevant agencies to put in place financial arrangements that would support priority risk reduction, mitigation and disaster management activities. The endorsement of DM rules and regulations would further clarify these arrangements. Also, through awareness and advocacy programs, the DDM is working to educate sectors and local governments on the importance and cost effectiveness of DRR and to motivate them to prioritize integration of DRR into relevant development activities. DDM has also trained and established linkages with DM focal persons in sectors and local governments to overcome human resource challenges.

Core indicator 2

Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

What is the ratio of the budget allocation to risk reduction versus disaster relief and reconstruction?

	Risk reduction / prevention (%)	Relief and reconstruction (%)
National budget		
Decentralised / sub-national budget		
USD allocated to hazard proofing sectoral development investments (e.g transport, agriculture, infrastructure)		

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Legislative support for dedicated resources at various levels and for integrating DRR into development plans and programs is provided by the DM Act 2013. Underlying risk factors are also recognized and mitigated through a mandatory Environment Impact Assessment (EIA) process by all sectors, local governments, private contractors, undertaking development works. The 11th FYP which is currently being implemented requires the sectors and local governments to meet 16 National Key Result Areas, one of them being "improving disaster resilience" .

The Department of Disaster Management is provided with government budget for its current expenses and for a number of important nation-wide programs. The department also receives support and funding through various donor funded projects. The National Disaster Management Authority (NDMA) headed by the Prime Minister is responsible for ensuring funding for DRR and mainstreaming in Bhutan.

The Act specifies - local governments to meet response and relief expenses from their annual budget; a budget head for National Disaster Management Activities for immediate restoration of essential public infrastructure and service centres; a budget called the Department of Disaster Management Budget to be used for capacity building, critical facilities and for preparedness; and procedures have been outlined for re-construction and emergency procurement. There is no specific budget for risk reduction and mitigation and sectors and local governments are supposed to integrate DRR into their development plans and programs.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

The Act specifies funds mainly for emergency response, recovery and re-construction activities and DRR is envisioned to be mainstreamed by sectors and agencies. However, without allocating separate resources for risk reduction, to achieve this is difficult. Risk reduction comes with costs and different agencies have different priorities and varying mandates. Awareness and education programs are however being carried out by the DDM to sensitize and motivate sectors to carry out risk reduction activities. The Disaster Management Budget specified in the Act is for the establishment of the Critical Disaster Management Facilities, which would facilitate risk reduction and enhance preparedness. Also, as per the DM Act, 2013, the districts and the notified agencies are required to formulate their disaster management and contingency plans.

The inclusion of DRR and building resilience as a cross-cutting theme and as a National Key Result Area (NKRA) in the current 11th FY plan would facilitate, to a

large extent, the integration of DRR. However, there is need to identify practical methods and activities, procedures and tools for various sectors and for local governments and simultaneously support development of capacities to undertake such activities.

Additional related documents and links

- [National Recovery and Re-construction Plan](#)
- [DM Act 2013](#)

Core indicator 3

Community Participation and decentralisation is ensured through the delegation of authority and resources to local levels

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Do local governments have legal responsibility and regular / systematic budget allocations for DRR? Yes

Legislation (Is there a specific legislation for local governments with a mandate for DRR?)	Yes
Regular budget allocations for DRR to local government	No
Estimated % of local budget allocation assigned to DRR	

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Both the NDRMF, 2006 and the DM Act 2013 envision and support a decentralised system. As per the DM Act, local disaster management committees have the full authority and mandate to undertake disaster management activities within their jurisdiction. As per DM Act, the chairperson of the DM committee has the authority to requisition necessary human and material resources from any agency, CSO, private

sector or person and the power to secure any premises necessary for conduct of relief and response operation.

The chairpersons of the DM committees also have the authority to declare Type I and Type II disaster in their jurisdiction on approval from NDMA, and meet expenses for response and relief operation from the annual budget of the district. Therefore, there has been genuine effort made to decentralise authority and responsibility to local governments and further to the communities.

Ongoing programs such as the Community Based DRM, the Safe School Initiative programs, Dzong Fire Safety and the Search and Rescue capacity building programs are all aimed at sensitizing local governments and communities on their responsibilities and authorities and enhancing their skills and responsibilities to undertake their mandates.

Under patronage of His Majesty the Fifth King of Bhutan, the Deesup volunteer program, open to all citizens, has also been initiated, with one main responsibility of providing support during disasters and emergencies. Community based forestry and forest fire management programs have also been instituted and are proving to be a success.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

Though Bhutan has tried to promote community participation through decentralisation of responsibilities and mandates, there is still need to promote participation and ownership right down to the community level. Presently, the DM Act provides for financial resources and delegation for response and relief activities. However, there is need for financial support and clear procedures, authority and responsibility for communities and local governments, also for risk reduction activities.

Through the CBDRM process, communities undertake their own risk assessment and formulate their own DM plans, however implementation is an issue due to lack of financial resources. Another challenge, besides financial constraints, in ensuring community participation and responsibility, is the limited technical and human resources to promote and facilitate the whole process. There is also need to build capacities in DDM to provide technical backstopping and monitoring and evaluation support to local governments and communities.

Core indicator 4

A national multi sectoral platform for disaster risk reduction is functioning.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Are civil society organizations, national finance and planning institutions, key economic and development sector organizations represented in the national platform? Yes

civil society members (specify absolute number)	
national finance and planning institutions (specify absolute number)	2
sectoral organisations (specify absolute number)	13
private sector (specify absolute number)	1
science and academic institutions (specify absolute number)	
women's organisations participating in national platform (specify absolute number)	
other (please specify)	

Where is the coordinating lead institution for disaster risk reduction located?

In the Prime Minister's/President's Office	Yes
In a central planning and/or coordinating unit	No
In a civil protection department	No
In an environmental planning ministry	No
In the Ministry of Finance	No
Other (Please specify)	

Provide description and constraints for the overall core indicator

(not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

At the national level there are three platforms for risk reduction. The highest platform is the National Disaster Management Authority (NDMA). The NDMA is chaired by the Prime Minister and has the following members, not exceeding 20 members - the Minister for Home and Cultural Affairs as Vice Chairperson; the Finance Minister; Secretaries of all ministries; Gyalpoi Zimpon; Head of the National Environment Commission; Secretary of the Gross National Happiness Commission, President of Bhutan Chamber of Commerce and Industry; Head of the Department of Disaster Management as Member Secretary; and such other member as may be co-opted. The NDMA therefore has members from various sectors including environment and planning agencies and more importantly from the business community.

The Inter-Ministerial Task Force (IMTF) at the national level will comprise technical experts from various relevant agencies and will consist of such number as prescribed by the NDMA. At the DDM level, coordination and discussion on important multi-sectoral issues is carried out through the disaster management focal persons in the various Ministries and at the district level.

Another relevant platform at the national level is the Environment and Disaster Management Team formed with both UN and national members, including members from local NGOs, under the UN Development Assistance Framework (UNDAF) - 2014-2018 in Bhutan.

Another national platform led by the National Environment Commission (NEC) include the DDM and also has representation from local civil society organizations,

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

The NDMA had its first formal sitting in March 2014. Executive order for formation of IMTF and the District Disaster Management Committees (DDMCs) have been passed and will be formally established. There is also need to develop and strengthen provisions and strategies for the inclusion of civil society organizations, volunteers, academic institutions and women's organizations in not only national level platforms but also in committees and DM institutions at various level.

With the enactment of the DM Act 2013 and the formation of the NDMA, it would be DDM's priority now to establish a national forum that would be multi-sectoral and inclusive of civil society, NGO and volunteer organizations.

Priority for Action 2

Identify, assess and monitor disaster risks and enhance early warning

Core indicator 1

National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Is there a national multi-hazard risk assessment with a common methodology available to inform planning and development decisions? No

Multi-hazard risk assessment	No
% of schools and hospitals assessed	7.034% of schools and 2 out of 20 district hospitals and the National Referral Hospital
schools not safe from disasters (specify absolute number)	
Gender disaggregated vulnerability and capacity assessments	No
Agreed national standards for multi hazard risk assessments	No
Risk assessment held by a central repository (lead institution)	Yes
Common format for risk assessment	No
Risk assessment format customised by user	No
Is future/probable risk assessed?	No

Please list the sectors that have already used

disaster risk assessment as a precondition for sectoral development planning and programming.

