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## *Editorial*

Disaster Preparedness Network (DPNet) Nepal, in collaboration with the Ministry of Home Affairs (MoHA), Ministry of Federal Affairs and General Administration (MoFAGA), Ministry of Health and Population (MoHP), Ministry of Urban Development (MoUD), Ministry of Forests and Environment (MoFE), National Disaster Risk Reduction and Management Authority (NDRRMA) and other stakeholders and with the technical and financial support of USAID/Tayar successfully concluded the first and historical two-day Learning & Sharing National Conference on Disaster Risk Reduction (NCDRR) in Soaltee Hotel, Kathmandu on February 24-25, 2022. The highly inclusive conference aimed to bring out DRR stakeholders in a single platform to discuss and share the contextual issues related to DRRM and to prepare for upcoming 'National Conference on Disaster Risk Reduction', 'Global Platform for DRR' and 'Asia Pacific Ministerial Conference on DRRM'. In the context of not being able to sit down and discuss in one place, the conference brought together more than 350 DRRM stakeholders.

Discussion on 15 peer reviewed paper, panel discussion, market place observation, essay competition, duet folk song and formal program clarified the links between legal tools, blueprints and other policy documents and carried out local, provincial and federal assessments of the vulnerable population; the ecosystems and ecosystem services most at risk; adaptation and mitigation options available in DRR sectors and the links between them; and how other drivers of change relate disaster impacts. Similarly, conference tried to highlight the need to develop indicators (social, economic, environmental and institutional) for disaster mitigation and adaptation and to support for information dissemination and sharing of experience among the DRR stakeholders.

In a nutshell, highly inclusive and accessible NCDRR event established a practice of organizing national conference on annual basis and to share good practices and challenges from the ground. Similarly, it has successfully reviewed the current status of policy implementation including DRRM Localization and to produce relevant materials to prepare national position paper to participate in the upcoming Global Platform for DRR in May 2022 and Asia Pacific Ministerial Conference on DRR in September 2022. There are a number of lessons that can be taken from this conference to foster effective disaster risk reduction activities to encourage partner support. Details of the conference including conference proceedings can be accessed at <https://dpnet.org.np/ncdrr>.

This journal paper is the collection of the peer reviewed paper presented in the conference.

*Publisher*

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## **Bringing SFDRR into Practice: Some Reflections from Nepal**

Tulsi P Dahal

### **Background**

Nepal, a mountainous country in South Asia, is characteristically exposed to many hazards. The distinct complexities in its geology and geography intensify the disaster risk which is further accelerated by the impact of climate change. Typically, hydro-meteorological disasters are the recurrent ones claiming lives and loss of properties every year. Moreover, Nepal's geological position in the collision juncture of Indian plate with Eurasian plates pumped up the seismic risk, which in regular intervals makes devastating effect, with a significant number of casualties resulting huge impact on socio-economic aspect of the country. Ever increasing frequency and magnitude of disasters are very alarming, which necessitate the decent intervention on preparedness and disaster risk reduction (DRR) in the country.

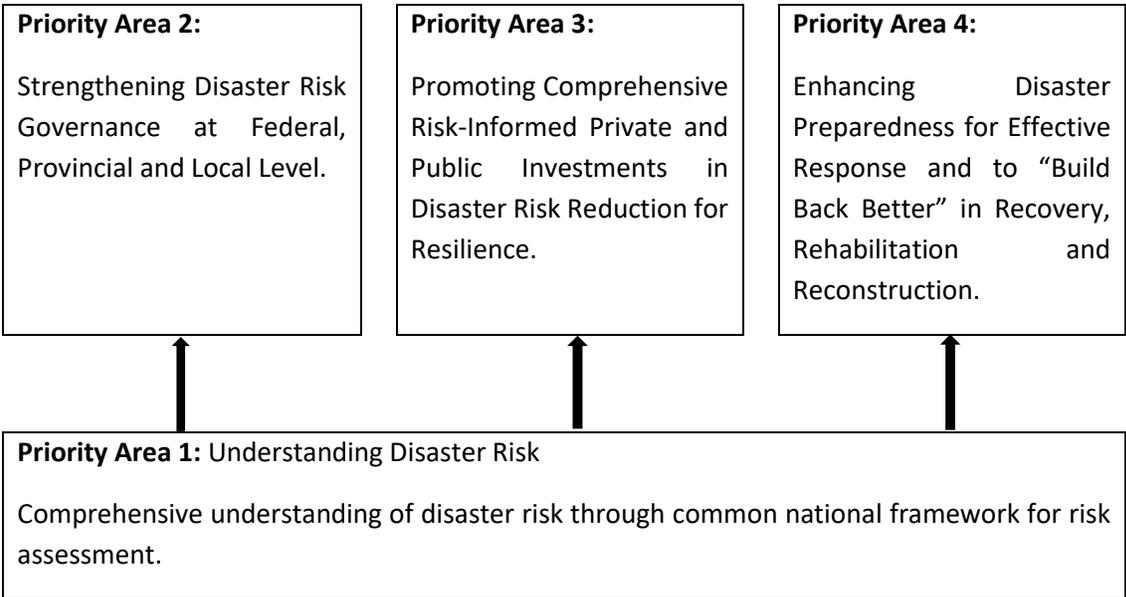
The Gorkha Earthquake in the mid hilly region shattered Nepal on April 25, 2015, claimed the lives of 9,000 people leaving 22,000 severe injuries. This devastating incident has made a harsh impact with the collapse of private houses, critical infrastructures, historical and cultural monuments productive and service sector with the economic loss amounting to one-third of the GDP. National Reconstruction Authority was formed and initiated recovery activities based on Post Disaster Need Assessment and Post Disaster Recovery Framework. This authority has been dissolved, completing its five plus one extended year tenure with remarkable achievement on reconstructing individual housing and settlements of the affected families and progress on some critical infrastructures, including historical and cultural monuments.

Nepal has always been the part and parcel of the regional and global initiatives on DRR. Nepal has witnessed and joined hands together with the world from the Yokohama Strategy, Hyogo Framework for Action to Sendai Framework for DRR to reduce disaster risk, achieve sustainable development goals, fostering resiliency. The Sendai Declaration made in March 2015, to which Nepal is a party, recognizes the increasing impact of disasters and their complexity in many parts of the world. It calls all stakeholders to action, aware that the realization of the new framework depends on constant endless and tireless collective efforts.

### **Localization of Sendai Framework for DRR**

Just after one month of the Sendai Declaration, Nepal encountered 7.6 magnitude earthquakes in April 2015. It employed all of its in-country resources in responding to the immediate impact of the earthquake. The scale of earthquake and its impact and response need were massive. The engagement in this episode of disaster has shaken Nepali society from households to small and medium businesses and government authorities to political leadership. On the positive note, the earthquake rang a tragic alarm highlighting the significance of investing on disaster risk reduction and preparedness. As a result of this, with a solid political consensus, the Constitution of Nepal was promulgated in September 2015 by introducing disaster management, delineated as the sole and concurrent list allocating jurisdiction of all three tiers of government; Local, Provincial and Federal. With this guidance from the Constitution, Nepal made a paradigm shift from the traditional approach of managing disaster to a modern approach of reducing disaster risk and its management through a new law on DRR and Management Act in 2017. National DRR policy further lead Nepal on identifying guidance in the policy frame. The current 15<sup>th</sup> five year periodic plan highlighted to apply the DRR measures and strengthen the state mechanism to respond to the disasters. The Sendai Framework for DRR was localized by the National DRR Strategic Plan of Action 2018-2030, developed through the consultative process at all tiers of government having a long-term vision to build a safer, adaptive, and resilient nation. Nepal's commitment to SFDRR 2015-2030 was to employ all the resources within the country towards minimizing the impact of existing and new risk with an enhanced understanding of disaster risk, localizing disaster risk governance at all levels, and increasing the investment on DRR to improve the capacity and readiness for a response. The key priority areas of the National DRR Strategic Plan of Action (2018-2030) are;-

Table: 1



*Key priorities areas identified by National DRR Strategic Plan of Action (2018-2030)*

This strategic action plan has set the targets of reducing the impact of disaster and enhancing the institutional and response capability of the country. These targets are set within a short-, mid- and long-term timeframe, which are in line with the targets set by the SFDRR and SDGs. The targets are as follow; -

- i. Substantially reduce national disaster mortality rate,
- ii. Substantially reduce the number of disaster-affected people nationally,
- iii. Significantly reduce the direct disaster economic loss in national GDP,
- iv. Substantially reduce disaster damage to critical infrastructure and disruption of essential services, including through developing their resilience,
- v. Prepare DRR strategy and action plan at provincial and local levels,
- vi. Substantially increases availability and access to multi-hazard early warning systems and disaster risk information and assessments.

Nepal has been taking collective action to prevent and reduce existing disaster risks. This leads to enhancing resiliency by enhancing understanding by having DRR plans and developing the capacity and access to a multi-hazard early warning system at all levels. The efforts and initiatives of Government of Nepal (GoN) are directed towards achieving these targets on the stipulated time.

### **Pursuing the SFDRR Roadmap: Initiatives and Key Achievements**

Nepal has a promising determination on achieving the goals set by the National DRR Strategic Plan of Action (2018-2030) (NDRRSAP), which has a multidimensional impact on the DRR and Management (DRRM) arena. It ranges from an enhanced understanding of risk-informed DRR measures to policies, enhanced preparedness and partnership with more investment on DRR to the harnessed collaboration of national, federal and local levels. Based on priority areas set by the National DRR Strategic Action Plan (2018-2030), the progress made so far are highlighted as per those pre-determined areas further explained hereafter.

Understanding the disaster risk is pre-condition for all other priority areas to be accomplished in effective disaster management. Therefore, different priority actions are enlisted to guide us to take action on a hazard-wise assessment of risk, inter-agency coordination for multi-hazard risk assessment, developing effective disaster management information system and information dissemination, and capacity building to enrich the understanding. The hazard-wise assessment of risk is a compulsion for us to initiate any DRR, risk mitigation and preparedness actions. However, it is very resource intensive exercise and requires technical expertise, and time, even though Nepal has been able to achieve some progress on some components under these priority areas. The DRR Portal is in operation, a common mechanism established for collecting information and regularly updating information on disaster loss and damages, response activities, and DRR plans and policy initiatives. It collects data specifically on disaster loss and

damage and provides support for disaster preparedness and response during emergencies. Bipad portal (Disaster Information Management System) is an integrated depository of disaster-related information from all inter and intra government agencies with a reinforced mechanism for real-time hazard risk monitoring (Such as; Seismic stations, hydro-metrological stations, lightning detection centers, all the major glacier lakes monitoring and regular assessment etc.). It has established a strong linkage among different government agencies involved in forecasting, managing and assessment of the risks and responses. The mapping and consolidation of different multi-hazard risk assessments conducted by different government and non-government actors, which will be evaluated further by the technical expert is undergoing. Through the technical assessment on exposure of risk and vulnerability, technical experts have identified some risk exposed vulnerable settlements. Some of them have been relocated to safe areas for settlements. The various kinds of capacity building programmes are undergoing a different level, which results in enhanced understanding among concerned authorities and communities. The DRR related policy development is undertaken in a more participative and inclusive manner, enabling the concerned authorities and representatives to understand better their role and how that policy or mechanism works. The participation and discussions on different global and regional forums on different seminars and webinars have provided platforms for sharing and learning opportunities and enriching DRR understanding. Numbers of researches by academia, institutions and individuals have added value to DRR initiatives through the innovations with evidence based new ideas and knowledge, accessing global practices and its localization to our context. To grasp the attention and orient the people from different walks of life on DRR, number of sharing, learning and knowledge management programmes have been organized by the government and non-government organizations at federal, provincial and local level. The key messages on DRR and relevant issues have been disseminated through different IEC materials, documentary and partnership with audio/visual and print media are quite effective in sensitizing wider stakeholders and develop a common understanding on DRR.

The Priority area 2 focuses on strengthening disaster risk governance at all tiers of government through establishing and strengthening organizational structures, developing legal and regulatory frameworks and capacity building, collaboration and partnership for disaster risk governance, ensuring inclusiveness in DRR. The key progress has been attained so far, where the DRRM Act, 2017 with the provision to establish the National DRRM Authority was endorsed in December 2019, with the appointment of Chief Executive of this organization. The existence of this organization is a milestone achievement to institutionalize more concentrated DRRM practice in Nepal. This dedicated agency for DRR, in its early phase of operation, has been able to provide momentum to initiate DRR activities and bring all government agencies and non-government partners together to contribute on DRRM. The Constitution of Nepal, 2015 delineates disaster as a sole and concurrent list of responsibilities of all tiers of government.

Under the guidance of which several DRR policies were developed. Apart from the guiding legal framework, DRR policy, Strategic action plan for DRR, some of the key documents are; Local Government Operation Act, 2017, DRRM Regulation, 2019, National Disaster Response Framework (Revision 2018), Climate Change Policy, 2019 /NAP, DPRP Guidelines, 2019, Relief Standard for Disaster Affected Person (Revision 2020), National Disaster Risk Financing Strategy, 2021, Province DRRM Acts, Provincial Strategic Action Plans, Local DRR Strategic Action Plan Guidelines, 2021, Different plans for preparedness and response to recurrent hydro meteorological disasters like, monsoon are in place, among others. Federal, provincial and local authorities develop several other sector-specific plans and guidelines. EOCs have been established and strengthened at all levels and across different sectors. There are National EOC, Health EOC, Provincial EOCs, Provincial Health EOCs, District EOCs, and Local EOCs that take stock of the resources and operate for response coordination. Some critical facilities like the Department of Hydrology and Meteorology, schools and health facilities, and WASH facilities have been established with safety consideration and are structurally retrofitted. Some DRR programmes are ongoing in collaboration with all tiers of government and capacity building programmes for preparedness and response. The DRR policies developed ensures inclusiveness, gender and environmental perspectives.

The Priority Area 3 highlights promotion of comprehensive risk-informed private and public investments in DRR for Resilience. It has provisioned on promoting public and private investment for building resilience and increasing disaster resilience through risk transfer, insurance and social security. The policy guidance has supported this area by developing the National DRF Strategy, 2021, with a developed partnership with the public, private, and non-government sectors. There are provisions of disaster management funds for prompt and effective disaster response. The relief support to vulnerable and disaster-affected families was supported as the expansion as in social security. Various forms of risk transfer models are being introduced and adopted by different tiers of government, some of them in practice are disaster and accidental insurance of all the population residing in Karnali province, health insurance program, agriculture and cattle insurance programmes etc. There is an increase in support of Corporate social responsibility by private sectors gradually encouraged to support all cycled of DRRM.

The Priority Area 4 emphasizes on enhancing disaster preparedness for effective response and "Build Back Better" in recovery, rehabilitation and reconstruction. This area focuses on strengthening disaster preparedness for effective disaster response and search and rescue capacity building. It also aspires to develop a multi-hazard early warning system and strengthen communication and dissemination systems for disaster preparedness. Furthermore, it aims to promote community-based DRR and apply the "Build Back Better" approach in recovery, rehabilitation and reconstruction.

Nepal's search and rescue capacity has been enhanced; all security forces are following the standard SAR training curriculum approved by the government. Government at all tiers has been able to foster the Culture of safety and whole of society approach as everyone's responsibility and leaving no one behind. NRA, with high appreciation, concludes reconstruction following the "Build Back Better" principle of private housing, some critical infrastructures and cultural heritage and monuments. Local levels are seriously monitoring effective building code enforcement and awareness for the same. There is enhanced health response capacity, and Trauma Centers developed on major highways. The health sector leads and responds to Covid-19 in Nepal with applaus from the national and international community. However, it provides room for improvement and strengthens the facilities in the health sector in its advancement and capacity to respond to any disaster. DRRM fundamental aspects are included in different levels of the school curriculum, so that young kids can have an idea to survive and provide support to others in disasters. The early warning system has been strengthened and has started capturing real-time data. The expansion of Humanitarian staging areas in provinces, mobile logistic hubs and expansion of warehouses has increased the confidence of responders to provide support when needed.

The figures in the table below are some comparisons, where we can see that we are more or less close to the target of SFDRR. Nevertheless, somehow, we have to accept that the results of loss and damages are directly influenced by the intensity and number of disasters we encounter.

Table: 2 Disaster Impact & Comparison

<u>Year</u>	<u>No. of Incidents</u>	<u>Dead</u>	<u>Injured</u>	<u>Affected Family</u>	<u>Houses Destroyed</u>		<u>Estimated Losses</u>
					<u>Partial</u>	<u>Complete</u>	
2016	2368	486	764	13225	1225	3423	2,811,178,791
2017	2453	489	734	19065	14426	1923	2,494,045,394
2018	3919	478	2902	8180	1881	2505	4,341,891,926
2019	4538	489	2452	25264	6873	4939	4,709,510,265
2020	3768	558	1175	11313	3335	1967	1,760,620,860
2021	4210	508	1773	6578	1596	2048	2,541,412,330
<b>Average</b>	<b>3543</b>	<b>501</b>	<b>1633</b>	<b>13938</b>	<b>4889.33</b>	<b>2800.83</b>	<b>3,109,776,594</b>
<b>SFDRR</b>		<b>400</b>	<b>1600</b>	<b>110000*</b>			

Source: Nepal DRR Portal, National EOC

## Looking forward

Nepal has made remarkable progress on developing key legal documents and policy frameworks at all tiers of government and establishing a new organization, National DRR and Management Authority for DRRM. The strengthened capacities on preparedness for response, especially on capacity building for SAR, expansion of humanitarian staging area (HSAs) and warehouses at some strategic location and progress on forecasting and early warning system are praiseworthy. However, there is still some critical gap on resources, especially on hazard-wise assessment of disaster risk nationwide, which requires high-quality technical expertise. The information gap that fades out our enormous effort and progress is overlooked. The DRR policies and plans still have room for improvement on inclusiveness and environmental aspects. There is a need for coherence and harmonization in the DRRM policies. We should promote and encourage investment and partnership on DRR from the private sector. As the urban population reaches two-thirds of the population, the DRR activities should focus on urban disaster risk and support cities for resiliency to achieve the SFDRR and SDG priority of Making Cities Resilience. The concentration on establishing mechanisms to reduce the loss of life and property should emphasize multi-hazard EWS system development and its networking for access and dissemination. However, it still needs more strengthened partnership and integrated coordination alongside inter and intra government, public, private and non-government sector partnerships, including cost-sharing financing models and risk transfer mechanisms in disaster risk reduction initiatives and recovery activities. On top of it, research and evidence-based risk-sensitive development planning are the musts for reducing the existing and new risks. To accomplish the targets set by the SFDRR framework, we should focus on achieving the National DRR Strategic Plan of Action (2018-2030) for resiliency.

To conclude, key achievement made by the Government of Nepal is the result of collaborative partnership with all relevant agencies, stakeholders and humanitarian partners. This has been very supportive in implementing SFDRR, which will lead to achieve its goal that is aimed to prevent new and reduce existing disaster risks and losses significantly in life and property, health, livelihood and means of production, physical and social infrastructure, cultural and environmental heritage. Identification of various strategic activities and formulation and implementation of the DRR policies and integrating them in periodic and annual plan are directed towards prevention of disaster risk, increase preparedness for response, rehabilitation and reconstruction and strengthen resilience eventually will guide us to achieve the target. Now, it is just halfway through, and the encounter of Covid-19 in due course also has cost many lives to give us the lessons and provide the opportunity to develop enhanced response capacities. The ideal goal is to reduce the loss of life and property, reduce its impact on the economy and livelihood through partnership with relevant stakeholders which lead Nepal towards a resilient country.

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DRR and Management Act, 2017

Fifteenth Five Year Periodic Plan

Local Government Operation Act, 2017

National DRR Policy (2018-2030)

National DRR Strategic Plan of Action (2018-2030)

Nepal Disaster Reports

Nepal DRR Portal URL [www.drrportal.gov.np](http://www.drrportal.gov.np)

[URL NDRRMA www.bipad.gov.np](http://www.bipad.gov.np)

URL: [www.unidrr.org](http://www.unidrr.org)

Sendai Framework for DRR 2015-2030

## विपद् व्यवस्थापनमा प्राधिकरणको भूमिका तथा आगामी कार्यदिशा

डा. डिजन भट्टराई

उपसचिव

राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरण

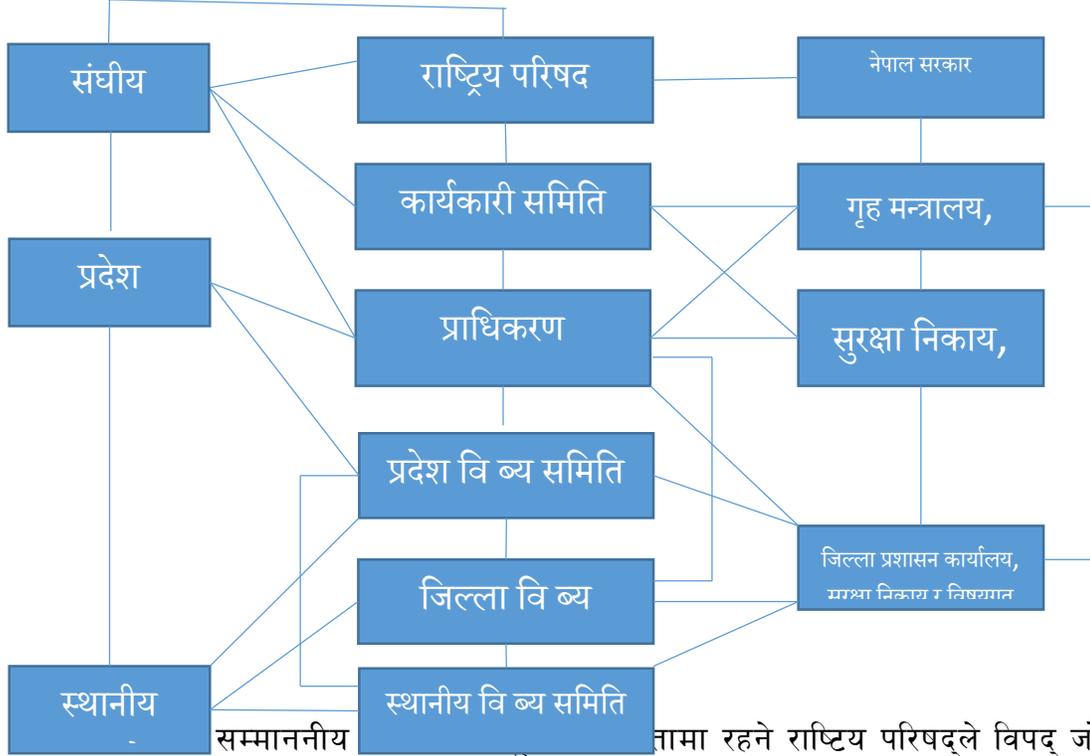
### १ विषय प्रवेश

नेपालमा Geophysical, Climatological र Hydrological विपद् बाट बर्षेनी करिब ५०० को हाराहारीमा मानिसले ज्यान गुमाईरहेको अवस्था विद्यमान छ । विश्वमा चरम कार्बन उत्सर्जनका कारण वातावरणमा भईरहेको तापमानको बृद्धिले हिमालको हिउँ र हिमतालहरू पगलन गइ बिष्फोटन हुने, हिम पहिरोको जोखिम, पर्यावरणीय प्रणालीमा पर्ने नकारात्मक असरका साथसाथै अत्याधिक र बेमौसमी वर्षाका कारण कृषि प्रणाली, खाद्य सुरक्षा, स्वास्थ्य प्रणाली, रोजगारी जस्ता संवेदनशिल विषयहरूमा असर पुगेको छ । वर्तमान सन्दर्भमा विपद्को जोखिम गुणात्मक रूपमा बढिरहेको अवस्था छ । हामीले विगतमा गरेका जस्ता मात्रै रोकथाम र जोखिम न्यूनीकरणका प्रयासले आगामी दिनमा आइ पर्न सक्ने विपद्लाई न्यूनीकरण गर्न सकिँदैन । यसैले सरकारले वर्तमान विपद् जोखिमका आगामी चुनौतिलाई व्यवस्थापन गर्न सक्षम प्रकृतिको कानूनी तथा संरचनागत व्यवस्था गरी सर्वपक्षीय सहकार्यमा जोड दिएको छ ।

### २. विपद् व्यवस्थापनको संस्थागत संरचना

विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन ऐन, २०७४ को दफा १० बमोजिम राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरणको स्थापना भएको छ । २०७६गते कार्यकारी २९/०७/ प्रमुखको नियुक्ति भएसँगै यस प्राधिकरणको स्थापना भएको हो । यसरी हेर्दा प्राधिकरण स्थापना भई कार्यसञ्चालनमा आएको करिब २ वर्ष भएको छ । सम्माननीय प्रधानमन्त्रीको अध्यक्षतामा विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन राष्ट्रिय परिषद् र माननीय गृहमन्त्रीको अध्यक्षतामा विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन कार्यकारी समिति समेत रहेको छ । प्राधिकरणले कार्यकारी समितिको प्रत्यक्ष रेखदेख र नियन्त्रणमा रही काम गर्छ । परिषद् र समितिको सदस्यसचिवका रूपमा - प्राधिकरणका कार्यकारी प्रमुख रहने व्यवस्था ऐनले गरेको छ । यस प्राधिकरणलाई विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बन्धी केन्द्रीय स्रोत निकायको रूपमा कार्य गर्ने अधिकार छ । नेपाल सरकार मन्त्रिपरिषद्को मिति २०७७/०६/११ को निर्णयले संगठन संरचना स्वीकृत भएपछि ३८ जनाको दरबन्दी सहित प्राधिकरण कार्य संचालनमा रहेको छ । हाल यसको केन्द्रीय कार्यालय सिंहदरबार, काठमाडौंमा रहेको छ । प्राधिकरणले आवश्यकतानुसार अन्य स्थानमा कार्यालय स्थापना गर्न सक्नेछ

।मिति २०७८ कार्तिक ३ गते बसेको राष्ट्रिय परिषद्को बैठकले प्राधिकरणबाट सञ्चालन हुने गरी रु १ अर्बको विपद् व्यवस्थापन कोषको स्थापना भएको छ । त्यसको साथै प्रदेशगत संरचना, जिल्लागत संरचना तथा स्थानीय तहको संरचना पनि रहेका छन् । जसलाई देहायको संरचनात्मक सञ्जालमा प्रस्तुत गर्न सकिन्छः

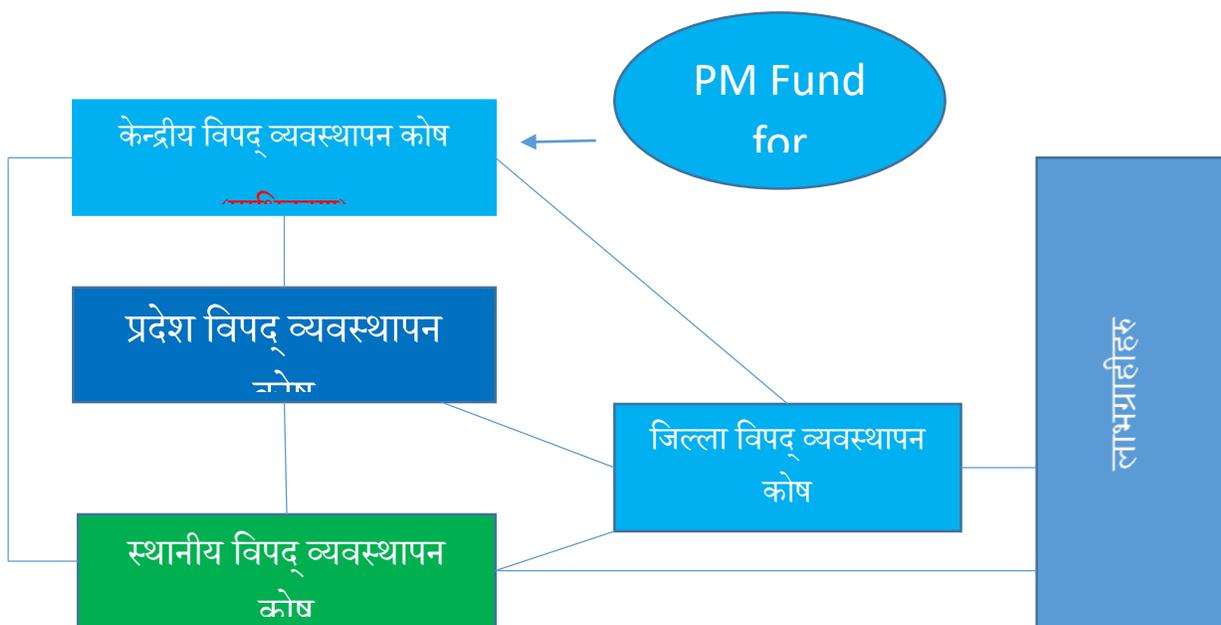


- **संघीय** - सम्माननीय राष्ट्रिय परिषद्ले विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका सन्दर्भमा आवश्यक दिशा निर्देश गरी नीतिगत निर्णयहरू गर्ने कार्य गर्दछ ।
- **कार्यकारी परिषद** : माननीय गृहमन्त्रीज्यूको अध्यक्षतामा रहने कार्यकारी परिषदले विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका सन्दर्भमा आवश्यक नीतिगत तथा कार्यकारी निर्णयहरू गर्ने कार्य गर्दछ ।
- **गृह मन्त्रालय** : विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका क्षेत्रमा सरकारको तर्फबाट जिम्मेवारी निर्वाह गर्ने मन्त्रालयको रूपमा गृह मन्त्रालय रहेको छ । यसले विपद्का सन्दर्भमा विभिन्न नीतिगत तथा कार्यगत कार्यहरू गर्दछ ।
- **राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरण** : गृह मन्त्रालयको मातहतमा रहि विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन परिषद् तथा कार्यकारी परिषद्को सचिवालयको रूपमा कार्य गर्ने तथा संघीय सरकारको विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका सम्बन्धमा आवश्यक सम्पूर्ण कार्यहरू गर्ने निकायका रूपमा प्राधिकरण रहेको छ ।