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The DDM has been implementing since 2009, the community based disaster risk assessment program and the CBDRM process is being used to facilitate local governments and communities to identify their hazards, risks and vulnerabilities. The process is ongoing in 16 districts out of 20 in Bhutan. Since the process is participatory and also with a view to raising awareness and building capacities, it is a longterm process requiring commitment from the local government in terms of time and human resources. Though the process has yielded huge impact in terms of raising awareness and knowledge at local levels, it is yet to culminate in a community based disaster management plan.

Few sectors and agencies have carried out or are in the process of carrying out hazards and risk assessments. There is still need to build information and data base on various hazards and related risks and vulnerabilities. Studies in seismology and fault mapping are under way and vulnerability assessment checklists for schools and basic health units have been developed and endorsed. A GLOF hazard zonation map has been drawn up for the GLOF prone Punatsangchu river basin, based on which awareness programs have been conducted, early warning system developed and evacuation sites and routes demarcated. There are no agreed multi-hazard risk assessment tools and procedures at present, though the development of a multi-hazard atlas for Bhutan has been a priority since the 9th Five Year Plan.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

With the DM Act 2013 in place there is hope of more effective multi-sector coordination and cooperation of technical experts in various sectors and agencies to come up with the first multi-hazard atlas for Bhutan. There is need to form the Inter-ministerial task force as envisaged in the Act to lead the process of consolidating the existing information and maps in various sectors and facilitating the process of filling information and data gaps to generate the multi-hazard atlas.

The Ministry of Education and the Ministry of Health have some experience in conducting vulnerability assessments of their school and health buildings. So far 37 schools out of 526 schools have been assessed and for 2 district hospitals and the

National Referral initial seismic assessments have been conducted. There is need to learn lessons from this process and continue with such assessments to identify risks and also risk reduction and mitigation solutions. Such vulnerability and risk assessment tools need to be developed and implemented for various building types in Bhutan and also for the important heritage structures. Ultimately, a standard and comprehensive multi-hazard risk assessment methodology needs to be adopted to fulfil information requirements for planning and development decisions.

Additional related documents and links

- [Initial Seismic Assessment of Jigme Dorji Wangchuck National Referral Hospital](#)

Core indicator 2

Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Are disaster losses and hazards systematically reported, monitored and analyzed?
Yes

Disaster loss databases exist and are regularly updated	Yes
Reports generated and used in planning by finance, planning and sectoral line ministries (from the disaster databases/ information systems)	No
Hazards are consistently monitored across localities and territorial boundaries	Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The DDM has initiated three information systems - the Disaster Management

Information System is a web-based , pre-crisis database system; the Dev Info is for information during disaster and; the Desinventar is a database system to used generally after a disaster.

District focal persons have been trained in the use of the three systems, however the systems are not fully functional. There is need to consolidate the systems and put in place the required standard information reporting and communication channels. Also, there is need to have fixed focal persons at the local levels to ensure continuity of the system.

At present different hazards are monitored by different agencies and sectors collect and maintain information on hazards separately. There is need to establish linkages between DDM and the various sectors. With the enactment of the DM Act 2013, critical disaster management facilities like the Emergency Operation Centres are to be established and these centres are to serve as information and decision making hubs, therefore they would facilitate the institutionalization of a system to coordinate various sectors, local governments and collect and disseminate information.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

The main challenge would be in establishing a consolidated information collection and dissemination system, which would require coordination and partnerships with various technical sectors. There is need to review the tedious and conflicting information systems and procedures and seriously work to establish a unified information management system that would facilitate hazard information and data loss analysis to generate reports for integration into decision making and planning purposes.

The establishment of the National Emergency Operation Centre (NEOC) and other EOCs and communication facilities would be a challenge in terms of limited financial resources and in formulating common standard operation and information sharing procedures and mechanisms.

Another challenge would be to identify permanent focal persons at the local levels and to build their capacities in the use of the information database, system and procedures. There is also need to establish continuous usage, update and monitoring of the system to ensure relevance and sustainability.

Core indicator 3

Early warning systems are in place for all major hazards, with outreach to communities.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Do risk prone communities receive timely and understandable warnings of impending hazard events? Yes

Early warnings acted on effectively	Yes
Local level preparedness	Yes
Communication systems and protocols used and applied	Yes
Active involvement of media in early warning dissemination	Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

In terms of the four elements of early warning, regarding seismic risk knowledge there is limited data available, however, the Department of Geology and Mines along with national and internal partners, is working to conduct fault mapping, setting up seismic stations across the country and aims to come up with the first base seismic micro-zonation map of Bhutan within the current 11th Five year Plan period.

In the case of GLOF, the Department of Geology and Mines together with the ICIMOD and JICA has tried to map out the glacial lakes and identify potentially dangerous glacial lakes. There are 2674 glacial lakes in Bhutan and 25 are considered to be potentially dangerous. In the Punatsangchhu river basin the DGM has carried manual mitigation works at the Thorthormi lake site to reduce the water levels by 5 meters. The Department of Hydromet Services has established end-to-end early warning system, which was tested with vulnerable communities participating in a mock drill. The DDM in collaboration with DGM and DHMS, has demarcated safe areas and evacuation routes in the high risk areas and carried out end to end awareness programs including community disaster risk management programs and safe school programs. Similar projects are being implemented in the Mangdechhu and Chamkhar chhu river basin.

Various other agencies like the Ministry of Works and Human Settlement (MoWHS), Ministry of Agriculture (MoA) and few district administrations have carried out research, mapping activities, etc. related to recurring hazards such as flooding, landslides and forest fires. Specific sectors have also set up monitoring and reporting systems, including toll free communication, related to their mandates such as landslide monitoring by the MoA, MoWHS and forest fire reporting system developed by the Department of Forests (MoA). The MoA also uses its RNR extension agents to monitor bird flu outbreaks, crop disease, epidemics, etc.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is need for the DDM to consolidate work done so far in terms of mapping hazards and compile the information/data already existing for various hazards in Bhutan. Consolidation of efforts made by individual sectors, agencies, districts would facilitate DDM's priority of developing a multi-hazard atlas for Bhutan. However, this process would require financial support as well as human and technical expertise.

Enhancing early warning related to many recurring natural hazards such as flooding, landslides etc. and also for hazards such as windstorms and hailstorms that are occurring more frequently and with higher intensity, requires accurate and timely weather/ climate forecasting. The Cyclone Aila precipitated floods all over the country in 2009 resulted in a loss of 12 lives and damages to property worth more than 700 million ngultrums. The most recent event of unprecedented rainfall was caused by Cyclone Phailin in 2013 during the harvest season, which resulted in heavy loss to the farmers. There is therefore an urgent need to strengthen forecasting capabilities and build early warning and information communication channels between technical/government agencies and to the community level.

There is also need to strengthen the monitoring and reporting of incidents/hazards. The establishment of the National Emergency Operation Centre and a network of emergency operation centres would facilitate the establishment and integration of information collection, monitoring and reporting systems.

Core indicator 4

National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Does your country participate in regional or sub-regional actions to reduce disaster risk? Yes

Establishing and maintaining regional hazard monitoring	No
Regional or sub-regional risk assessment	No
Regional or sub-regional early warning	Yes
Establishing and implementing protocols for transboundary information sharing	No
Establishing and resourcing regional and sub-regional strategies and frameworks	Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Taking account of regional/ transboundary risks into national risk assessments and developing and maintaining regional cooperation on risk assessment is very important. Bhutan being part of the South Asian Association for Regional Cooperation (SAARC) is a member of the SAARC Disaster Management Center, with representation on the governing board. As member of SDMC, Bhutan has endorsed the SAARC DM plan and road map.

Bhutan is also member in other regional organizations such as the Asian Disaster Preparedness Center (ADPC) and the Asian Disaster Reduction Center (ADRC) and through their regional mechanisms has contributed to development of regional programs and projects. Bhutan also recently became a member of INSARAG and has also signed the UN Customs facilitation agreement that expedites regional and international SAR teams and response and relief materials during emergencies.

Also, Bhutan has been collaborating with neighbouring and regional organizations such as the ICIMOD on common issues and also, through the UNISDR, Bhutan has been participating in regional forums such as the regional committee meetings, technical group meetings, the Asian Ministerial Conference and the Global Platforms, which have all served to foster regional cooperation and a platform to share information.

Provide an explanation of some of the key contextual reasons for the

country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is need for individual countries like Bhutan and also the regional organizations to formulate clear plans, frameworks and strategies and implement and monitor commitments and actions in a serious manner. Regional cooperation in DRR, like in any other field, would require continuous and strong facilitation and technical support. For Bhutan being part of regional hazard monitoring and early warning systems is very important as we are still developing such capacities in-country and therefore Bhutan needs to participate in regional risk assessments and formulate information and early warning sharing protocols with its neighbouring countries. Another important area in terms of regional cooperation could be in terms of sharing technical expertise, capacity development and developing institutional linkages between research and scientific institutions.

Priority for Action 3

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Core indicator 1

Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems etc)

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Is there a national disaster information system publicly available? Yes

Information is proactively disseminated
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Yes

- [SAfety Tips for Flooding](#)

- [Fire Safety and Protection](#)

- [Earthquake Safety Tips](#)

Established mechanisms for access / dissemination (internet, public information broadcasts - radio, TV,)

Yes

Information is provided with proactive guidance to manage disaster risk
--

Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

DDM has been raising awareness and disseminating information on hazards, risk and risk reduction measures and protective actions through various different programs such as -

(1) Community Based Disaster Risk Management (CBDRM) program, which began in 2009, has now been initiated in 16 districts of Bhutan; The program aims to raise awareness in communities, ensure a decentralized and locally empowered disaster management system and is envisioned to result in the development of community based disaster management plans at block and district level.

(2) The Safe School Initiative program, which later became the comprehensive Disaster Preparedness and Response for Safe Schools Program, started as a pilot project by the DDM and the MoE in 2008. Till date the program has covered all 20 districts and directly trained over 819 Principals and disaster focal teachers of 661 schools and extended classrooms in Bhutan;

(3) To enhance safety and preparedness in Dzongs, which are structures of deep historical significance, centers of local administration and seat of monastic bodies in all districts, the DDM along with relevant partners such as the Dratshang Lhentshog, DoC and the Royal Bhutan Police, has conducted the Disaster Preparedness and Sensitization program, focussing especially on fire safety, in 11 districts.

(4) Besides the nation-wide programs above, DDM has raised awareness and disseminated risk and risk reduction information all along the Punatsangchhu and Chamkhar chhu river basin, with special focus on GLOF risks. DDM has also created awareness on disaster risks and advocated for risk reduction and protective actions through platforms - to parliamentarians during the parliament session, annual conferences of various sector and district administrators and by observing the International Day for Disaster Reduction and the School Preparedness Day.

Awareness raising and information dissemination has been done through various means - through animation series such as Ap Naka I and II, Azha Chure aired on BBS television. Awareness materials (planning guides, posters, pamphlets, handbooks) have been distributed in all the 20 district administrations, 205 block administrations and in all schools. Materials and resources are also available at DDM's website www.ddm.gov.bt

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

DDM has achieved a lot in terms of raising awareness and disseminating information on risks and risk reduction to vulnerable communities, schools and the general public. Though disaster management is considered a new and emerging issue in Bhutan, awareness and education has increased to such a level that "mainstreaming disaster resilience" is one of the 16 national key result areas for the 11th Five Year Plan and disaster risk reduction is considered a cross-cutting theme for all sectors to consider and adopt.

However, there is now need to formulate a comprehensive awareness strategy for Bhutan, which would help in harmonizing and standardizing awareness messages going to the public; identifying and adopting appropriate strategies for rural vs urban areas, for schools vs the general public and address cultural barriers or beliefs regarding hazards and risk reduction or protective measures. Such a strategy would also help in identifying ways to reach remote and vulnerable communities and developing materials that are suitable for various different population in the country.

Core indicator 2

School curricula , education material and relevant trainings include disaster risk reduction and recovery concepts and practices.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Is DRR included in the national educational curriculum? No

primary school curriculum	No
secondary school curriculum	No
university curriculum	No
professional DRR education programmes	No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Though there has been no formal integration of DRR into the school curricula, individual subjects do provide information and knowledge on various different hazards. However, the Non-formal Education Program has a module on disaster management and risk reduction. Through the Disaster Response and Preparedness for Safe Schools Program, principals and teachers of all schools in Bhutan have been sensitized on natural hazards in Bhutan and trained in the formulation of school disaster management plans (SDMPs) and the conduct of preparedness drills. And the SDMPs and school drills are now part of the school's performance monitoring

system. Therefore, all schools in Bhutan now have SDMP and disaster preparedness drills are now part of the school calendar. To mark the anniversary of the September 21, 2009 earthquake in Mongar in Eastern Bhutan, the Ministry of Education has declared a School Disaster Preparedness Day on the eve of the earthquake, an annual event.

Therefore, much has been done and achieved in trying to influence school curricula and to ensure a culture of disaster resilience in schools.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

Efforts have been made to incorporate DRR into the education system and curricula and build the capacities of school teachers and staff. The process should be further facilitated to review the existing school curriculum and formally integrate DRR, recovery concepts and practices, including indigenous knowledge and traditional practices that enhance resilience and reduce risks.

There is also need to include the universities, monastic schools and day care centres in the safe school programs and review the ECCD and NFE curriculum to include more comprehensive information on DRR. There is also need to consider the safety requirements for children with special needs and impart the required skills and knowledge to the concerned teachers and staff. Also, at the moment the preparedness drills are concentrated mostly on earthquake drills, there is need for more multi-hazard drills, especially for events such as fires, storms, flooding and landslides.

Additional related documents and links

- [Earthquake Safety in Schools](#)
- [Emergency Safety and First Aid Handbook](#)

Core indicator 3

Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.

Level of Progress achieved? 2

Some progress, but without systematic policy and/ or institutional commitment.

Key Questions and Means of Verification

Is DRR included in the national scientific applied-research agenda/budget? No

Research programmes and projects	No
Research outputs, products or studies are applied / used by public and private institutions	No
Studies on the economic costs and benefits of DRR	No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Presently there are no standard and comprehensive multi risk assessments developed or applied in Bhutan. However many assessment tools and methodologies have been developed, such as the - the Hazard Vulnerability and Capacity Assessment (HVCA) methodology used in the Community Based Disaster Risk Management Program that has been initiated in 16 districts; the vulnerability assessment checklist for schools and Basic Health Units has been endorsed by the Ministry of Health and the Ministry of Education and is now being implemented on a prioritized basis and; currently the post-earthquake assessment guidance document is being formulated.

Similarly, research and pilot projects/ studies such as paleo- seismological studies, fault mapping, building behaviour etc. are being conducted to gather important information on hazards and vulnerability. However, capacities of technical and hazard monitoring agencies needs to be enhanced and much information needs to be gathered, researched and consolidated before Bhutan can come up with a multi-hazard atlas.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is still much to be done to develop methods and tools for multi-risk assessments and strengthen cost-benefit analysis. There is need to dedicate financial resources to build capacities of technical and hazard monitoring agencies to collect data/information, conduct analysis and develop tools and methodologies to build the necessary scientific data and basis. The technical universities and institutes can play an instrumental role in such effort and collaborations and partnerships should be established. The development of assessment and cost-benefit analysis

tools would help in generating information to frame appropriate risk reduction and mitigation actions, which would ultimately help in formulating cost estimates and integration into development plan budgets.

Core indicator 4

Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Do public education campaigns for risk-prone communities and local authorities include disaster risk? Yes

Public education campaigns for enhanced awareness of risk.	Yes
Training of local government	Yes
Disaster management (preparedness and emergency response)	Yes
Preventative risk management (risk and vulnerability)	Yes
Guidance for risk reduction	Yes
Availability of information on DRR practices at the community level	Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

DDM, since its inception has been consistently pursuing disaster management awareness raising and advocacy programs. Through its country wide community based disaster risk management (CBDRM) program, the DDM has informally formed

disaster management committees, sensitize and train committee members and local government staff on disaster risks and the risk management planning process and reach out and raise awareness of vulnerable communities. The CBDRM program has now covered 16 out of 20 districts in Bhutan.

The Disaster Preparedness and Response for Safe School Program began as the Safe School Initiative program, a pilot activity of the DDM to raise awareness on disaster risks and risk reduction in the education sector in 2008. Till date the program has covered all 20 districts in Bhutan and has directly trained over 819 Principals and disaster focal teachers of 661 schools and extended classrooms in Bhutan. The Principals and disaster focal teachers in turn train their colleagues and other staff in their schools. The program is now owned and sustained by the Ministry of Education (MoE) and is jointly implemented with the DDM. The program is a good example of cooperation between different government agencies and has proven to be a mainstreamed and sustainable program.