- **सुरक्षा निकायहरु** : विपद् पश्चात खोज, उद्धार तथा प्रतिकार्यमा सुरक्षा निकायहरुको महत्वपूर्ण भूमिका रहने गर्दछ ।
- **प्रदेश विपद् व्यवस्थापन समिति** : प्रदेशमा भएका सम्पूर्ण विपद् जोखिम न्यूनीकरण र व्यवस्थापन सम्बद्ध नीतिगत कार्य गर्ने निकायका रूपमा यो समिति रहेको छ ।
- **प्रदेश आन्तरिक मामिला मन्त्रालय** : प्रदेशमा भएका सम्पूर्ण विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बद्ध कार्यकारी कार्य गर्ने फोकल मन्त्रालयको रूपमा रहेको छ ।
- **जिल्ला विपद् व्यवस्थापन समिति** : प्रमुख जिल्ला अधिकारीको अध्यक्षतामा हुने जिल्ला विपद् व्यवस्थापन समितिले जिल्लाका विपद् व्यवस्थापन सम्बद्ध सम्पूर्ण कार्य गर्ने गर्दछ ।
- **स्थानीय विपद् व्यवस्थापन समिति** : स्थानीय तहका विपद् जोखिम न्यूनीकरण र व्यवस्थापन सम्बद्ध नीतिगत तथा कार्यान्वयनका कार्यहरु गर्ने गर्दछ ।

### विपद् व्यवस्थापनको कोष सञ्चालन प्रक्रिया

विपद्को समयमा तत्काल राहत, उद्धार तथा अन्य व्यवस्थापन कार्यका लागि देहाय बमोजिमको विपद् व्यवस्थापन कोषहरु रहेका छन्:



### ३ प्राधिकरणको कार्यक्षेत्र, काम, कर्तव्य र अधिकार

विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका सन्दर्भमा सबै तहका सरकारका साथै बहुपक्षीय संलग्नता रहने भएपनि विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन ऐन, २०७४(संशोधन सहित) बमोजिम प्राधिकरणको कार्यक्षेत्रलाई देहाय बमोजिम प्रस्तुत गर्न सकिन्छ:

- जोखिमको जानकारी
- संघ, प्रदेश र स्थानीय तहमा शासकीय पद्धतिको सुदृढीकरण
- जोखिम न्यूनीकरणका लागि सार्वजनिक तथा निजी लगानी प्रवर्द्धन
- पूर्व तयारी तथा प्रतिकार्य
- पुननिर्माण तथा पुनर्स्थापना
- अध्ययन, अनुसन्धान तथा तालिम
- बहुप्रकोपीय पूर्व सूचना प्रणाली
- विपद् जोखिम वित्तीय व्यवस्थापन

### काम, कर्तव्य र अधिकार

प्राधिकरणको काम, कर्तव्य र अधिकार देहाय अनुसार छन्:

- क) परिषद् तथा कार्यकारी समितिबाट स्वीकृत योजना, कार्यक्रम तथा निर्णय कार्यान्वय गर्ने, गराउने,
- ख) विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बन्धी केन्द्रीय स्रोत निकायको रूपमा कार्य गर्ने,
- ग) नदीनियन्त्रण, बाढी, पहिरो, भुकम्प, भू-मण्डलीय तापमान वृद्धि, जलवायु परिवर्तन, भू-उपयोग र विभिन्न प्रकोप तथा विपद्का सम्भावित कारक र न्यूनीकरणका उपायको विषयमा अध्ययन, अनुसन्धान गर्ने, गराउने,
- घ) प्रदेश तथा स्थानीय तहलाई विपद् व्यवस्थापन सम्बन्धी आवधिक योजना निर्माण गर्न आवश्यकता अनुसार आर्थिक तथा प्राविधिक सहयोग उपलब्ध गराउने,
- ङ) विपद् व्यवस्थापन सम्बन्धी कार्यमा गैरसरकारी संस्था, निजी क्षेत्र एवं स्थानीय समुदायलाई संलग्न गर्ने, गराउने तथा तिनीहरूको कार्यमा समन्वय एवं सहजीकरण गर्ने,
- च) सङ्घ, प्रदेश तथा स्थानीय तहमा खोज तथा उद्धार समूहको गठन तथा क्षमता विकास गरी प्रभावकारी खोज, उद्धार तथा राहत प्रदान गर्ने, गराउने,
- छ) विपद्को घटना हुनसाथ त्यस्ता घटनाबाट असर पर्न सक्ने क्षेत्रमा रहेका व्यक्तिलाई उद्धार गर्ने, गराउने र विपद् प्रभावित बासिन्दाको जीउधनको भरपर्दो सुरक्षा व्यवस्था मिलाउन सम्बन्धित निकायसँग समन्वय गर्ने,
- ज) विपद् प्रभावितको खोज तथा उद्धारका लागि सुरक्षा निकाय, खोज तथा उद्धार समूह, फ्लाइङ्ग स्क्वाड, स्थानीय समुदाय, नेपाल रेडक्रस सोसाइटी, नेपाल स्काउट, स्वयंसेवक, प्राविधिज्ञ लगायतका सरोकावाला संस्थालाई परिचालन गर्ने, गराउने,

- झ) विपद्का घटना पश्चात मानवीय सहायताका लागि आउने राष्ट्रिय तथा अन्तर्राष्ट्रिय खोज, उद्धार समूह एवं प्राप्त हुने नगद तथा राहत सामग्रीको व्यवस्थापन गर्ने, गराउने,
- ञ) विपद् व्यवस्थापनको क्षेत्रमा प्राप्त हुने अन्तर्राष्ट्रिय, द्विपक्षीय एवं बहुपक्षीय सहायताको एकीकृत अभिलेख राख्ने,
- ट) राष्ट्रिय विपद् व्यवस्थापन सूचना प्रणालीको विकास तथा सञ्चालन गरी विपद् व्यवस्थापन सम्बन्धी सूचना तथा तथ्याङ्कको सङ्कलन, विश्लेषण, भण्डारण तथा सम्प्रेषण गर्ने, गराउने,
- ठ) नेपाल सरकारका विभिन्न निकाय लगायत अन्य संस्थालाई विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनसँग सम्बन्धित विषयमा सल्लाह सुझाव दिने,
- ड) सार्वजनिक संस्था तथा व्यवसायिक प्रतिष्ठानले आफ्ना कर्मचारी तथा कामदारलाई दिनु पर्ने विपद् व्यवस्थापन सम्बन्धी आधारभूत अभिमुखीकरण तालिमको विषय र मापदण्ड तोक्ने,
- ढ) विपद् व्यवस्थापनका सम्बन्धमा संघ, प्रदेश र स्थानीयस्तरका प्रशासनिक तथा सुरक्षा संयन्त्र तत्काल परिचालन हुने गरी दुरुस्त राख्न लगाउने,
- ण) विपद् जोखिम न्यूनीकरण सम्बन्धमा जनचेतना अभिवृद्धि गर्ने, गराउने,
- त) विपद् जोखिम न्यूनीकरणको लागि भू-विज्ञान, भुकम्प विज्ञान, जल तथा मौसम विज्ञान, भौगोलिक सूचना प्रणाली, दूर संवेदन (रिमोट सेन्सिङ) प्रणाली, पूर्व चेतावनी प्रणाली लगायतका आधुनिक तथा परम्परागत प्रविधिहरूको अध्ययन, अनुसन्धान गर्ने, गराउने र उपयुक्त प्रविधिको उपयोग गर्ने, गराउने,
- थ) विपद्का सम्भावित घटनाको बारेमा सम्बन्धित सबैलाई पूर्व जानकारी गराउन, तत्काल सूचना सङ्कलन, विश्लेषण तथा सम्प्रेषण गर्ने र खोज, उद्धार तथा राहत सम्बन्धी कार्यको समन्वय तथा परिचालन गर्न राष्ट्रिय आपत्कालीन कार्यसञ्चालन केन्द्रको सञ्चालन तथा व्यवस्थापन गर्ने,
- द) विपद्को समयमा तत्काल परिचालन हुने गरी फ्लाइङ्ग स्क्वाड गठन गर्ने,
- ध) विपद्को समयमा खोज, उद्धार तथा राहत कार्यका लागि तत्काल परिचालन गर्ने स्वयंसेवक ब्यूरो गठन गर्ने,
- न) विपद् प्रभावित क्षेत्रका नागरिकहरूलाई अस्थायी पुनर्स्थापना तथा सिकाइ केन्द्रको निर्माणमा स्थानीय समुदाय एवं स्वयंसेवकहरू परिचालन गर्ने, गराउने,
- न) विपद् प्रतिकार्यमा निजी तथा गैरसरकारी संस्था, स्थानीय समुदाय तथा अन्य सरोकारवालालाई समन्वयात्मक रूपमा परिचालन गर्ने, गराउने,
- प) विपद्का लागि आपत्कालीन गोदाम घर सञ्चालन गर्ने तथा प्राप्त राहत सामग्रीको व्यवस्थापन गर्ने,
- फ) विपद्बाट प्रभावित व्यक्तिका लागि मनोसामाजिक परामर्श सेवा उपलब्ध गर्ने, गराउने,

ब) विपद् व्यवस्थापनका सम्बन्धमा नेपाल सरकारका मन्त्रालय, विभाग तथा अन्य निकायले कार्यकारी समितिले निर्धारण गरेको भूमिका तथा जिम्मेवारी निर्वाह गरे नगरेको विषयमा अनुगमन गरी कार्यकारी समिति समक्ष प्रतिवेदन पेश गर्ने,

#### ४ विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बद्ध कानुनी व्यवस्थाहरू

नेपालको विपद् व्यवस्थापनका सन्दर्भमा दैवी प्रकोप उद्धार एन २०३९ पहिलो कानुनी दस्तावेज थियो । यस एनले विपद् पश्चात प्रतिकार्य, उद्धार र राहतलाई व्यवस्थित बनाउन प्रयास गरेको भए पनि विपद् जोखिम न्यूनीकरणका सन्दर्भमा स्पष्ट व्यवस्था गरेको थिएन । विपद्का क्षेत्रमा बढिरहेका चुनौतिलाई सम्बोधन गर्न सक्षम कानुनको आवश्यकतालाई परिपूर्ति गर्न २०७४ सालमा विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन एनको निर्माण भएको छ । यही एनका सापेक्षमा निर्माण भएका विभिन्न दस्तावेजहरू नै विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बद्ध कानुनी व्यवस्था हुन । जुन देहाय अनुसार रहेका छन् ।

- विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन ऐन, २०७४
- विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन नियमावली २०७६
- प्रधानमन्त्री दैवी उद्धार कोष संचालन नियमावली, २०६३
- विपद् जोखिम न्यूनीकरण राष्ट्रिय नीति, २०७५
- राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन रणनीतिक कार्ययोजना, २०१८ –२०३०
- राष्ट्रिय विपद् प्रतिकार्य कार्यढाँचा, २०७०, (प्रथम संशोधन, २०७५)
- प्रदेशस्तरीय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका विभिन्न कानुनी व्यवस्थाहरू
- स्थानीयस्तरका विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन सम्बद्ध विभिन्न कानुनी व्यवस्थाहरू
- मनसुनजन्य पूर्वतयारी तथा प्रतिकार्य राष्ट्रिय कार्ययोजना २०७८
- विपद् पिडित उद्धार र राहत सम्बन्धी मापदण्ड, सातौँ संशोधन, २०७७
- विपद् जोखिम न्यूनीकरण राष्ट्रिय कार्यमञ्चको कार्यसञ्चालन मार्गदर्शन, २०७७
- विपद् खोज तथा उद्धार आधारभूत तालिम पाठ्यक्रम तयार गरी लागू गरिएको
- सम्भावित शितलहर तथा हिमपात विपद् जोखिम न्यूनीकरण तथा प्रतिकार्य मार्गदर्शन २०७७
- मनसुनजन्य विपद् प्रभावित निजी आवास पुर्ननिर्माण तथा पुनःस्थापना अनुदान कार्यविधि २०७७
- प्रारम्भिक द्रुत विपद् लेखाजोखा सम्बन्धी कार्यविधि, २०७२, संशोधन २०७८
- आगलागीजन्य विपद् प्रभावित निजी आवास पुर्ननिर्माण तथा पुनःस्थापना अनुदान वितरण कार्यविधि २०७८
- विपद् जोखिम वित्तीय व्यवस्थापन रणनीति २०७८
- विपद् पूर्वतयारी तथा प्रतिकार्य योजना तर्जुमा मार्गदर्शन, २०६७

- Technical Guidelines to Conduct Field Investigation of Settlements Affected by Landslides, 2021

## ५ प्राधिकरणबाट अगाडि बढाइएका प्रमुख कार्यहरू

विपद् जोखिम न्यूनीकरणका सन्दर्भमा प्राधिकरणबाट भएका प्रमुख कार्यहरू देहाय बमोजिम रहेका छन्

- राष्ट्रिय पुर्ननिर्माण प्राधिकरणका बाँकी कार्यहरू सम्पन्न गर्ने गरी कानुनी तथा संस्थागत संरचनाको निर्माण गरी काम अघि बढाइएको ।
- Structural Integrity Assessment (SIA) परियोजनामार्फत देशभरका सम्पूर्ण सार्वजनिक भवनहरूको भूकम्पीय जोखिमको अध्ययन गर्ने कार्य थालिएको
- विपद् सम्बद्ध सूचनाहरूलाई एकीकृत गर्ने प्रणालीका रूपमा Bipad portal को निर्माण र सोको स्थानीयकरण गर्न सुरु गरिएको
- सञ्चार रणनीतिको मस्यौदा तथा सञ्चार समन्वयको प्रभावकारी कार्यान्वयन संयन्त्रको निर्माण
- विपद् जोखिम न्यूनीकरण सम्बद्ध विभिन्न दिवसहरू मनाउने गरिएको
- विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका सन्दर्भमा भु-उपग्रहबाट तस्बीर प्राप्त गर्ने, दुर संवेदन (Remote Sensing) का क्रियाकलाप सञ्चालन
- देशभरिका विभिन्न स्थानहरूमा बाढी पहिरोको जोखिम अध्ययन कार्यलाई अघि बढाइएको ।
- संघ प्रदेश र स्थानीय तहमा शासकीय पद्धतिको सुदृढीकरणका लागि क्षमता अभिवृद्धि
- NGO/INGO को समन्वय सहजीकरणका लागि NGO Mobilization Guideline को मस्यौदा निर्माण भएका
- Branding & Marking Guideline को मस्यौदा निर्माण
- एकीकृत कार्यविधि (निजी आवास अनुदान) निर्माण प्रक्रिया अघि बढिरहेको
- १० वर्षे विपद् व्यवस्थापन महाअभियान
- GESI Strategy को मस्यौदा निर्माण तथा विपद् सम्बद्ध हरेक क्रियाकलापलाई लैङ्गिक मैत्री बनाइएको
- NEOC, PEOC, DEOC & LEOC र प्राधिकरण बीचको सहकार्य सुदृढीकरण
- जोखिम न्यूनीकरणका लागि सार्वजनिक तथा निजी लगानी प्रवर्द्धनका लागि MDTF no cost extension, , GCF supported project proposal, WB supported Climate Adaptation and Resilience for South Asia (CARE) project सञ्चालन भइरहेको

- विभिन्न जिल्लामा आगलागी जोखिम नियन्त्रण सम्बन्धी नमूना कार्यक्रम
- पूर्व तयारी तथा प्रतिकार्यको लागि Simulation (DRILL) Guideline
- ७ प्रदेशका ३८ वटा स्थानीय तहहरूको Disaster Resilient Framework को निर्माण
- पूर्व तयारी तथा प्रतिकार्यलाई प्रभावकारी बनाउनका लागि Mass Casualty Vehicle & A grade Ambulance, Fire brigade, Robotic Fire Fighting, Search & Rescue equipment, Resource Mapping System, DEOC's Strengthening, PEOC, LEOC's establishment & strengthening, Psycho-social counseling with spiritual philosophy का कार्यक्रमहरू
- आगलागी र मनसुनजन्य विपद् प्रभावित निजी आवास अनुदान कार्यक्रममार्फत देशभरका लगभग ६ हजार लाभग्राहीका लागि पहिलो किस्ता बापतको रकम पठाइएको
- अनुदान वितरण Recording & Reporting System को निर्माण गरी कार्यान्वयनमा ल्याइएको
- डुबान तथा कटान प्रभावित तराईका जिल्लामा आश्रय स्थल निर्माण कार्य अघि बढाइएको
- सुरक्षित स्थानमा बस्ती स्थानान्तरण तथा एकीकृत बस्ती विकासको कार्य अघि बढाइएको
- वाढी, पहिरो, वन डढेलो, चट्ट्याड, हावाहुरी र भुकम्प सम्बन्धी पुर्व चेतावनी प्रणाली निर्माण सम्बद्ध कार्यहरू
- Common Alert Protocol (CAP) प्रणालीको सुरुवात
- प्रभावमा आधारित पूर्वानुमान प्रणालीको सुरुवात
- विपद् जोखिम वित्तीय व्यवस्थापन रणनीति तथा सोको कार्यान्वयन कार्ययोजनाको निर्माण तयार अघि बढाइएको छ ।
- Monitor for Disaster Strategic Action Plan ( <https://mdsa.bipad.gov.np>) को निर्माण

## ६ प्राधिकरणको आगामी कार्यदिशा

राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरणले विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन ऐन, २०७४, नियमावली २०७६, विपद् जोखिम न्यूनीकरण राष्ट्रिय नीति, सेन्डाइ फ्रेमवर्क र त्यस फ्रेमवर्क बमोजिम बनेको विपद् जोखिम न्यूनीकरण राष्ट्रिय कार्ययोजना (२०१८-२०३०) का आधारमा आगामी कार्यदिशा तय हुनेछ । शसक्त, स्वायत्त संस्था र श्रोत साधन बाँडफाँड सहितको स्पष्ट कार्यढाँचाको निर्माणले मात्रै विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका क्षेत्रमा प्रभावकारी कार्य गर्न सकिन्छ, भन्ने पाठ २०७२ सालको भुकम्पबाट भएको क्षतिको पुर्ननिर्माण सफलतापूर्वक सम्पन्न गर्न सक्षम संस्था राष्ट्रिय पुर्ननिर्माण प्राधिकरणमार्फत सिक्दै विपद् उत्थानशील राष्ट्रिय कार्यढाँचा निर्माण गर्नु जरुरी छ । सोही कार्यढाँचामा आधारित भएर प्राधिकरणको आगामी कार्यदिशा तय गर्नु उपयुक्त हुन्छ । उक्त कार्यढाँचामा देहायका विषयहरू समेटिनु पर्छ :

(क) जलवायु परिवर्तनको जोखिम तथा विपद्प्रतिको बुझाइका सम्बन्धमा

- समुदाय तथा स्थानीय तहमा बहुप्रकोपीय विपद् तथा जलवायु परिवर्तनबाट हुने जोखिमको पहिचान गर्ने
- सबै सामुदायिक भवन, निजी स्कुलका भवन, स्वास्थ्य सम्बद्ध भवन, पुरातात्विक महत्वका स्मारकको संरचनागत जोखिमको आंकलन गर्ने
- क्षेत्रगत विकास परियोजनामा विपद् तथा जलवायु परिवर्तन जोखिमको आंकलन गर्ने
- अन्तरदेशीय क्षेत्रमा देखिने जोखिमको आंकलन गर्ने । जस्तै : नेपाल चीन सिमा क्षेत्रमा हुने बाढी पहिरोको जोखिम, नेपाल हुँदै भारततर्फ बग्ने नदीहरुले बालुवा सिमा क्षेत्रमा थुपार्न गइ जमिन कटान तथा नदीको पानी अन्य क्षेत्रमा जाने जोखिमको आंकलन

**(ख) संघ, प्रदेश र स्थानीय तहबीच विपद् जोखिम शासकीय संरचनाको सुदृढीकरण**

- तीनै तहका सरकारको विपद् व्यवस्थापनमा स्पष्ट भूमिका तय गर्ने
- राष्ट्रिय विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरणको कानुनी स्वायत्तता र प्रभावकारिता निर्माण
- राष्ट्रिय उत्थानशीलता र प्रभावकारी कार्यसम्पादन अनुकूल मानव संसाधन उपयोग हुने गरी प्राधिकरणको विद्यमान संगठनात्मक संरचनाको पुनरावलोकन गर्ने
- सबै तहको सरकारका विपद् उत्थानशील कार्यढाँचाको निर्माण गरी तिनीहरुको आवधिक योजना, वार्षिक बजेट र कार्यक्रममा समावेश गर्ने
- विद्यमान मार्गदर्शन, मापदण्ड तथा कार्यविधिहरुको निर्माण तथा पुनरावलोकन गर्ने

**(ग) विपद् जोखिम न्यूनीकरण तथा उत्थानशीलताको लागि निजी तथा सार्वजनिक क्षेत्रको लगानी प्रवर्द्धन**

- सबै विद्यालय, स्वास्थ्य संस्था तथा सार्वजनिक भवनहरुलाई बहुप्रकोपीय विपद् जोखिम तथा जलवायु परिवर्तनको प्रभावका दृष्टिले सुरक्षित राख्न पुर्ननिर्माण तथा प्रबलीकरण गर्ने
- विपद् जोखिमका दृष्टिले उच्च जोखिममा रहेको घर तथा वस्तीहरुको पुर्नस्थापना तथा एकीकृत वस्तीको निर्माण अघि बढाउने,
- पहिलो पाँच वर्षमा प्रत्येक प्रदेशमा २ वटाका दरले नमूना उत्थानशील शहर तथा समुदायको निर्माण गर्ने
- देशभरीको सबै खरका छानाहरुको विस्थापन गर्ने तथा जोखिममा रहेका आवासको प्रबलीकरण गर्ने उत्साहित गर्ने र प्राविधिक सहयोग उपलब्ध गराउने
- सडक, जलविद्युत, स्वास्थ्य संस्था, विद्यालय, पानी आपूर्ति लगायतका केही नमूना संरचना तथा प्रणालीको निर्माण गर्ने,

**(घ) प्रभावकारी प्रतिकार्यका लागि विपद् पूर्वतयारीलाई अभिवृद्धि गर्ने**

- राष्ट्रियस्तरको आपद्कालीन पूर्वतयारी लेखाजोखा गर्ने, जसमा भौतिक क्षमता, प्रणाली, उपकरण लगायत रहने छन् ।

- तीनै तहका सरकारहरुमा परिचालन हुने गरी स्वयंसेवक समूहको निर्माण गरी परिचालन गर्नुपर्ने
- सबै तहका सरकार, सुरक्षा निकाय, राष्ट्रिय तथा अन्तराष्ट्रिय गैरसरकारी संस्था तथा गोदाम घरमा रहेका सबै प्रतिकार्यका सामाग्रीहरुको जानकारी सहज प्राप्त तथा परिचालन गर्ने प्रणालीको विकास गर्ने
- सबै तहका सरकारले आवधिक रुपमा पूर्व अभ्यास तथा ड्रिलहरुको आयोजना गर्ने
- निजी क्षेत्रसंग सहकार्य गरी हेभि इक्युपमेन्ट्सहरु चालु र तयारी अवस्थामा राख्ने

**(ड) पुर्नलाभ, पुर्ननिर्माण तथा पुनःस्थापनामा Build back better कायम गराउने**

- बाढी, पहिरो तथा बहुप्रकोपीय जोखिमबाट क्षति भएका निजी आवासको पुर्ननिर्माण तथा पुर्नस्थापनालाई दिगो बनाउने
- बहुप्रकोपीय जोखिमले क्षति भएका सम्पूर्ण भौतिक संरचनाको निर्माणको आधार तयार गर्ने
- सामाजिक तथा आर्थिक पुर्नलाभ र पुर्ननिर्माणको कार्यक्रमको सञ्चालन गर्ने

**(च) अनुसन्धान, तालिम तथा क्षमता विकास कार्यक्रम**

- अनुसन्धान र तालिम केन्द्रलाई Centre of excellence को रुपमा स्थापना गर्ने
- भवन तथा भौतिक संरचनाको निर्माणमा संलग्न भएका मानव संशाधनलाई तालिम तथा प्रमाणीकरण गर्ने
- विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनको पाठ्यक्रम निर्माण तथा परिमार्जन गर्ने
- भूकम्प संग्रहालयको निर्माण

**(छ) बहुप्रकोपीय पूर्व सूचना प्रणाली**

- देशभरि नै प्रभावमा आधारित बहुप्रकोपीय पूर्व सूचना प्रणालीको निर्माण गर्ने
- सम्बन्धित मन्त्रालय तथा विभागहरुले आधुनिक प्रविधिमा आधारित विपद्जन्य घटनाहरुको अवलोकन प्रणाली निर्माण गर्ने

**(ज) विपद्मा वित्तीय जोखिम हस्तान्तरण**

- विपद् जोखिम न्यूनीकरणका लागि सार्वजनिक वित्तीय व्यवस्थापन गर्ने तथा वित्तीय जोखिम हस्तान्तरण नीति तथा कार्ययोजना तय गरी लागु गर्ने गराउने
- जोखिम हस्तान्तरण संयन्त्रको निर्माण गर्ने
- सामाजिक सुरक्षा संयन्त्रको निर्माण गर्ने
- वित्तीय व्यवस्थापन कोषको निर्माण र परिचालन गर्ने,
- जोखिम निर्माताद्वारा भुक्तानी गर्ने सिद्धान्तको अबलम्बन गर्ने
- प्राप्त लाभको समानुपातिक बाँडफाँडको सिद्धान्त अबलम्बन गर्ने

## ७. निष्कर्ष

विपद् जोखिम न्यूनीकरण तथा व्यवस्थापनका क्षेत्रमा विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन प्राधिकरणले गृह मन्त्रालयको मातहतमा रही महत्वपूर्ण जिम्मेवारी निर्वाह गरिरहेको छ। जलवायु परिवर्तन, विकासमा विपद्प्रतिको संवेदनाहीन क्रियाकलाप तथा विकासको बुझाइमा एकरूपता नहुनु लगायतका पक्षले विपद्को जोखिम थप बढिरहेको छ। त्यसैले सरकारको मात्र एकल प्रयासले आगामी दिनका चुनौतिलाई सामना गर्न कठिन छ। यसमा सरकारी, अर्धसरकारी, निजी, राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संस्था, सञ्चार, प्राज्ञिक वर्ग तथा प्रभावित समूह तथा विकास साभेदारको साभ्भा सहकार्य जरुरी छ। विपद्प्रतिको बुझाइमा एकरूपता कायम गराउने, संघीय, प्रादेशिक तथा स्थानीय तहको शासकीय पद्धतिको सुदृढीकरण गर्ने, लगानीमा निजी तथा सार्वजनिक क्षेत्रको सहकार्य अधि बढाउने र प्रतिकार्य, पुर्ननिर्माण, पुनःस्थापना गर्दा अझ राम्रो बनाउने गरी कार्यहरु गर्नु पर्ने हुन्छ। विद्यमान ऐन, नियमावली, राष्ट्रिय नीति तथा कार्ययोजनालाई आधार मानेर क्रियाकलापको निर्माण गरिनु जरुरी छ। बुझाइमा एकरूपता कायम गर्दै सबै पक्षको साभ्भा सहकार्यमा कार्य गर्न सकियो भने मात्रै आगामी दिनका चुनौतिलाई सामना गर्न सकिन्छ।

# **A Study Paper on Gender Equality and Social Inclusion in Disaster Risk Reduction and Management**

*Achala Dahal*

*Director of Studies*

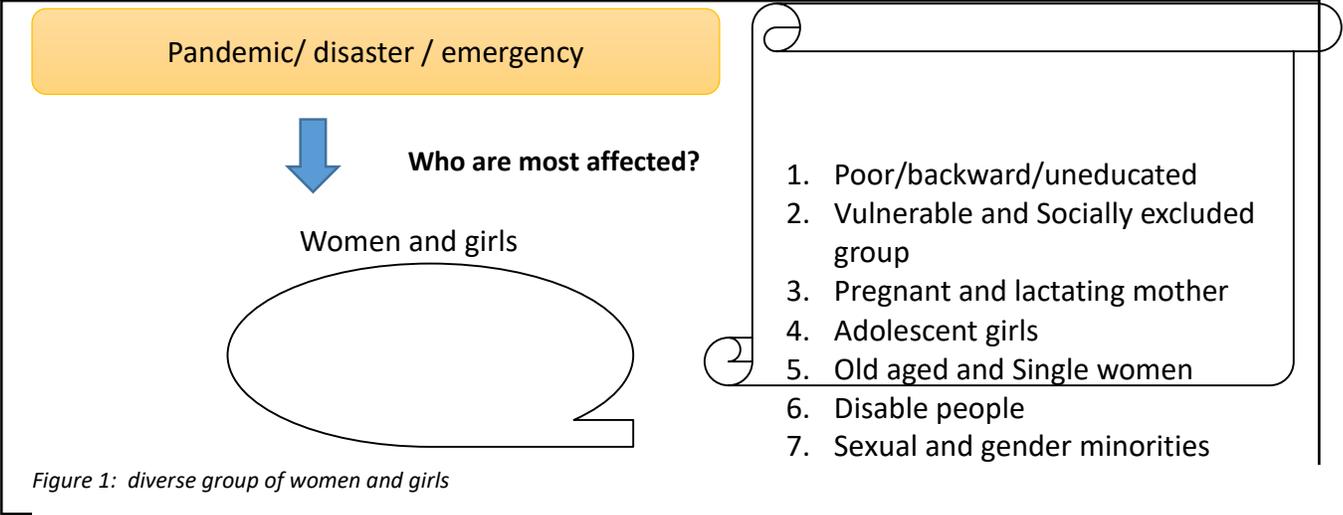
*Nepal Administrative Staff College*

Globally, natural disasters are occurring more frequently primarily due to climate change, leading to an increasing number of weather related emergencies. UN study 2020 also highlights that the distribution of effect of any disaster or emergency correlates with the access to resources, capabilities, and opportunities which systematically make certain groups more vulnerable to the impact of emergencies, in particular women and girls.

Nepal is exposed to the multiple hazards, which creates multitude of disasters throughout the country. These disastrous incidents claim large number of lives and causes significant economic loss every year. The geography, geological position, and the impact of climate change are the primary causes of disasters. The rapid and unplanned urbanization, environmental degradation, variations in nature and type of disaster and inadequate understanding of Disaster Risk Reduction and Management (DRRM) have further intensified the disaster risk in Nepal.

The impacts of natural disasters tend to fall disproportionately on women and girls and other marginalized groups, due to systemic gender and social inequality. In disasters, gender inequality and compounding social inequalities (for example, ability, age, race/ethnicity, sexuality, socio-economic status, education level) are exacerbated, triggering more direct and indirect negative impacts on marginalized groups. The number of death of women is more to men (5621 men and 6250 women) from different types of disasters till now in the country. (Nepal Disaster Risk Reduction Portal, 2022). When comparing women and men, disasters lower the life expectancy of women more than men and women are more likely to die from natural disasters and experience more negative mental health impacts. Women also often have reduced access to health care including sexual and reproductive health (SRH) and face higher rates of unemployment.

Disaster does not affect men and women differently but the impact of disaster is gender neutral. The impact of disaster especially on women and girls of the excluded and disadvantage group is even worst. The impact of disaster on diverse group of women and girls (old, single women, socially and economically backward groups, adolescent girls, pregnant and lactating mother, disable people...) is multi-faceted. They face various impact as economic impacts, social impact, psychological impact, heath impact, gender-based violence, sexual and reproductive impact etc. during and after the different disaster.