To enhance safety and preparedness in Dzongs, which are structures having deep historical significance, and centers of administration and the seat of monastic bodies in all districts, the DDM along with relevant partners such as the Dratshang Lhentshog, DoC and the Royal Bhutan Police, has conducted the Disaster Preparedness and Sensitization for Dzong Fire Safety program in 8 districts. Also, through the Reducing Climate Change Induced Risks in vulnerable districts project, the DDM has been implementing an end-to-end early warning sensitization and awareness program in all the at-risk communities in the GLOF vulnerable districts.

Other ongoing awareness efforts are holding the School Preparedness Day on the eve of the 2009 eastern Bhutan earthquake and commemorating the International Disaster Reduction Day. DDM has also been educating parliamentarians and advocating for risk reduction legislation support, holding regular awareness and capacity building forums for disaster management focal persons and formulating and disseminating awareness materials (posters, handbooks, brochures, etc.) and risk reduction messages through print and electronic media.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

So much has been done and achieved through the various awareness and advocacy programs and activities. However, there is now need to consolidate all ongoing education and awareness and programs, evaluate their effectiveness and impact, sieve out lessons learned and best practices and develop a comprehensive awareness strategy. The strategy should outline short, medium and long term priorities and outcomes and identify priority activities, communication channels, target audiences, etc. to ensure appropriate and effective programs.

Additional related documents and links

- [Awareness posters](#)
- [Ap Naka - Audio-visual awareness programme on earthquake safety](#)
- [Ap Churey - Audio visual program on flood safety](#)
- [Azha chuey - Audio visual program on flood safety](#)

Priority for Action 4

Reduce the underlying risk factors

Core indicator 1

Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Is there a mechanism in place to protect and restore regulatory ecosystem services? (associated with wet lands, mangroves, forests etc) Yes

Protected areas legislation	Yes
Payment for ecosystem services (PES)	No
Integrated planning (for example coastal zone management)	No
Environmental impacts assessments (EIAs)	Yes
Climate change adaptation projects and programmes	Yes

· [NAPA 2006](#)

· [Second National Communication](#)

· [NAPA 2013](#)

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

One of the pillars of Bhutan's development philosophy, Gross National Happiness, is Environment Conservation. Bhutan has a National Environment Commission and strong environment policies to ensure environment conservation and sustainability in all development policies and programs. Even the Constitution of the Kingdom of Bhutan states that for all times to come 60% of Bhutan's area should be under forest cover. As per environment laws and policies, all development programs and projects should undergo an Environment Impact Assessment (EIA) and the procedures are integrated in the development process. Therefore environment policies play a major role in reducing underlying risk factors such as unsustainable use of forest and water resources, environment unfriendly road and other constructions, etc.

The relevant government and partner UN agencies other donor organizations are working to integrate the areas of disaster risk reduction, environment conservation and climate change adaptation - as ultimately all lead to sustainable development. Through the National Adaptation Programme of Action process, the government has tried to incorporate DRR concerns into environment and climate change adaptation framework. The first project that was implemented through the NAPA process was a disaster risk reduction project - Reducing GLOF induced risks in the Wangdue, Punakha and Chamkhar river basins. The 11th FYP guidelines also recognize the linkages between climate change impact and the increased risk of extreme event and natural hazards. Both DRR and CCA have been reflected as cross-cutting themes, requiring attention in all development plans and programs.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

The government places importance on both the issues of DRR and CCA and organizations like the DDM and the National Environment Commission (NEC) are working hard to reduce risk and ensure environment preservation. Though there is an understanding that DRR and CCA are interlinked, at the moment implementation of mitigation works in the two fields are being carried out largely in isolation from each other. There is need to develop a common framework for DRR and CCA under the environment preservation and sustainable development paradigm. For this, there is need to build research, data collection capabilities, establish clear linkages and develop mechanisms and tools for integration.

Core indicator 2

Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Do social safety nets exist to increase the resilience of risk prone households and communities? Yes

Crop and property insurance	Yes
Temporary employment guarantee schemes	No
Conditional and unconditional cash transfers	No
Micro finance (savings, loans, etc.)	Yes
Micro insurance	No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Since the beginning of planned development in Bhutan in the 1960s, government has provided free access to health and education facilities and services to all citizens, including medical referrals outside the country. This policy ensures a security and safety net to poorer and vulnerable section to a certain level. In addition to this, rural families are mandatorily covered under the highly subsidized Rural Housing Insurance Scheme of the government. The insurance scheme provides rural families with compensation to recover and re-build their homes after any disaster event.

Similarly, crop and livestock insurance schemes are being discussed for formulation and endorsement.

Bhutan also has strong local governments and believes in the policy of decentralization and empowering of local governments. Through this policy and related institutional set up, local governments are responsible for reaching out to vulnerable population under their jurisdiction and help them avail existing support. Village health workers and agriculture extension agents are stationed in villages to provide services and support the community.

Efforts are also being made to protect critical structures such as hospitals and schools. National Action Plans for School Earthquake Safety and Earthquake Safety of Health Facilities have been developed and endorsed and priority mitigation and preparedness recommendations are being implemented. Vulnerability Assessment

Checklists for schools and health facilities have also been developed and vulnerability assessments of school and health buildings are ongoing. Also, initial seismic vulnerability assessment for the only National Referral Hospital has been conducted and assessment recommendations are being implemented. Similar assessments of district hospitals are underway.

Also, sound environment policies, mandatory environment impact assessment for development projects and empowering local governments have contributed in the reduction of underlying risk factors.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

With the increasing impact of climate change, Bhutan has been experiencing natural hazards and extreme events more frequently and with increased intensity. National wide floods in 2009 was induced by heavy precipitation from Cyclone Aila in the Bay of Bengal and caused damages to farm roads, bridges, livestock, crops and infrastructure, worth more than Nu. 600 million. The more recent Cyclone Phailin caused extremely heavy and unexpected rainfall during the harvest season and resulted in significant rice yield loss to the farmers. With increasing events there is need to seriously explore and increase risk sharing mechanisms, especially for the poorer and more vulnerable rural families.

Though ongoing efforts are being made to make critical structures such as hospitals and other health facilities safer, there is need to urgently assess all health facilities and implement assessment recommendations to ensure that health facilities are prepared and remain functional during emergencies.

To reduce the vulnerability of populations most at risk, there is need to research - linkages between DRR and poverty - build capacities of climate and weather forecasting and early warning agencies.

Core indicator 3

Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities

Level of Progress achieved? 2

Some progress, but without systematic policy and/ or institutional commitment.

Key Questions and Means of Verification

Are the costs and benefits of DRR incorporated into the planning of public investment? No

National and sectoral public investment systems incorporating DRR.

Yes

Please provide specific examples: e.g. public infrastructure, transport and communication, economic and productive assets

Investments in retrofitting infrastructures including schools and hospitals

Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

Bhutan's largest revenue earnings are from the sale of electricity from its hydro-power plants. Hydro power generation is dependent on sustained flow of Bhutan's perennial glacial fed rivers. Before the establishment of any such plants and other huge development infrastructure, detailed risk and environment impact assessments are conducted. However, with increasing extreme events such as unprecedented flooding and increased risk from GLOFs, such assessments should be more stringent and any recommendation for risk reduction and mitigation should be followed judiciously.

Another large but vulnerable sector is agriculture. More than 65% of our population are subsistence farmers and depend on farming. The 2009, cyclone Aila precipitated floods and the damage to harvested crops caused by the more recent Cyclone Phailin rains, highlight the sector's vulnerability to such natural events.

Being a landlocked country, Bhutan is highly dependent on its road network for connectivity and transportation of people and essential commodities. The Department of Roads, since the 10th FYP has been following an Environment Friendly Road Construction process. This has helped in building more sustainable roads, however, being in the fragile himalayan eco-system, landslides are common, especially during the monsoon season making the transportation sector highly vulnerable.

The 11th Five Year Planning guidelines has noted "increased disaster resilience" as one of the 16 National Key Result Areas (NKRAs), which means districts, sectors and agencies would need to incorporate risk reduction, mitigation and preparedness measures in their plans and activities, wherever possible.