**Disaster Governance**

A disaster governance paradigm is a comprehensive set of prevailing and institutionalized ideas that shape disaster plans and policies that eventually are implemented on-the-ground. Disaster policies and plans are formulated based on disaster governance paradigms that refer to a comprehensive set of prevailing and institutionalized ideas. Disaster governance paradigms are the underlying ideas or approaches through which policy actors frame the disaster issue, develop policy goals and design policy instruments to reduce the risk of disasters. The key disaster governance paradigm of Nepal (al., 2020) explained below shows the development of disaster governance over the period of time.

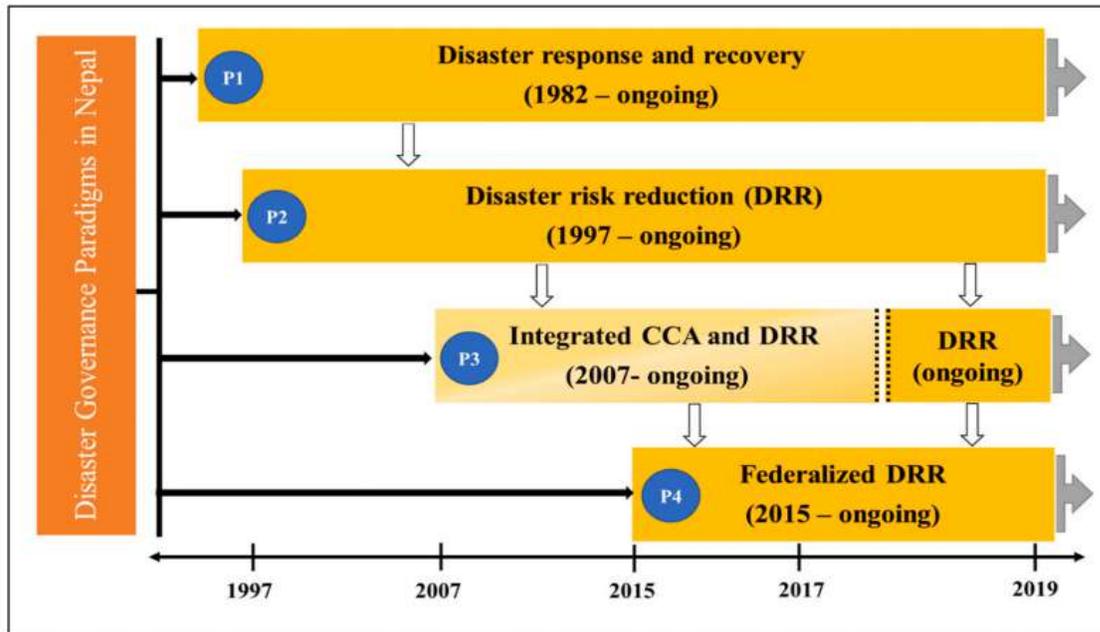


Fig. 1. Disaster governance paradigms in Nepal.

The paradigm of disaster has changed over time but the mindset of shifting from disaster management to disaster risk reduction and then to disaster risk reduction and management is yet to happen. We still only focus on disaster management. The behavior of actors and institutions fundamentally is guided by the disaster management, which is mostly displayed during rescue and response of any disaster events. A proper risk management behavior always ease and improve the condition of affected people during rescue and recovery.

Governance can be understood in three dimensions (Nepal Administrative Staff College, 2018)

- Foundation of governance
- Infrastructure: Policy and Structure
- Service delivery: Implementation

For disaster governance major foundations are addressing the concern of gender and excluded groups. The inclusion of voice and participation of these excluded groups in DRRM is must. If GESI concerns are not addressed or mainstreamed as foundation the whole disaster governance will be weak. Next, major dimension is infrastructure of disaster governance where the policy and structure affecting disaster governance need to be GESI inclusive. Policies are the reflection of the political will and commitments which are implemented through laws and guidelines. So while formulating the laws and guidelines the essence of inclusiveness stated in the preamble of constitution needs to be resembled in action. Lastly, during the service delivery or in implementation of disaster governance, execution of the provisions of foundation and infrastructure is executed. So, inclusiveness during the foundation and infrastructure is very

necessary for desired execution and implementation of it which also gives the sustainable solution to the problem of GESI concerns mainstreaming in DRRM.

### GESI in DRRM

A gendered perspective to DRR helps to focus attention on the distinct gender-specific capacities and vulnerabilities to prepare, confront, and recover from disasters. Disasters affect men and women, boys and girls, rich and poor, vulnerable and capacitor, old, young and children and different social groups differently. Due to existing socio-economic conditions, cultural beliefs and traditional practices, women are more likely to be disproportionately affected by disasters, including increased loss of livelihoods, gender-based violence, and even loss of life during, and in the aftermath of, disasters. Hence, the empowerment of women is a critical ingredient in building disaster resilience.

The Sendai Framework for Disaster Risk Reduction 2015-2030 calls for a paradigm shift through dedicated action to tackle underlying disaster risk drivers and as a matter of principle including gender in all policies and practices. Any DRM policy and practice need for more specific references to vulnerable and disadvantaged groups and need to include commitment to “develop and implement guidelines for the protection of vulnerable groups and the prevention of gender based violence in emergencies.” Furthermore, such policies and practices should focus on building resilience capacities of people not just infrastructure.

Disaster affects these groups of diverse people mostly the women and girls of these groups during all phases of disaster risk reduction and management.

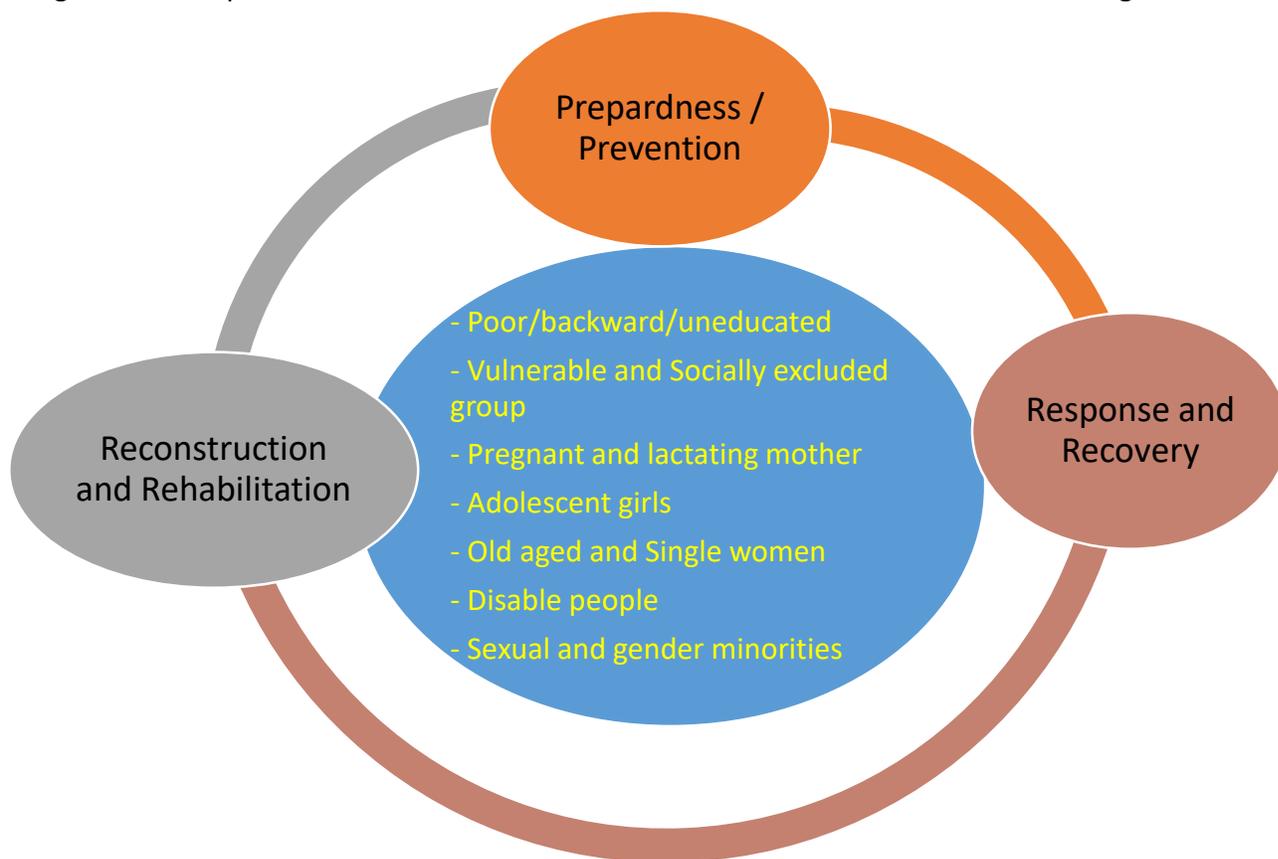


Figure 2: Impact of disaster on different phases of disaster

A gendered perspective to DRRM helps to focus attention on the distinct gender-specific capacities and vulnerabilities to prepare, confront, and recover from disasters. Disasters affect men and women, boys and girls, rich and poor, vulnerable and capacitor, old, young and children and different social groups differently. In many contexts gender and social inequalities constrain the influence and control of such groups over decisions governing their lives as well as their access to resources. Due to existing socio-economic conditions, cultural beliefs and traditional practices, women are more likely to be disproportionately affected by disasters, including increased loss of livelihoods, gender-based violence, and even loss of life during, and in the aftermath of, disasters. Hence, the empowerment of women is a critical ingredient in building disaster resilience. For instance, vulnerable sectors of society like poor people, women, elderly, and persons with disabilities, are more exposed to disaster risks since they have limited access to critical resources to deter these. Disasters, then, are only destructive when they interact with various forms of human vulnerability.

Wisner et al. (2014) discussed that poor access to resources are rooted within the political, social, and economic structures of a society (the triangle of vulnerability).

These include:

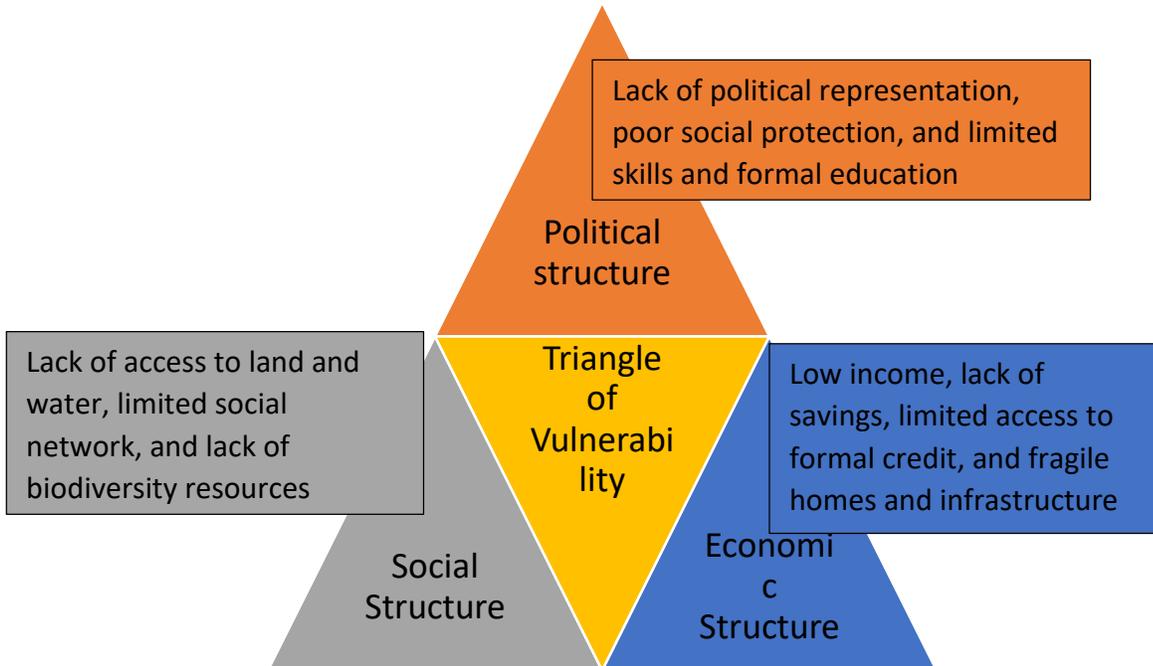


Figure 3: Triangle of Vulnerability

While disasters affect everyone, they are not gender neutral. They impact on women and men in different ways. They tend to magnify existing inequalities, and gender inequality is among the most pervasive. Women's historic disadvantages, for example their restricted access to resources and information, and their limited power in decision-making, make them vulnerable to the impacts of disasters in different ways to men. Indeed, very often these disadvantages make women more vulnerable.

Disaster risk reduction that delivers gender equality is a cost-effective win-win option for reducing vulnerability and sustaining the livelihoods of whole communities.

### GESI in DRM governance (*observation and recommendation*)

Gender Equality and Social Inclusion (GESI) are referred to in DRM governance mechanism. However, there is a need to build synergy with other policy such as the National Gender Equality Policy (being finalized by Ministry of Women, Children and Social Welfare) and resource

allocation practice, such as Gender Responsive Budgeting principles being practiced in Nepal since 2007/08.

The local level representatives should also be supported to bring in more specific gender and social perspectives in their local DRM Act. The preamble of the Local DRM Act itself could embrace the commitment for gender equality and social inclusion in their DRM governance mechanism. Consultative status can be provided to the organizations representation women, senior citizens, persons with disability, senior citizens and other socially excluded or minority groups.

### GESI perspective in different DRRM acts, policies and guidelines

Acts/Polices/Guidelines    Observations and recommendations

Constitution of Nepal    The constitutional provisions regarding shared responsibility of all tiers of government have provided legal backup for institutionalizing DRM at national and sub national levels. Also, in its preambles it has stated the essence that while institutionalizing DRM at national and subnational level it need to be inclusive, non-discriminatory by ending discriminations relating to class, caste, region, language,

Religion and gender discrimination including all forms of racial untouchability.

***Recommendation: All the policies and guidelines formulation at all three level of government needs to embrace the essence and be inclusive. These are the foundation which needs to be mainstreamed for achieving the desired state of prosperous Nepal happy Nepali.***

Disaster risk reduction and Management act, 2074    The provisions of member in the council, executives committees, experts committee, Provision on Provincial Disaster Management Committee, and Provincial Disaster Management Executive Committee, District and Local Disaster Management Committee have positional nomination from different positions and organizations who are men and have minimal or no representation of women. Also the duties and responsibilities given to the concern committee have no specific functions targeted to gender and excluded group.

***Recommendation: The structure have to mandatory involvement of women and excluded group to include their concern in the process and the duties and responsibilities shown include the need to include the specific need and interest of women and excluded group in DRRM.***

National Policy for Disaster Risk Reduction, 2018

The vision, mission, goals, objectives and set of policies for achieving the objectives, policy implementation and coordinating, monitoring and evaluation given in the national policy for disaster risk reduction is gender neutral.

***Recommendation: The goals, objectives set of policies for achieving the objectives, policy implementation and coordinating, monitoring and evaluation in the national policy for disaster risk reduction should have included the specific need of gender and excluded groups***

Disaster risk reduction and Management Regulation, 2076

In the functions, duties and powers of the executive committee; expert committee; functions, duties and powers of the authority; secretariat and meeting of district disaster management committee; functions, duties and powers of the district disaster management committee; functions, duties and powers of the local disaster management committee; responsibility of public enterprise and business establishment; administration of the fund; and district disaster management fund in the regulation are all gender neutral.