Provide an explanation of some of the key contextual reasons for the

country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

Bhutan and some of its most important sectors like agriculture, hydropower, transportation, are extremely vulnerable to natural hazards. It would therefore be important to strengthen early warning systems by building capacities of weather and climate forecasting agencies, establishment of emergency operation centers and a communication network.

It is also important to seriously work towards risk and vulnerability mapping and formulating a multi-hazard atlas for Bhutan, which would help or influence decision making in terms of land use and development planning.

Core indicator 4

Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Is there investment to reduce the risk of vulnerable urban settlements? Yes

Investment in drainage infrastructure in flood prone areas	No
Slope stabilisation in landslide prone areas	Yes
Training of masons on safe construction technology	Yes
Provision of safe land and housing for low income households and communities	Yes
Risk sensitive regulation in land zoning and private real estate development	No
Regulated provision of land titling	No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The comprehensive risk and environment impact assessment done before demarcating areas for human settlements, ensure to a certain extent that DRR elements are considered. In the urban settlements building construction follows a stringent process of design approval and adherence to standard building codes. However, the growing population pressure and rapid urbanization in the few urban areas is increasing vulnerabilities and creating new risks.

Also, in the rural areas with traditional buildings, homes are non-engineered and built by the local masons and the community. In the two recent earthquake events of 2009 and 2011, traditional rural homes suffered the most damages. The extent of damage suffered by rural homes in the two events indicate the high vulnerability of rural homes to earthquakes and the recovery and re-construction program included safe construction practices trainings for local masons and carpenters.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is need to formulate vulnerability and multi-hazard atlas maps that would inform planners and decision makers for land use and development planning. There is need for risk sensitive expansion in urban areas and risk reduction plans should be developed and implemented on a priority basis in the cities. As per the DM Act 2013, the districts and cities should formulate and start implementation of their disaster management and contingency plans.

Due to the lack of technical people and building inspectors in the cities and also in the districts, it is difficult to monitor construction sites and various development projects. There is need to step up construction monitoring and enhance quality control mechanisms.

Also, due to the vulnerability of traditional building, there is need to formulate standards and codes for traditional construction types to ensure safety and good construction practices. Training for engineers on carrying out risk, vulnerability and other structural assessments should be pursued and similarly the training for masons and carpenters on safe construction practices should be made more comprehensive and continued.

Additional related documents and links

- [safe construction practices](#)

Core indicator 5

Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Do post-disaster programmes explicitly incorporate and budget for DRR for resilient recovery? No

% of recovery and reconstruction funds assigned to DRR	
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DRR capacities of local authorities for response and recovery strengthened	Yes
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Risk assessment undertaken in pre- and post-disaster recovery and reconstruction planning	No
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Measures taken to address gender based issues in recovery	No
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Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

As per the DM Act 2013, disaster risk reduction should be integrated into all phases of the disaster management cycle. Learning from past disaster events and subsequent recovery and re-construction plans, the government is realising the importance of integrating disaster risk reduction in the post-disaster activities. After the 2009 floods and earthquake and more recently for the damages due to the Sikkim earthquake in 2011, the government with the help of its development and UN partners conducted post disaster needs assessments and formulated comprehensive national recovery and re-construction plans (NRRPs).

The NRRPs have pointed out the need to "build back better" during re-construction to reduce risk and enhance resilience and the priority re-construction activities were integrated into the five year plans of the concerned agencies and local governments. The NRRPs also emphasised building capacities of local masons and carpenters on safe construction practices towards the aim of re-building safer rural homes.

The recovery and re-construction process presented a huge opportunity in terms of reducing risks and systematically building resilience. However, though there is institutional commitment to reduce risks during the recovery and re-construction period, due to financial and technical challenges, it has been difficult to fully implement risk reduction and mitigation measures.

DDM has already formulated post disaster assessment tools and processes and have trained some local government focal persons. Also, the development of a post-earthquake safety assessment guidance document is underway, which would inform home owners on the safety of their buildings after an earthquake event.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

The recovery and re-construction period provides a huge opportunity for risk reduction and building disaster resilience, however it is difficult to actually implement risk reduction and mitigation measures due to various constraints. The first challenge being the lack of financial support to implement additional safety/risk reducing/mitigation measures during re-construction. Agencies and local governments have five year and annual planned targets to meet and often re-construction activities are an added responsibility with minimal budgetary support. There is need for a process within the government and the local governments to re-prioritize planned development activities in view of the additional re-construction activities provide them with the access to funds to seriously undertake risk reduction and disaster resilience building activities during re-construction. The past NRRP implementation have resulted largely in the re-building of similar structures with similar risks.

There is need for an immediate and comprehensive resource mobilization plan after a disaster to raise funds that would also include costs for implementing any additional risk reduction or mitigation measures. Also, a post-disaster assessment framework needs to be developed and processes, timelines and objectives for the various assessments need to be defined. And post-disaster assessment procedures need to be institutionalised and simultaneously capacities need to be built.

Core indicator 6

Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Are the impacts of disaster risk that are created by major development projects assessed? Yes

Are cost/benefits of disaster risk taken into account in the design and operation of major development projects? No

Impacts of disaster risk taken account in Environment Impact Assessment (EIA)

Yes

By national and sub-national authorities and institutions

No

By international development actors

No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The current 11th Five Year Planning Guidelines have identified "improving disaster resilience" as one of the 16 National Key Result Areas (NKRAs) and this means all the sectors and local governments are required to integrate disaster risk reduction elements into their plans and programs, wherever possible. Similarly the Local Development Planning Guidelines have noted disaster risk reduction a cross-cutting issue and local governments are required to ensure mainstreaming of cross-cutting concerns into their plans and programs. Therefore, the two important national planning guidelines ensure DRR integration into development plans and programs.

The DM Act, 2013 also mandates all government agencies and local governments to mainstream DRR into their development plans and programs. Notified sectors and local governments are required to formulate their disaster management and contingency plans. The government's Protocol for Policy Formulation also requires the mainstreaming of cross-cutting issues, including disaster risk reduction, as appropriate to policies being formulated. A mainstreaming reference group, including DDM has been formed to review all new government policies. Therefore all national policies, including poverty reduction strategies and environment policies would integrate DRR elements.

Important sectors such as health and education are starting to seriously integrate DRR and preparedness into their activities. National Action Plans for School Earthquake Safety and Safety of Health Facilities have been endorsed and priority

activities are being implemented and schools and health facilities in the country are being assessed using the Vulnerability Assessment Checklists for Schools and Basic Health Units in Bhutan.

The environment sector is linked closely to disaster risk reduction as its conservation and environment impact assessment procedures help reduce underlying risk factors and vulnerabilities and even through the National Adaptation Plan of Action for climate change impacts, disaster risk reduction and the need to be prepared has been identified as a key concern.

Another procedure through which risk reduction is facilitated is through the enforcement of building codes and standards for building construction in the urban areas and comprehensive EIA and code enforcement for big infrastructure projects.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

Though DRR, and Environment conservation are noted as cross-cutting concerns and linked to each other, there are no clear frameworks or procedures to link them. There is need to develop linkages between the three cross-cutting and overlapping areas under the sustainable development framework and show clear linkages to poverty reduction and other development areas.

With the effects of climate change, natural hazards and extreme events are occurring more frequently and with more intensity and affecting many sectors. Some important sectors that are being or could be seriously affected are agriculture, energy and the road and transport sectors. There is need to conduct cost benefit analysis of integrating and DRR and mitigation measure in these sectors and have identified vulnerable sectors adopt adaptation and risk reduction measures in their work.

To support risk reduction, preparedness and mitigation measures, it is important to enhance weather and climate forecasting abilities and early warning systems. The development of vulnerability and hazard maps is also important to facilitate implementation of risk reduction measures.

Priority for Action 5

Strengthen disaster preparedness for effective response at all levels

Core indicator 1

Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Are there national programmes or policies for disaster preparedness, contingency planning and response? Yes

DRR incorporated in these programmes and policies

Yes

The institutional mechanisms exist for the rapid mobilisation of resources in a disaster, utilising civil society and the private sector; in addition to public sector support.

Yes

Are there national programmes or policies to make schools and health facilities safe in emergencies? Yes

Policies and programmes for school and hospital safety

Yes

Training and mock drills in school and hospitals for emergency preparedness

Yes

Are future disaster risks anticipated through scenario development and aligned preparedness planning? No

Potential risk scenarios are developed taking into account climate change projections

No

Preparedness plans are regularly updated

No

based on future risk scenarios

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The DM Act of Bhutan passed in 2013 provides due importance to risk reduction and preparedness and outlines clear institutional set up for preparedness and response mechanisms. In accordance with the Act, institutions at all levels are being put in place starting with the National Disaster Management Authority (NDMA), to the DDM to District and City Disaster Management Committees and Search and Rescue Teams both at national and local levels.

The DM Act 2013 requires all districts and notified agencies to develop DM and Contingency Plans. DM planning and contingency planning guidelines are being formulated and finalized. Also through the Community Based Disaster Risk Management (CBDRM) and the Safe School Initiative programs, schools and communities are being sensitized and trained to formulate their own disaster management and evacuation plans.

Through the SAR capacity building program, the National Search and Rescue Team (NaSART) has been formed and local SAR teams are being formed and trained.

National Action Plan for School and Hospital earthquake safety has been formulated and endorsed by the two ministries and immediate mitigation and preparedness actions recommended are being implemented in the current 11th FYP on a priority basis.

Also, as per the Act and as per past disaster experience, a rapid resource mobilization, from both outside and within the country has been formulated and the Act provides local governments with the authority to utilize planned development budget for immediate response and relief requirements.

The 11th FYP has "increasing disaster resilience" as one of the 16 National Key Indicators, which means sectors and districts would be required to incorporate DRR elements and concerns into their plans and programs.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is substantial achievement in this area and ongoing efforts are being made to develop policy, technical and institutional capacities and mechanisms to promote

DRR. However, there is need to formally establish institutions and various critical disaster management facilities outlined in the DM Act, 2013. There is also need to finalise various guidelines and actually implement in coordination with existing development and multi-sector procedures.

To fully implement DRR measures, disaster management institutions require resources, both in terms of financial and technical resources. Even with established institutions and mechanisms, it would be difficult to implement risk reduction measures without funds and manpower with the required technical skills and capabilities.

Core indicator 2

Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes.

Level of Progress achieved? 3

Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Key Questions and Means of Verification

Are the contingency plans, procedures and resources in place to deal with a major disaster? Yes

Plans and programmes are developed with gender sensitivities

Yes

· [National Action Plan for School Earthquake Safety](#)

· [National Action Plan for Earthquake Safety for Health Facilities](#)

Risk management/contingency plans for continued basic service delivery

No

Operations and communications centre

No

Search and rescue teams

Yes

Stockpiles of relief supplies

No

Shelters

No

Secure medical facilities

No

Dedicated provision for disabled and elderly in relief, shelter and emergency medical facilities	No
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Businesses are a proactive partner in planning and delivery of response	No
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Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

The DM Act 2013 requires districts and notified agencies to formulate disaster management and contingency plans. Disaster management and contingency planning guidelines are being currently formulated and finalized. Through the CBDRM process, the DDM has sensitized local officials and trained planning teams to facilitate a bottom-up CBDRM planning process in 16 districts. Similarly, through the Safe School Initiative and Disaster Preparedness and Response for Safe School Program, staff and teachers in all districts have been trained and almost all schools in Bhutan have school disaster management plans.

In terms of response, a National Search and Rescue Team (NaSaRT) has been formed and local teams are being formed and trained. The Ministry of Health, realizing the critical role of hospitals and health facilities to remain functional during emergencies, has begun seismic vulnerability assessments of hospitals and carrying out recommended mitigation measures.

The DM Act 2013 requires the establishment of critical facilities such as the Emergency Operation Centres (EoCs) at the national level and in required districts. These EoCs will contribute to streamlining data collection, information channels and in serving as unified command centres during emergencies for effective response.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is institutional commitment in this area, but much still remains to be done. There is need to finalize disaster management and contingency planning guidelines and have the districts and notified agencies formulate their plans urgently. The CBDRM process has been initiated in 16 districts and now has to successfully culminate in community based DM plans.

As per the DM Act 2013, Emergency Operation Centres need to be established with clear information and communication channels and procedures to ensure effective and coordinated response during emergencies. There is also need to improve public-private partnership and include corporations and businesses in the risk reduction and disaster management process. For the recent earthquake events and nation-wide floods, Bhutan has formulated and is still implementing recovery and reconstruction plans. The recovery and re-construction activities have been integrated in relevant five year and annual development plans, however, there is need to use these activities/efforts as opportunities for reducing risk and increasing resilience.

Core indicator 3

Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Are financial arrangements in place to deal with major disaster? Yes

National contingency and calamity funds	Yes
The reduction of future risk is considered in the use of calamity funds	No
Insurance and reinsurance facilities	Yes
Catastrophe bonds and other capital market mechanisms	No

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

As per the DM Act 2013, the district DM Committees can meet expenses for response and relief from the annual budget of the district, also there shall be a Budget for national Disaster Management Activities which shall be used for immediate restoration of essential public infrastructure and service centres. For

recovery and re-construction the Act requires District DM committees to undertake assessments and submit to the National DM authority for review and release of funds.

In the past disaster events, after a joint post-disaster needs assessment by the government along with its development partners, National Recovery and Re-construction Plans (NRRPs) were formulated for resource mobilization and for identification and planning of recovery and re-construction activities by the concerned sectors and local governments.

Also, in terms of post disaster assessments, the DDM has formulated the Bhutan Disaster Assessment tool and procedure and is in the process of building capacities at the local level. The post-earthquake safety assessment guidance document is also being formulated.

In terms of response, the National Search and Rescue Team (NaSaRT) has been formed and the DDM is in the process of creating local SAR teams, building their capacities and resources including SAR equipment.

The government has been providing a highly subsidized insurance scheme through the Royal Insurance Corporation of Bhutan for rural houses. The insurance compensation helps rural families recover from damages caused by natural disasters to their homes and also help in re-building.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

There is need to establish a system and streamline procedures for resource mobilization after a disaster event. In the past mobilization has not been as coordinated and effective as anticipated and often assessment reports and fund requests have not been able to tap into the emergency funding window. The resource mobilization system, including channel for raising funds and for disseminating funds, needs to be developed in coordination with all relevant stakeholders and development partners.

The post disaster assessment system/framework needs to be clarified and institutionalized so that there are no duplicating or competing assessment and assessment tools and the timeframe, responsible agency, the assessment tool to be used and the objectives for each should be clearly specified and understood by all decision makers and stakeholders. Simultaneously capacities and mechanisms to carry out the assessments at all levels need to be put in place.

As per the DM Act 2013, the national response system needs to be detailed out. The contingency planning guidelines being developed presently would help in further clarifying the response system at all levels. Also, to further enhance the response system, Emergency Operation Centres and local SAR teams need to be created and their related capacities, procedures and mechanisms put in place.

Insurance and re-insurance mechanisms for disaster recovery and re-construction need to be further explored and local context specific schemes need to be developed.

Also, there is need to seriously view recovery and re-construction periods and activities as real opportunities for risk reduction and building disaster resilience.

Core indicator 4

Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.

Level of Progress achieved? 4

Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities.

Key Questions and Means of Verification

Has an agreed method and procedure been adopted to assess damage, loss and needs when disasters occur? Yes

Damage and loss assessment methodologies and capacities available	Yes
Post-disaster need assessment methodologies	Yes
Post-disaster needs assessment methodologies include guidance on gender aspects	No
Identified and trained human resources	Yes

Provide description and constraints for the overall core indicator (not only the means of verification).

Please describe some of the key contextual reasons for the country's ranking/ assessment for the indicated level of progress.

In past disaster events, damage assessments were first conducted by assessment teams from the local governments, relayed back to the DDM and then compiled and presented to the government. The government and development agencies then carried out a joint post disaster Needs assessment and formulated the National Recovery and Reconstruction Plans (NRRPs), to support resource mobilization and prioritization of risk reduction and mitigation efforts. Detailed assessments were later conducted by respective sectors to come up with cost estimates for actual implementation of the re-construction activities.

Also, a Disaster Management Information System (DMIS) has been instituted by the DDM to facilitate local governments to report on incidents and events to the DDM and focal persons in few districts have also been trained in its use and on reporting procedures. The Bhutan Disaster Assessment tool and procedures, to assess humanitarian needs have been developed and the government is also working to develop a post-earthquake safety assessment guidance document.

Provide an explanation of some of the key contextual reasons for the country's ranking assessment at the indicated level. In particular, highlight key challenges encountered by the country/ national authorities and partner agencies; and recommendations on how these can/ will be overcome in the future.