***Recommendation: The disaster risk reduction and management regulation, 2076 should have included the gender and excluded groups concerns in the different committees envisioned in the regulation at federal, provincial and local level. Also, in the administration of the fund at federal and district level it have not envisioned the special consideration in its distribution to gender and excluded groups.***

National Disaster Response Framework (first amendment 2075)

In the first amendment of the framework it has envisioned the various working process and framework. the process for international assistance for disaster response, national and international assistance and coordination structure, coordination mechanism between international and national actors; special operation arrangement for national disaster response; framework for mobilization of national and international response and rescue team and assistance through NDRRMA; preparedness plan for disaster response at federal, provincial and local level are gender neutral.

***Recommendation: The authority and institution envisions in the framework and the process for international assistance for disaster response, national and international assistance and coordination structure coordination mechanism between international and national actors; special operation arrangement for national disaster response are positional which does not ensure the gender concern to be addressed. Also the preparedness plan for response prepared at federal, provincial and local level have not considered***

***the special need and interest of gender excluded groups who are more vulnerable during any type of disaster.***

Disaster Risk Reduction National Strategic Action Plan 2018 -2030 The GoN developed and endorsed Disaster Risk Reduction National Strategic Plan of Action (2018- 2030), as Nepal's roadmap to implement the key provisions of SFDRR in our context. The Strategic Plan of Action has a long-term vision to build a safer, adaptive and resilient nation from disaster risk and ensure sustainable development.

- The strategic plan has set 13 guiding principles which has included GESI consideration in principle 4 and 7 in isolation and other principle are gender neutral.
- The 6 targets and indicators given in the plan are gender neutral.
- The priority action and its strategy under priority 1 gives due consideration for gender and excluded groups, gender disaggregated data, gender and excluded group consideration in vulnerability and hazard assessment.
- The other priority action and its strategy of communication, coordination, Capacity Development, Collaboration and Partnership and Promoting Public Investment are gender neutral

***Recommendations: The guiding principle have to be envisioned mainstreaming gender concern on it rather than giving an individual principle. The other priority plan also need to consider the inclusion of gender and excluded representation and consideration.***

Local Government Operation Act, 2074 In the local government operation act, 2074 the aspects of disaster management are the functions, duties and powers of the urban and rural municipality include all the stages related to disaster management; Building construction permission, monitoring and regulation in accordance with National Building Code and standard; Policy, plan, program formulation, implementation, monitoring, regulation and evaluation work related to safe settlement development; Provision of subject group for institutional coordination in case of emergency; Disaster information collection and impact mechanism and its operation; Priority for different post-disaster time period; The local government has also identified the priority work of different time periods after the operation and has also identified the work to be done after the disaster and divided the responsibilities, which are gender neutral

***Recommendation: The act have to include the consideration of gender and excluded group on all the above given functions, provisions and actions which is envisioned at local level for effective gender mainstreaming at local level.***

Disaster Risk Reduction and Management Act for Local Government, 2075

The model act given for preparation of DRRM Act of Local level was issued by Ministry of Federal Affairs and General Administration in 2075/1/10. The act has envisioned local disaster management committee, ward level disaster management committees and their functions, role and responsibility. The committee members envisioned on local and ward level are positional representation which happen to be men and the functions and roles are all gender neutral.

**Recommendations: The committee members to ensure the representation of women and excluded group to include their concerns in different phases of disaster. Also, the functions and roles to include the special considerations of gender and excluded group.**

Local Level Disaster Management fund Operation Guideline, 2075

The guideline for operation of disaster management fund at local level was issued by Ministry of Federal Affairs and General Administration in 2075. The guidelines gives the authority to mobilize the fund during emergency, during response and recovery for local authority. But the guidelines have not given any consideration to use the specific fund for women and excluded group who are more victimized at disaster event because their bounce back capacity is weak.

**Recommendations: The fund mobilization guidelines of local level should have provisioned the special fund to women and excluded group as their will be impacted more during disaster.**

### Mainstreaming GESI at different cycle of DRRM

The status of vulnerability and capacity are subject to change over time and situation as result of effective mainstreaming GESI in all cycle of DRRM.

Different cycle in DRRM		How can we mainstream
Pre – Disaster Phases	Preparedness	<ul style="list-style-type: none"> <li>• Gender-responsive assessment of risk including sex-disaggregated data and gender-responsive VCA;</li> <li>• Gender-responsive community participation and community education on inclusive disaster preparedness and response;</li> <li>• Community awareness raising on the necessity of equally engaging women and men in all preparedness activities);</li> <li>• Capacity building gender-responsive response for all institutions and partners involved in response;</li> </ul>

		<ul style="list-style-type: none"> <li>• Empowering women and excluded groups to participate in early warning responses, disseminating information, becoming first responders;</li> <li>• Training women volunteers in response, recovery and/or the development and implementation of evacuation plans.</li> <li>• Use the elderly women and men are as a key resource for information and guidance and as a source of indigenous knowledge.</li> <li>• Designing GESI responsive early warning system and designing and disseminating messages in local language, and easy medium for vulnerable people, a deaf person and uneducated people.</li> </ul>
	Prevention	<ul style="list-style-type: none"> <li>• Understanding the diversity of vulnerability and risk improves efficiency (including disaggregating data)</li> <li>• Conduct multi hazard risk assessment and mapping with vulnerability and hazard risk</li> <li>• Prepare and enforce GESI responsive DRR related laws/orders/regulation at all levels of government and educate them.</li> <li>• Prepare provisions of open space, emergency store house, evacuation area.</li> <li>• Preparation of GESI responsive development plan and strategies, community development plans etc. which ensure the protection of single women, disable, old, vulnerable and other excluded groups.</li> <li>• Ensure provision to provide full knowledge of disaster to women, men and esp. other excluded group.</li> <li>• Make a provision to ensure equal participation of women and men in prevention and disaster risk management.</li> </ul>
During disaster Phases	Response	<ul style="list-style-type: none"> <li>• Identifying gender in the immediate response phase: basic needs, protection and participation</li> <li>• Use the gender desegregated data of the specific community or area to plan and focus response for vulnerable, poor, marginalized and excluded community and social group.</li> </ul>

		<ul style="list-style-type: none"> <li>• Ensuring women and men’s equal access to livelihoods in all phases of emergency recovery</li> <li>• Design tools to engender the humanitarian programming cycle</li> <li>• Conducting gender sensitive initial rapid assessment and post-disaster need assessments for accurate and speedy recovery plan.</li> <li>• Conduct Sex and Age Disaggregated Data and Rapid Gender Analysis Tool</li> </ul>
	Recovery	<ul style="list-style-type: none"> <li>• gender-specific needs in restoring livelihoods with a focus on providing equal opportunities for women and men;</li> <li>• gender-specific needs in recovery and development of infrastructure across all sectors—housing, health, education, water, food security, sanitation and hygiene—following the ‘Build Back Better’ principle; and</li> <li>• Increasing the participation of women and excluded groups (e.g. youth, people living with disabilities, etc.) in policy and planning processes.</li> </ul>
		<p><b>Gender-responsive components of infrastructure and livelihood recovery</b></p> <ul style="list-style-type: none"> <li>• Conduct assessment of affected infrastructure and consider the gender implications;</li> <li>• Identify primary needs and necessary recovery measures for women and men from different population groups;</li> <li>• Ensure involvement of women and women’s groups;</li> <li>• Preference to the procurement of construction materials from women owned companies and hire women to work on infrastructure development and in livelihood development programs;</li> <li>• Ensure access to financing and training for women interested in entrepreneurship;</li> <li>• Ensure equal access to services for women and men from various population groups;</li> <li>• Allocate targeted funding for women’s empowerment programmes;</li> </ul>

		<ul style="list-style-type: none"> <li>• Monitor and evaluate the implementation of gender-specific measures based on gender responsive indicators</li> </ul>
		<p><b>Expanding economic opportunities and women’s access to economic resources</b></p> <ul style="list-style-type: none"> <li>• Early loan repayment without fines and contractual penalties;</li> <li>• Implementation of socially-oriented loans with favorable interest rates or no credit guarantee schemes;</li> <li>• “Solidarity lending” for the most vulnerable women;</li> <li>• Replication of best practices in setting up and running various financial institutions, including credit unions.</li> </ul>
Post Disaster Phases	Reconstruction	<ul style="list-style-type: none"> <li>• Collect, analyze and use sex disaggregated data and equally consult with women, girls and marginalized groups during the design of reconstruction program and activities and in the overall monitoring.</li> <li>• Use both gender mainstreaming and targeted actions on GEWE in reconstruction together with preparedness, response, and recovery activities.</li> <li>• Support women’s economic empowerment through livelihoods and skills development interventions (including cash-based programs).</li> <li>• Adopt strategies that recognize, reduce and redistribute the unpaid care and household responsibilities assigned to women and girls;</li> <li>• Ensure the leadership and meaningful equal representation and participation of women and marginalized groups;</li> </ul>
	Rehabilitation	<ul style="list-style-type: none"> <li>• Emphasis the use of indigenous knowledge, process, technology and strategies for the recovery process for making a sustainable growth economically, mentally and physically.</li> </ul>

### Challenges in mainstreaming GESI at DRRM

The major challenges in mainstreaming issues of women, men, LGBTQI, people with disability, socially excluded people and poor and vulnerable in DRRM are:

1. The management system and process along with policies and activities are gender neutral which may not address the diverse need of diverse group.

2. The capacity of staff in having technical knowledge of gender mainstreaming is not adequate and not focused too.
3. Lack of enabling office environment like presence of open and participatory processes, mandatory GESI policy, policies on work life balance, sexual harassment and abuse of authority policy notified and implemented (mandatory courses on gender).
4. No knowledge management as knowledge products on GESI developed and disseminated, CO communication work/materials/ website reflect commitment to GESI concerns.
5. Weak partnerships with different stakeholders, systematic participation in interagency coordination mechanisms for GEWE.
6. The participation of women, men, LGBTQI, disabled and socially excluded people in policy making, decision making and in access to resource.
7. Minimum presence of women, men, LGBTQI, disabled and socially excluded people in disaster governance decision making.

### Way forwards

DRRM and GESI are issues cutting across socio-economic development sectors. Making disaster risk reduction gender responsive is central to achieving sustainable development. The following five priority area can be emphasized:

- |                   |  |
|-------------------|--|
| Technical Process | <ol style="list-style-type: none"> <li>1. Carry out GSEI -responsive risk assessments and vulnerability analysis and early warning systems at national, provincial and local levels.</li> <li>2. Take special action to increase gender and excluded group knowledge risk assessment and vulnerability analysis.</li> <li>3. Develop GESI -sensitive indicators for disaster risk reduction.</li> </ol>  |
| Political Process | <ol style="list-style-type: none"> <li>4. Ensure the inclusion of GESI perspectives in the national and local agenda, national and local budgets for DRRM.</li> <li>5. Review existing national policy and plans for disaster risk reduction from a GESI perspective.</li> <li>6. Introduce legislation to provide legal support to gender-responsive DRRM to make sure that women and excluded group will participate in and benefit from national and local policy, plan and financial resources equally in all DRR activities.</li> </ol> |

- |                      |   |
|----------------------|---|
| Social Process       | <ul style="list-style-type: none"> <li>7. Launch national and local campaigns on GESI – responsive DRRM to increase citizens’ understanding through advocacy kits, national debates, community meetings and even recreation and cultural activities.</li> <li>8. Engage the media to report on gender/ GESI differences in disaster risks, disaster vulnerability, as well as the underlying factors that contributed to the gender differences.</li> <li>9. Introduce GESI sensitive disaster risk reduction into formal, informal and non-formal education at all level of government.</li> <li>10. Develop win-win partnerships and networks with different stakeholder, development policy makers, planners and practitioners.</li> </ul> |
| Development Process  | <ul style="list-style-type: none"> <li>11. Make GESI - sensitive risk assessment a precondition for any development planning at national and local level.</li> <li>12. Take action to enhance women’s leadership and decision role in integrating DRRM in natural resource management, environment protection, and health education.</li> <li>13. Encourage micro credit and micro finance programs to provide more support to women, LGBTQI, disability people and increase their capacity to reduce their disaster risks.</li> </ul>  |
| Humanitarian Process | <ul style="list-style-type: none"> <li>14. Develop a disaster contingency plan based VCA for focusing on women and excluded group during emergency caused by natural hazards.</li> <li>15. Mainstream GESI needs and concerns into disaster preparedness planning and storage of relief goods, especially in preparation of emergency relief goods and ensure to include women’s and excluded groups’ participation in planning and distribution of humanitarian assistance.</li> </ul>   |

*Source: UNISDR checklist*

# **Lessons and learning on Gender Equality and Social Inclusion (GESI) and Disaster Risk Reduction (DRR)**

**Lead Author: Sahara Neupane**

**Corresponding Author: Pallav Pant**

**20 March, 2022**

## **Introduction**

Nepal's geography, rising urbanisation, and varying water levels make it particularly vulnerable to natural and human-induced disasters. According to the 2011 census, persons with disabilities account for 1.94% of the overall population. The Government of Nepal has classified ten different categories of disabilities. However, multiple groups working with disabilities have estimated that 10% of the whole population has some form of disability (Law Commission of Nepal, 2017). Women and girls are 14 times more vulnerable during and in post disaster situations (UNDP, 2013). Whereas, persons with disabilities are two to four times more likely to die or be injured than the general population (Australian Institute for Disaster Resilience & Australian Government, 2018). They face barriers such as education and economics, but also sociocultural barriers with narratives such that their condition is the result of their past 'karma' (past sins and deeds). Individuals are excluded based on two broad categories which are economic and social. Economically excluded consists of caste, ethnicity, location, sex, and persons with disabilities. Socially excluded group consist of women, adibasi/janajaties, religious minorities, person with disabilities, person of geographically remote areas/urban slums, sexual and gender minorities, dalits, madhesis, and, Lesbian, gay, bisexual, transgender, queer and intersex (LGBTQI) .

Disasters can affect all, but persons with disabilities are at a higher risk and are more vulnerable due to numerous difficulties they experience in receiving and accessing information. Gaps in accessibility, for example, can make collecting information about hazards and evacuating in the case of a disaster difficult for those with disabilities. In the aftermath of a disaster event, those with disabilities are more likely to receive insufficient assistance. When disaster strikes in an underdeveloped country like Nepal, the death ratio might exceed four women for every male (UN Women, 2017). The interests and duties of women and socially deprived groups are frequently overlooked in disaster response and recovery strategies, making it vital to acknowledge the importance of Gender Equality and Social Inclusion (GESI) in crisis situations (Neupane, 2020). Disasters have different effects on different people. Women, girls, persons with disabilities, ethnic and racial minorities, indigenous peoples, youth, and other vulnerable communities are frequently disproportionately affected by shocks. Yet, by empowering citizens and communities, particularly

the most marginalised, and encouraging community participation, disaster protection, social progress, and long-term solutions can all be improved.

### **Condition of the Vulnerable Groups During and in Post Disaster Situations**

In the aftermath of the earthquake, 48% of women did not receive assistance and 48% were unable to obtain services. In communal areas such as around WASH facilities and in public places, of the 83 percent of the 140 sites surveyed had no or insufficient lighting. During the 2015 Nepal Gorkha Earthquake, trans-males faced harassment/discrimination when attempting to utilise facilities. Access to emergency shelters and camps was refused to LTBTQI+ community. In a survey of 720 female respondents from various districts, 36% said they had directly experienced gender-based violence (GBV). GBV was confessed by 40% of the males (UNDP, 2013). The National Women Commission handled 15,107 cases of various forms of abuse and harassment between 2017 and 2021. (87 percent Domestic Violence and 98 percent of the applicants were women, the perpetrators being 14 percent female and 86 percent male). During the COVID 19 emergency period, 1042 cases of GBV were documented. Domestic violence is documented in 50% of cases, societal violence in 9% of cases, rape in 21% of cases, murder in 7% of cases, sexual abuse in 3% of cases, and suicide in 1% of cases (*महिला हिंसा विरुद्धको वर्ष पुस्तक “अन्वेषी” २०७७ लोकापर्ण*, n.d.). In addition, persons with disabilities are four times more likely to be discriminated against by healthcare practitioners as well as the health care system is not accessible to persons with disabilities. There is currently no emergency strategy in place to assist disabled people.

### **Implementation of ‘Public Safety for Persons with Disabilities’**

The project ‘Public Safety For Persons with Disabilities’ was implemented by Atullya Foundation Pvt. Ltd., the project's main objective was to improve public safety for people with disabilities using the concepts of ‘Public Safety For All’ PSFA to promote inclusive disaster risk reduction in order to build a more resilient community.

Secondary objectives:

- To establish a resilient society by promoting disability inclusive disaster risk reduction (DIDRR) guided by PSFA.
- In the case of a disaster, to improve disaster preparedness among people with disabilities.

Challenges persons with disabilities face during disasters are:

- First responders lack awareness of the needs of persons with disabilities
- Infrastructures are not accessible which may hinder their efforts to evacuate
- Communication barrier/gap in information exchange
- They face harassment both mental and physical

- Persons with disabilities are more often not aware of their rights and the types of support available to them.

In light of these facts, the Atullya Foundation developed a Disability-Inclusive Get Ready Guidebook 2021 to ensure that disaster prevention and planning strategies help the communities that are sustainable, inclusive, and disaster-resilient. Several consultations with stakeholders and beneficiaries, including the federation of persons with disabilities, the organization of persons with disabilities (OPD), government officials, and the Lesbian, Gay, Bisexual, Transgender, Queer, Intersex (LGBTQI) community, were held in order to develop a content-specific guidebook. The manual is a tool that persons with disabilities and their caretakers can use to reduce the loss of life and property in the event of a disaster. This is the first time a private organisation has developed a guidebook for persons with disabilities amidst the pandemic.

To ensure everyone's safety, the PSFA emphasises the necessity of disaster-friendly infrastructure construction. Footpaths, wheelchair ramps, disability friendly accessible facilities, and hotel infrastructure are all being built. The application of PSFA ideas by service providers can be extremely beneficial in reducing the enormous loss of life and property in catastrophe scenarios. A simple escape route for everyone, including persons with disabilities and other vulnerable population minorities, at their place of residence and daily travel routes can assist these vulnerable populations in safely escaping crisis circumstances and reducing the danger of loss. Because Nepal is vulnerable to various types and degrees of disaster, the concept of public safety and its advocacy is becoming an increasingly important aspect in DIDRR in Nepal.

Atullya Foundation developed a course for service providers, local stakeholders, and safety consumers to learn from. The training's target audience included concerned government officials, civil and architectural engineering students and professors, as well as the general public. The designed training emphasised the most pressing concerns about public safety and methods for reducing the risk from public infrastructures, with the goal of ensuring PSFA's long-term viability. The goal of the training was to make stakeholders comprehend the relevance of PSFA and urge them to follow PSFA standards in order to protect everyone's safety.

To ensure the safety of persons with disabilities, the Atullya Foundation developed an app Bachau that allows individuals receive immediate assistance from first responders (Police, Ambulance, and Fire Brigade) in the event of an emergency. The team worked on the application development and named it Bachau in order to keep the idea of rescuing people with disabilities in the event of a tragedy.

Ms. Riha Maharjan, a member of Shruti's board of directors with hearing impairments, expressed her excitement to learn about the Bachau app and how eager she is to utilise it. She also stated how beneficial this software will be for people with hearing loss in the near future. The fact that they can SMS and call police, ambulances, and fire departments with a single app helps to ensure the

safety of persons with disabilities in pre and post crisis situations. She went on to say that she would inform her friends and family about the app.

### **Addressing the needs of persons with disabilities and plan for emergency shelter**

Persons with Disabilities can be consulted on their needs if they are included in during the preparedness phase. We can educate first responders and volunteers about the importance of building an accessible and gender-friendly emergency shelter. Prior information to be provided to persons with disabilities and their caregivers about the distribution of relief materials and there should be equitable distribution. It's critical to provide special attention to vulnerable groups including women, girls, and disabled intersex minorities.

Atullya foundation has developed a Disability Inclusive Get Ready Guidebook. The guidebook was developed with the goal of reducing the loss of life and property. After several consultation meetings with the Federations of Persons with Disabilities, Organisations of Persons with Disabilities (OPD), LGBTIQ community, government officials, and other beneficiaries. This initiative was made possible with the support of USAID's Tayar Nepal. It assists people with disabilities and their caretakers in disaster mitigation and preparedness. Recognizing the needs of persons with disabilities, the guidebook has been developed in several accessible formats such as EPUB, UNICODE, Braille etc.

As DIDRR is one of the core principles of Atullya the organisation is working on the sustainability of the project activities. The organisation is constantly involved in networking with essential stakeholders to ensure the project's long-term viability, e.g., IOM is distributing the DIDRR Guidebook to all 753 local levels. The book is being reprinted by the Red Cross in order to reach a wider audience. The Nepal Police and Fire Brigade are looking at incorporating the mobile application 'Bachau.' NFDN is considering including the DIDRR Guidebook on their sessions on DRRs training. A DIDRR Working Committee has been constituted, and plans to localise and institutionalise DIDRR in Nepal are being discussed. The foundation is working together with OPD to raise awareness among concerned stakeholders. We are also focused on advocating for the endorsement of DIDRR guideline. In emergency shelters of Nepal, disaster risk reduction does not always take into account the needs of people with disabilities because they are not built with accessibility in mind, and wheelchair users do not have the freedom of movement and require continual support. Persons with hearing impairments are excluded from early warning systems that are aired on television or radio. During disasters, there is often an increase in gender-based violence, particularly against women and girls with disabilities. The Sendai Framework for Disaster Risk Reduction 2015- 2030 takes a more people-centred strategy to DRR and requires that persons with disabilities be included in DRR. This is a big step forward in terms of international advocacy for disabled people's rights. Guidance on how to attain DIDRR at the national and local levels should be improved. There is a need to create awareness and

mainstreaming DIDRR practices due to a lack of expertise on how to serve persons with disabilities during disasters.

## Recommendation

First responders and volunteers should be educated on the needs of people with disabilities and vulnerable communities. At all levels of government, all stakeholders should be aware of DIDRR (federal, provincial and local). The local government should have data about the residents (persons with disabilities). The regulations governing public infrastructure accessibility should be properly implemented. GESI-friendly relief goods, such as dignity kits, disability-friendly assistive devices, age-friendly materials, and strong safety precautions for women and girls in emergency shelters, must be organised and disseminated.

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## विपद जोखिम न्यूनीकरण र व्यवस्थापनको स्थानीयकरण र मुलप्रवाहीकरण

ऋषि- राज आचार्य

### १) विषय प्रवेश

नेपालमा प्राकृतिक तथा गैर प्राकृतिक विपद्का कारण ठुलो जन, धन र वातावरणको बिनास हुने गरेको छ विपद् सम्बन्धी तथ्यांकहरु हेर्दा 1सडक दुर्घटना बाहेकका प्राकृतिक तथा गैर प्राकृतिक विपद्बाट वि. सं. २०२८ देखि २०७२ सम्मको अवधीमा वार्षिक औसत ९०० को मृत्यु हुनेभन्दा बढि घाइते १८०० , हुने र ३०भन्दा बढि ०००, घरपरिवार प्रभावित हुने गरेको छ । नेपालमा वर्षेनी १०सडक दुर्घटना ०००, हुने र औषतमा वार्षिक २००० जनाको मृत्यु र करिब १३ व्यक्ति ०००,घाइते हुने गरेका छन् । यस्ता विपद्जन्य घटनाहरुबाट वर्षेनी ठुलो मात्रामा जन,धनको क्षति र आर्थिक, सामाजिक पूर्वाधारहरुको नोक्सानी हुने र जनताको आधारभूत सेवा र जीविकोपार्जनमा समेत नकारात्मक असर पर्ने गरेको छ ।

बढ्दो जलवायु परिवर्तनको असर, भौगर्भिक अवस्था, सामाजिक र आर्थिक गतिविधि र मानवीय क्रियाकलापले विपद्का घटना बढ्दै गएका छन् विपद्जन्य घटनाबाट हुने यस्ता क्षतिलाई न्यूनीकरण । र व्यवस्थापन गर्न नेपाल सरकारले बिभिन्न नीतिगत, कानुनी र संस्थागत व्यवस्था गरेको छ विपद् । जोखिम न्यूनीकरण र व्यवस्थापनका कामहरुमा नेपाल सरकारको एकल प्रयास मात्र पर्याप्त हुदैन नेपाल । सरकार, प्रदेश र स्थानीय तहगैर , सरकारी क्षेत्र र निजी क्षेत्रको समन्वय र साझेदारीको एकीकृत प्रयासबाट मात्र विपद जोखिम न्यूनीकरण र व्यवस्थापनको कार्य प्रभावकारी हुनसक्छ।

### २) नीतिगत व्यवस्था:

नेपालको संविधानको धारा ५१)छ( को खण्ड ९ मा प्राकृतिक प्रकोपबाट हुने जोखिम न्युनीकरण गर्न पुर्व सूचना, तयारी, उद्धार ,राहत एवं पुनर्स्थापना गर्ने कार्यलाई राज्यको नीतिको रुपमा अंगीकार गरेको छ । संविधानको अनुसूची (७) मा प्राकृतिक वा गैर प्राकृतिक विपद् पुर्व तयारी, उद्धार तथा राहत र पुनर्लाभलाई संघ र प्रदेशको साझा अधिकार, अनुसूची(८) मा विपद् व्यवस्थापन स्थानीय तहको अधिकार र अनुसूची (९) मा विपद् व्यवस्थापन संघ, प्रदेश र स्थानीय तहको अधिकारको साझा सूचीमा राखिएको छ ।

यसका अलावा विपद् जोखिम न्युनिकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनमा भएका मुख्य नीतिगत तथा कानुनी व्यवस्थालाई देहाय बमोजिम उल्लेख गरिएको छ:

- क) विपद जोखिम न्यनीकरण तथा व्यवस्थापन ऐन, २०७४
- ख) विपद जोखिम न्यूनीकरण तथा व्यवस्थापन नियमावली, २०७६
- ग) स्थानीय सरकार संचालन ऐन, २०७४

- घ) वस्ती विकास, सहरी योजना तथा भवन निर्माण सम्बन्धि आधारभुत मापदण्ड, २०७२
- ङ) विपद् जोखिम व्यवस्थापन राष्ट्रिय नीति, २०७४
- च) विपद् जोखिम राष्ट्रिय रणनीति (२०१८-२०३०)
- छ) दिगो विकासको लक्ष्य (२०१५-२०३०)
- ज) आवधिक योजना (पन्ध्रौं)
- झ) वातावरण संरक्षण ऐन, २०७६
- ञ) वातावरण संरक्षण नियमावली, २०७७
- ट) राष्ट्रिय जलवायु नीति
- ठ) राष्ट्रिय वन नीति

स्थानीय सरकार संचालन ऐन, २०७४ ले देहायका विपद् व्यवस्थापन सम्बन्धी काम, कर्तव्य र अधिकार गाउँपालिका तथा नगरपालिकालाई तोकेको छ ।

- क) विपद् व्यवस्थापन सम्बन्धी स्थानीय नीति, कानून, मापदण्ड, योजनाको कार्यान्वयन, अनुगमन र नियमन,
- ख) स्थानीय स्तरमा विपद् पूर्व तयारी तथा प्रतिकार्य योजना, पूर्व सूचना प्रणाली, खोज तथा उद्धार, राहत समायोजनको पूर्व भण्डारण, वितरण र समन्वय,
- ग) स्थानीय तटबन्ध, नदी र पहिरोको नियन्त्रण तथा नदीको व्यवस्थापन र नियमन,
- घ) विपद् जोखिम क्षेत्रको नक्साङ्कन तथा बस्तीहरूको पहिचान र स्थानान्तरण,
- ङ) विपद् व्यवस्थापनमा संघ, प्रदेश र स्थानीय समुदाय, संघ संस्था तथा निजी क्षेत्रसंग सहयोग, समन्वय र सहकार्य,
- च) विपद् व्यवस्थापन कोषको स्थापना तथा सञ्चालन र स्रोत साधनको परिचालन,
- छ) विपद् जोखिम न्यूनीकरण सम्बन्धी स्थानीयस्तरका आयोजनाको तर्जुमा, कार्यान्वयन, अनुगमन र नियमन,
- ज) विपद् पश्चात स्थानीयस्तरको पुनर्स्थापना र पुनर्निर्माण,
- झ) स्थानीयस्तरको विपद् सम्बन्धी तथ्याङ्क व्यवस्थापन र अध्ययन अनुसन्धान,
- ञ) स्थानीय आपत्कालीन कार्य सञ्चालन प्रणाली,
- ट) समुदायमा आधारित विपद् व्यवस्थापन सम्बन्धी कार्यक्रमको सञ्चालन,
- ठ) विपद् व्यवस्थापन सम्बन्धी अन्य कार्य ।

उपरोक्त ऐनले वातावरण संरक्षण, वैश्विक विविधताको संरक्षण र जलवायु परिवर्तनको अनुकूलनका तल उल्लेखित काम कर्तव्य र अधिकार गाउँपालिका तथा नगरपालिकालाई तोकेको छ ।

- क) वातावरण संरक्षण र जैविक विविधता सम्बन्धी स्थानीय नीति, कानून, मापदण्ड, योजना तर्जुमा तथा त्यसको कार्यान्वयन, अनुगमन र नियमन,
- ख) स्थानीय स्तरमा वातावरणीय जोखिम न्यूनीकरण,
- ग) पानी मुहानको संरक्षण
- घ) भूसंरक्षण र जलाधार व्यवस्थापनजन्य सामुदायिक अनुकूलन
- ङ) स्थानीय स्तरमा सार्वजनिक खाली जग्गा, पाखा वा क्षेत्रमा वृक्षारोपण, सम्भार, उपयोग र व्यवस्थापन,
- च) मिचाहा प्रजातिको नियन्त्रण,
- छ) रैथाने प्रजातिको संरक्षण र प्रवर्द्ध,
- ज) स्थानीय स्तरमा न्यून कार्बनमूखी तथा वातावरणमैत्री विकास अवलम्ब,
- झ) स्थानीय स्तरमा हरित क्षेत्रको संरक्षण र प्रवर्द्धन,
- ञ) नर्सरी स्थापना, बिरुवा उत्पादन, वितरण, रोपण र प्रवर्द्ध,