From past experience, there is need to first and foremost develop and adopt a comprehensive post disaster assessment framework to clarify the various assessments, the tools and methodology, the assessment objectives, the time frame and the responsible agencies. This would ensure a systematic post-disaster assessment process and standard and unified information system. Tools like the BDA and the post-earthquake safety assessment should be finalized, formally endorsed and capacities of identified or responsible personnel should be built. Damage assessment tool and standard technical and detailed assessment procedures also need to be developed.

There is also need to establish the Emergency Operation Centers to ensure effectiveness, unified chain of command and information and communication flow.

Additional related documents and links

- [Joint Rapid Assessment for Re-construction, Recovery and Risk Reduction](#)

Drivers of Progress

a) Multi-hazard integrated approach to disaster risk reduction and development

Levels of Reliance

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Do studies/ reports/ atlases on multi-hazard analyses exist in the country/ for the sub region?: Yes

If yes, are these being applied to development planning/ informing policy?: Yes

Description (Please provide evidence of where, how and who)

At present different sectors are responsible for different hazards and studies and hazard maps and risk information lie in various different agencies. The National Disaster Risk Management Framework was developed in 2006 to provide a comprehensive strategy on various different hazards. This framework needs to be reviewed in view of the changing environment and hazards and the DM Act 2013 and should establish strong coordination mechanisms between sectors.

The development of a multi-hazard atlas for Bhutan has been a priority since the previous 10th FY plan. However due to lack of data, technical expertise and funding support this has not materialised. At present hazard and risk information and maps exist in various different agencies. There is need to compile what is already there and make efforts to conduct research and studies to generate more hazard and risk information.

The DM Act 2013 mandates a multi-sectoral DRR approach and establishes multi-sectoral committees and mechanisms at various levels, which would help to ensure a multi-hazard integrated approach to DRR and development.

b) Gender perspectives on risk reduction and recovery adopted and institutionalized

Levels of Reliance



Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Is gender disaggregated data available and being applied to decision-making for risk reduction and recovery activities?: Yes

Do gender concerns inform policy and programme conceptualisation and implementation in a meaningful and appropriate way?: Yes

Description (Please provide evidence of where, how and who)

Bhutan is aware of the differential affects on disaster on men and women and the need to adopt gender perspectives on risk reduction and recovery. The DM Act 2013 spells out the vulnerable groups, including women and mandates agencies to ensure that their needs are reflected in all risk reduction measures and activities.

At present, national programs like the Community Based Disaster Risk Management (CBDRM) Program and the Safe School Programs try to at least ensure equal participation of women and men in the awareness and trainings activities. Major projects in DRR also have gender requirements and targets are reviewed during evaluations.

There is still need to conduct studies and research on affects of disaster on men, women and also other vulnerable groups in Bhutan's context and women's role and livelihoods in the community, which would help ensure that DRR strategies accurately consider the needs of vulnerable groups.

c) Capacities for risk reduction and recovery identified and strengthened

Levels of Reliance

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Do responsible designated agencies, institutions and offices at the local level have capacities for the enforcement of risk reduction regulations?: Yes

Are local institutions, village committees, communities, volunteers or urban resident welfare associations properly trained for response?: Yes

Description (Please provide evidence of where, how and who)

A key responsibility of the DDM is to ensure capacity development of the various DM institutions, critical infrastructure and the community. With the DM Act 2013, there is a Budget for Department of Disaster Management, which shall be used for capacity building, establishing and maintaining critical DM facilities and other preparedness activities. Therefore, in the current 11th FYP, in case of this budget allocation DDM would be able to further streamline and institutionalize its capacity building activities.

So far at the community level, DDM has built capacities related to early warning, evacuation and risk reduction in the GLOF prone valleys; has built hazard, vulnerability and capacity assessment and disaster management planning capabilities in almost all districts in Bhutan through the Community Based Disaster Risk Management (CBDRM) program. After the recent earthquake events, capacities of local governments, and local masons and carpenters have also been built for safer construction practices for traditional structures.

Capacities of school principals, staff and students have also been built in all the 20 districts through the safe school programs. Schools have been sensitized on natural hazard risks, to identify their hazards and vulnerabilities, to carry out non-structural mitigation and to conduct mock drills. Almost every school in Bhutan has a School Disaster Management Plan.

Capacity building activities have also been carried out to strengthen post-event assessments, on the DMIS and or engineers. In terms of response, the NASART has been formed and SAR trainings and resources for response are being built at the community level.

There is now the need to formulate a comprehensive capacity building strategy, which would clearly outline, needs at various levels, requirements of resources, technical expertise, equipment and also the sources of funding.

d) Human security and social equity approaches integrated into disaster risk reduction and recovery activities

Levels of Reliance

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Do programmes take account of socio-environmental risks to the most vulnerable and marginalised groups?: Yes

Are appropriate social protection measures / safety nets that safeguard against their specific socioeconomic and political vulnerabilities being adequately implemented?: Yes

Description (Please provide evidence of where, how and who)

Poverty in Bhutan is largely a rural phenomenon. Rural families are mostly subsistence farmers and live in traditional structures, making both their livelihood and homes very vulnerable to natural disasters and extreme weather events.

Realizing this, the government has a highly subsidized scheme for rural families to ensure an affordable house insurance scheme. The insurance compensations paid out from the Rural Housing Insurance Scheme supports rural families to recover from and rebuild their homes after a disaster.

Socio-economically disadvantaged families are also provided support through various programs under His Majesty's Welfare Office in terms of education, land, building materials, livelihood support, etc.

In addition to socio-economically disadvantaged groups, there is need to also consciously understand the needs of other vulnerable groups such as the elderly, women, children, children and people living with disabilities or special needs and ensure that their risks and vulnerabilities are reduced and capacities strengthened.

e) Engagement and partnerships with non-governmental actors; civil society, private sector, amongst others, have been fostered at all levels

Levels of Reliance

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Are there identified means and sources to convey local and community experience or traditional knowledge in disaster risk reduction?: Yes

If so, are they being integrated within local, sub-national and national disaster risk reduction plans and activities in a meaningful way?: Yes

Description (Please provide evidence of where, how and who)

The DM Act, 2013 refers to the importance of seeking private partnerships and the role of civil society and volunteers. DM committees at various levels have the authority to co-opt few members that are not specified in the Act, mainly with the view that private and civil society representatives may be included.

Training programs such as the CBDRM program aims to promote community participation and integrate local knowledge into the development of community based disaster management plans. The mason and carpenter trainings also have the objective of learning from experienced local artisans and recording such skills and knowledge for integration and development of future capacity building programs.

There are no local civil society organizations working specifically for disaster reduction, however there are many organizations working to build the overall resilience of communities and there is need to forge partnerships and build joint strategies with such organizations to further disaster resilience. Similarly, there is a need to promote public-private partnerships to support disaster management programs. Such partnerships could begin with insurance companies in formulating new risk transfer schemes and with big corporations and private companies to support disaster awareness and risk reduction programs as part of their social corporate responsibility.

Volunteerism is growing in Bhutan, especially with the beginning of the Dessup program initiated and guided by His Majesty the King. This program trains volunteers in a number of life skills, including emergency response skills and are seen as a pool of human resource that can be called upon to respond during disasters and emergencies. Similarly there are forest fire fighting volunteers, volunteer community forestry programs, etc. and such initiatives should be supported and encouraged.

Contextual Drivers of Progress

Levels of Reliance

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Description (Please provide evidence of where, how and who)

The foremost driver in Bhutan is seen as the government's willingness to accept the importance of disaster risk reduction and management. The commitment is seen in the various parliamentary discussions on the issue, especially after the recent disaster events; the passing of the Disaster Management Act, 2013; and the inclusion of "improving disaster resilience" as one of the 16 National Key Result Areas (NKRAs) in the current 11th Five Year Planning Guidelines, which is expected to motivate and support mainstreaming of DRR concerns throughout the five year

plan period.

The second driver is the DM Act, 2013 which - strongly advocates for risk reduction; supports enhanced and mandatory sector coordination; mandates the set up of DM institutions and critical facilities at all levels; provides clear authority to local DM committees for response and outlines the budget and funds for disaster management. With the Act in place, it provides the DDM with legal authority to pursue its objectives, motivate the local governments and agencies to be more proactive and will support the development of related policies, standards, rules and regulation being that would further drive the disaster risk reduction process in Bhutan.

The other underlying drivers are the environment policies in place, which mandates that 60% of the total area of Bhutan would be under forest cover for all times to come and the EIA procedures that help identify and reduce risk.

The decentralized local government system and the subsequent effort to build their capacities is also an underlying driver as these would ensure that procedures such as construction standards are followed and the ability to monitor and evaluate development works and ensure quality control will be enhanced.

Future Outlook

Future Outlook Area 1

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

Overall Challenges

The current 11th Five Year Planning guidelines, which are used by all government sectors and agencies to plan out their five year and annual plans, has "increasing disaster resilience" as one of the 16 National Key Result Areas (NKRAs). Also, the Local Development Planning Guidelines used by the local government to formulate their five year and annual plans, have disaster risk reduction as a cross cutting issue to be incorporated wherever possible. This means that all development plans at all level should integrate DRR elements.

Therefore, at policy level there is strong commitment, however for successful integration we need to develop the necessary data, information, the tools and methodologies that would support integration. There is need for more research to establish hazard, risk and vulnerability information, to enable effective and realistic risk reduction and mitigation measures. In addition districts and agencies would require additional funding to integrate the additional risk reduction or mitigation measures, without which districts and agencies may opt for quantity to meet plan targets and compromise safety and quality.

The DM Act 2013 also requires all districts and notified sectors and agencies to come up with disaster management and contingency plans. To successfully implement this continued education and sensitization of decision makers and focal persons are required and the plans should ultimately be mainstreamed and finances assured for successful integration.

For effective integration of DRR, we also require agencies to understand the link between development and disasters, between risk reduction and sustainable development and the costs and benefits of adopting a culture of risk reduction and resilience. For this awareness programs and capacity building activities to adopt mainstreaming tools and methodologies.

Future Outlook Statement

Integration of DRR is a priority in the 11th Five Year Plan and to support integration at all levels, DDM and the government will put emphasis on the development, adoption and dissemination of various guidelines, tools, methodologies, standards, etc. Also, priority and support would be given to undertaking research and studies to build hazard, risk and vulnerability data and knowledge and to formulate risk and hazard maps that would support decision making, land use and development planning and guide integration of DRR activities into the development plans and activities. A sustainable development framework showing clear linkages between DRR, CCA, poverty reduction and environment conservation needs to be developed.

Disaster management and contingency plans, as mandated by the DM Act 2013, should be formulated and training and capacity building programs to facilitate the process should be conducted. The CBDRM process should be reviewed and efforts to come up with local level plans should be expedited.

Evaluations to assess effectiveness of national programs, projects and activities, particularly activities to support mainstreaming should be conducted to generate lessons and identify concrete actions and recommendations that would facilitate meaningful integration of DRR in the current 11th FYP.

Also, development of disaster resilient construction codes for both urban and rural types of buildings should be give importance. The current Bhutan Building Codes should be expanded to cover non-engineered structures and also heritage buildings and monuments. Building codes and standards should be reviewed in view of hazard and risk information that would be generated through the development of the multi-hazard atlas and should involve in depth studies, testing, assessments, technical consultations, stakeholder meetings and peer reviews. Strict specifications incorporating disaster resistant features also need to be developed for all public buildings, particularly schools and hospitals where enforcement should be mandatory.

Future Outlook Area 2

The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.

Overall Challenges

Institutional strengthening and development of mechanisms and capacities are very important for furthering DRR. The DM Act 2013 identifies and mandates - the set of institutions such as DM committees at various levels; establishment of critical facilities such as emergency operation centers and; development of capacities, mechanisms and procedure at various levels. The establishment of institutions, systems and capacities as envisaged by the Act would require resources both financial and material and technical assistance and guidance.

There is still need to raise awareness at all levels and perpetuate the same importance and understanding of resilience and the need to build capacities and resilience, especially at community levels. The remoteness and vulnerability of Bhutan's roads and communication system, make it all the more important for communities to reduce risk and develop capacities for Search and Rescue and post-disaster needs.

The DDM has programs targeting schools, rural communities and vulnerable areas, but increasingly Bhutan's urban centers with the rapid growth and expansion are becoming more vulnerable and accumulating more risks. There is need to make urban communities more aware and make cities safer.

Future Outlook Statement

As mandated by the DM Act 2013, the DM committees at various levels should be established to enable the facilitation and implementation of DRR and preparedness activities. The various rules and regulation, standards, mechanisms, tools and procedures identified in the Act should be formulated and endorsed to enable sectors, agencies and local governments to identify and mainstream DRR, preparedness and mitigation activities into their plans and programs. Similarly, critical facilities, including the Emergency Operation Center, as specified in the Act should be seriously pursued and established.

A comprehensive capacity needs assessment should be conducted to assess capacity requirements (policy, technical, financial, material requirements) at various levels and a capacity building strategy based on priorities should be formulated. Capacities especially in Search and Rescue; post-disaster response, relief and early recovery; emergency communication; mainstreaming of DRR and an awareness program for communities, especially urban communities, are required.

Future Outlook Area 3

The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Overall Challenges

Recovery and re-construction phases after a disaster, offer opportunities for risk reduction and building resilience which was noted in the reconstruction plans after recent disaster events in Bhutan (2009 Cyclone Aila precipitated floods, 2009 earthquake in eastern Bhutan and the 2001 Sikkim, India earthquake which caused

major damages in parts of western Bhutan). However, the Build Back Better concept was difficult to implement due to - limited resources, competing priorities, lack of vulnerability and technical assessments and methodology/designs for strengthening or mitigation.

In the past events, the lack of a common post-disaster assessment and recovery framework led to confusion in damage assessment methods, standards and procedures and even in reporting formats, procedures and channels for communication. Eventually joint rapid assessments along with UN and World Bank were conducted outlining damage and loss estimates and recommendations for recovery and re-construction. Based on the joint assessment report and damage reports from affected districts, the National Recovery and Re-construction Plans (NRRPs) were formulated.

Difficulty in raising resources for NRRP activities affected sectors and local governments and a difficult prioritization process between planned activities and the NRRP activities was conducted. NRRP activities were ultimately incorporated into the development plans but as additional funds for risk reduction and mitigation were not realised, the re-construction process was unable to consciously reduce risk and build resilience.

Past events also showed the importance of having insurance and risk transfer arrangements. The government's highly subsidized mandatory Rural Housing Insurance Scheme really helped rural families recover from disaster events.

The need for safe constructions, especially in the rural areas was also highlighted in past events and the NRRP program also included training for masons and carpenters in safe construction practices in affected districts.

Future Outlook Statement

It would be important to review and learn lessons from the implementation of past National Recovery and Re-construction Plans and challenges faced during implementation. There is also need to learn where the opportunities for risk reduction lie and what actions could be taken and procedures be put in place to enable full use of such opportunities in the future.

As per the DM Act 2103, emphasis would be on setting standard and procedures for emergency funding, resource mobilization strategies, putting in place the funds mandated in the Act and clarifying the post-disaster assessment framework along with the necessary standards, procedures, tools, and formats. The Bhutan Disaster Assessment procedure should be institutionalised and the capacity of local governments and focal persons and assessment teams should be built systematically.

As per the response system outlined in the Act and the contingency guidelines, clear channels for communication and information need to be set and the establishment of Emergency Operation Centers (EoCs) need to be facilitated.

Vulnerability and risk assessments need to be conducted before disasters to ensure swift and informed mitigation and risk reduction actions during re-construction phase. Recovery and re-construction plans should specifically spell out risk reduction actions and implementation should be especially monitored and evaluated. Technical capacities need to be built at all levels, especially at community level where training of masons and carpenters on safe construction should be continued along with home owner education both in rural and urban areas. Developing standards for disaster resilient construction for both urban and rural building types will be important to help reduce new risks as well as reduce risks during re-construction.

Stakeholders

Organizations, departments, and institutions that have contributed to the report

Organization	Organization type	Focal Point
Department of Disaster Management, Ministry of Home and Cultural Affairs	Governments	Lhachey Dema, Programme Officer
Department of School Education, Ministry of Education	Governments	Yang Dorji, Deputy Chief Program Officer
Department of Hydromet Services, Ministry of Economic Affairs	Governments	Ugyen Chophhel, Statistical Officer
Department of Culture, Ministry of Home and Cultural Affairs	Governments	Pema, Engineer
GeoHazards International	UN & International Organizations	Karma Doma Tshering, National Coordinaor