### ३) स्थानीयकरणका लागि भएका प्रयासहरू:

नेपालको संविधान, स्थानीय सरकार संचालन ऐन, २०७४ र विपद् जोखिम न्यूनीकरण तथा व्यवस्थापन ऐनलगायत २०७४, का संबैधानिककानूनी तथा , नीतिगत व्यवस्थालाई स्थानीयकरण गर्न गाउँपालिका तथा नगरपालिकालाई नेपाल सरकारले नमूना कानून र नमूना कार्यविधि उपलब्ध गराउनुका साथै प्रशिक्षण सामग्रीमा एकरूपता ल्याउने, विपद् जोखिम न्युनिकरण र जलवायु परिवर्तन अनुकुलान्को मूल प्रवाहीकरण गर्ने र स्थानीय तहको शासकीय र योजना पद्धतिमा यसको आन्तारिकिकरणलाई जोड दिएको छ । स्थानीयकरणका लागि भएका प्रयासहरू तल उल्लेखित गरिएको छ :

- क) नमूना कानूनहरू (स्थानीय तहको लागि)
  - स्थानीय तहको विपद् जोखिम न्यनीकरण तथा व्यवस्थापन ऐन
  - स्थानीय विपद् व्यवस्थापन कोष संचालन कार्यविधि
  - गाउँपालिका / नगरपालिका आपतकालीन कार्यसंचालन कार्यविधि
  - स्थानीय विपद् र जलवायुजन्य जोखिम व्यवस्थापन योजना (LDCRP) तर्जुमा
  - स्थानीय वातावरण तथा प्राकृतिक स्रोत संरक्षण ऐन
  - संक्षिप्त वातावरणीय अध्ययन तथा प्रारम्भिक वातावरणीय परिक्षण सम्बन्धी नमूना कार्यविधि
  - विपद् जोखिम न्यूनीकरण र व्यवस्थापनको स्थानीय रणनीति (सन् २०२१-२०३०)
  - स्थानीय विपद् पूर्वतयारी तथा प्रतिकार्य योजना
  - Urban DRR Toolkitको विकास
  - Municipal Disaster Risk Governance Assessment Tool

- विपद जोखिम न्यूनीकरण र जलवायु परिवर्तन अनुकूलन सिकाई केन्द्रको संचालन सम्बन्धी कार्यविधि
  - ख) स्थानीय तहको योजना तर्जुमा दिग्दर्शनमा विपद जोखिम न्यूनीकरण र जलवायु परिवर्तन अनुकूलनको आन्तरिकिकरण र मुलप्रवाहीकरण
  - ग) संघीय मामिला तथा सामान्य प्रशासन मन्त्रालयको १० वर्षे रणनीतिक कार्ययोजना
  - घ) विपद जोखिम न्यूनीकरण र जलवायु परिवर्तन अनुकूलनको मूल प्रवाहीकरण विषयक तालिम सामग्री
  - ङ) वातावरणमैत्री स्थानीय शासनको प्रारूप
  - च) स्थानीय सरकार संस्थागत क्षमता स्वमुल्यांकन कार्यढाँचा (LISA)
- ४) **समुदायको उत्थानशीलताका लागी न्युनतम ९(नौ) विशेषताहरू:**

विपद जोखिम न्यूनीकरण र व्यवस्थापनमा समुदायको भूमिका महत्वपूर्ण हुन्छ । समुदायको पुर्व तयारी, प्रतिकार्य र पुनर्लाभ क्षमता तथा पुर्व सूचना प्रणाली जस्ता विषयले समुदायका उत्थानशीलता बढाउछ । बितेका एक दशक देखि नै नेपाल सरकार, स्थानीय सरकार, दातृ निकायहरू, गैरसरकारी र निजी क्षेत्रको साझा प्रयास समुदायको उत्थानशीलता बढाउन रही आएको छ । यस सम्बन्धमा नौ वटा न्युनतम आधारहरू स्वीकार गरी ती विशेषता समुदायमा पुर्याई समुदायलाई उत्थानशील बनाउन क्रियाशील रहेको छ । उत्थानशील समुदायका ९ वटा विशेषताहरू निम्न अनुसार स्वीकार गरिएका छन् ।

- स्थानीय तह र समुदायमा विपद व्यवस्थापन समितिको गठन र क्रियाशीलता
- समुदायको विपद जोखिम न्यूनीकरणको सूचनामा पहुँच
- समुदायको बहुप्रकोप जोखिम र क्षमताको विश्लेषण गरिएको
- समुदायको पुर्व तयारी तथा प्रतिकार्य कार्यदल रहेको
- समुदायको विपद जोखिम न्यूनीकरण र व्यवस्थापन योजना रहेको
- विपद व्यवस्थापन कोष रहेको
- समुदायमा विपद जोखिम न्यूनीकरण र व्यवस्थापन सामग्रीको प्रवन्ध र त्यसमा पहुँच
- समुदाय स्तरमा जोखिमलाई घटाउने उपायहरूको अबलम्बन
- समुदायमा आधारीत पुर्व सूचना प्रणाली

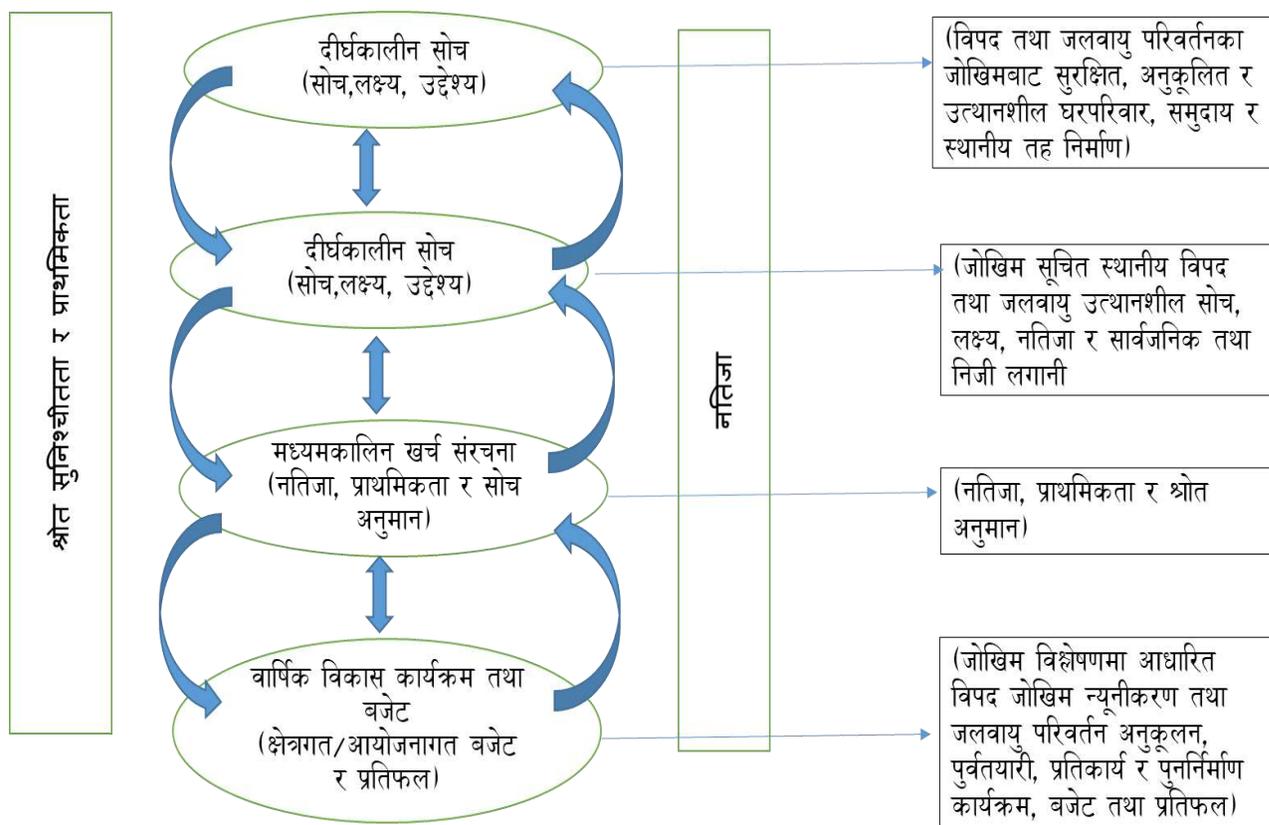
समुदायमा आधारीत विपद जोखिम न्युनिकरण र व्यवस्थापनमा क्रियाशील सरकारी ,गैर सरकारी निकाय र निजी क्षेत्र एकतावद्ध भइ यसको कार्यान्वयनमा क्रियाशील छन् । लामो अभ्यासको सिकाईबाट माथि उल्लेखित विशेषतामा समावेशीकरण र जीविकोपार्जनका विषयहरू समेत समाविष्ट गरी यि विशेषताहरूमा समसामयिक परिमार्जन गर्न आवश्यक रहेको छ ।

## ५) आन्तरिकीकरण र मूलप्रवाहीकरण:

विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनका विषयहरू स्थानीय तहको योजना तर्जुमा पद्धतिमा आन्तरिकीकरण र मूलप्रवाहीकरण भइ कार्यान्वयन गर्न सकेमा जोखिमलाई घटाउन मद्दत पुगनुको साथै संवैधानिक, कानूनी र संस्थागत व्यवस्थाको स्थानीयकरण हुन मद्दत पुग्दछ । स्थानीय तहको विषयगत योजनाहरू, आवधिक योजना, वार्षिक योजना, मध्यमकालीन खर्च संरचना र योजना तर्जुमा प्रक्रियामा विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनका विषयहरूलाई समाहित गरेर लगनु पर्दछ । स्थानीय तहको विषयगत योजना तर्जुमा अन्तर्गतको वन, वातावरण तथा विपद व्यवस्थापन समितिले उक्त विषयगत योजना तर्जुमा गर्नुको अतिरिक्त अन्य अन्तरसम्बन्धित विषयक्षेत्र आर्थिक विकास, सामाजिक विकास, पूर्वाधार विकास र सुशासन तथा संस्थागत विकासको योजना तर्जुमा हुँदा समेत विपद जोखिम न्युनीकरण र जलवायु परिवर्तन अनुकूलनको विषयलाई आन्तरिकीकरण गरी मूलप्रवाहमा ल्याउने कार्य गर्नु पर्दछ । योजना तर्जुमा प्रक्रियाका सात वटै चरणहरू मध्य पहिलो चरण वित्तीय हस्तान्तरणको खाका र मार्गदर्शनको प्राप्तिमा नेपाल सरकार र प्रदेश सरकारले स्थानीय तहलाई अनुदान उपलब्ध गराउदा विपद जोखिम न्यूनीकरण र जलवायु परिवर्तन अनुकूलनलाई उच्च प्राथमिकता दिने गरेको छ । दोश्रो देखि सातौं चरण सम्म योजना तर्जुमाको स्थानीय तहको आन्तरिक प्रक्रिया र पद्धति हो । हरेक चरणमा विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनका विषयहरूले प्राथमिकता पाउनु पर्दछ । स्थानीय तहको वार्षिक योजना तर्जुमा प्रक्रियाका चरणहरू देहाय बमिजोम छन्:

- क) वित्तीय हस्तान्तरणको खाका र मार्गदर्शन प्राप्ति
- ख) श्रोत अनुमान र कुल बजेट सीमा निर्धारण
- ग) बस्तीरटोल स्तरबाट योजना छनौट
- घ) वडा स्तरीय योजना प्राथमिकीकरण
- ङ) एकिकृत बजेट तथा कार्यक्रम तर्जुमा
- च) कार्यपालिकाबाट स्वीकृती
- छ) सभाबाट स्वीकृति

स्थानीय तहको योजना तर्जुमा दिग्दर्शनले २०७८, योजना तर्जुमा प्रक्रियामा आन्तरिकीकरण र मूलप्रवाहीकरणलाई आत्मसाथ गरेकोले आगामी दिनमा मूलप्रवाहीकरण प्रक्रियामा थप मद्धत पुग्ने अपेक्षा गरिएको छ स्थानीय तहको । वार्षिक योजना, मध्यमकालीन खर्च संरचना, आवधिक योजना र दीर्घकालीन सोच तर्जुमा गर्दा स्थानीय उत्थानशीलता अभिवृद्धि गर्न मूलप्रवाहीकरणको लागि देहायको खाका प्रस्तुत गरिएको छः



स्थानीय तह

संस्थागत क्षमता स्वमुल्यांकन कार्यविधि, २०७७मा १०० वटा सूचकहरू मध्ये १३ वटा सूचकहरू विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनसंग सम्बन्धित छन् । यो विषय स्थानीय तहको संस्थागत क्षमताको प्राथमिकता प्राप्त अंग भएकोले समेत आन्तरिकीकरण र मूलप्रवाहीकरणले उच्च प्राथमिकता पाएको छ ।

#### ६) स्थानीय तहको क्षमता विकासका अवसरहरू:

नेपालको संविधान, विपद जोखिम न्यूनीकरण तथा व्यवस्थापन ऐन, २०७४ र स्थानीय सरकार संचालन ऐन, २०७४ले विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनमा गाउँपालिका

तथा नगरपालिकाको नेतृत्वदायी भूमिका निर्वाह गर्ने गरी काम, कर्तव्य र अधिकारको व्यवस्था गरेको छ । उपरोक्त जिम्मेवारी निर्वाह गर्न स्थानीय तहको श्रोत, सधन र क्षमता बढाउन जरुरी छ । नेपाल सरकार, प्रदेश सरकार, गैर सरकारी निकाय र निजी क्षेत्रले स्थानीय तहसँग साझेदारी गर्न सक्ने केहि अवसर तल उल्लेख गरिएको छ ।

- क) नीति, संरचना तथा योजना र बजेटमा सहयोग र सहकार्य
- ख) विपद व्यवस्थापन र जलवायु परिवर्तन अनुकूलन कोषको स्थापना र परिचालन
- ग) सुरक्षित निर्माणको प्रवर्द्धन
- घ) विपद जोखिम न्यूनीकरण र जलवायु परिवर्तन अनुकूलन मूलप्रवाहीकरण
- ङ) भू-उपयोग योजना तर्जुमा तथा कार्यान्वयन
- च) स्थानीय विपद् र जलवायु सुशासन र जवाफदेहिता अभिवृद्धि
- छ) वातावरणमैत्री स्थानीय शासनको प्रारूपको कार्यान्वयनमा सहयोग
- ज) वातावरणीय अध्ययनको संस्थागत व्यवस्था र कार्यान्वयन
- झ) स्थानीय आपतकालीन कार्य संचालन केन्द्र स्थापना र संस्थागत साझेदारी
- ञ) क्षमता विकास

#### ७) निष्कर्ष:

विपद जोखिम न्यूनीकरण र व्यवस्थापन तथा जलवायु परिवर्तन अनुकूलनमा स्थानीय तह र समुदायको भूमिका महत्वपूर्ण हुन्छ । समुदायको उत्थानशीलता अभिवृद्धिमा सरकारी, गैर सरकारी निकाय र निजी क्षेत्रको सहकार्य, समन्वय र साझेदारीलाई प्रोत्साहन गर्नु पर्दछ । स्थानीय तहको योजना तर्जुमा प्रक्रिया र विकासमा यसलाई मूलप्रवाहीकरण र आन्तरिकीकरण गरेर जोखिमको मात्रा घटाउदै विकासलाई दीगो र वातावरणमैत्री बनाउन सरोकारवाला सबैको सहयोग, साझेदारी र प्रतिवद्धता जरुरी छ ।

## Earthquake Risk Management in Nepal: Key Approaches and Lessons

Surya Narayan Shrestha, Executive Director, NSET

### Background

#### Hazard and Risk Scenario of Nepal

Nepal is situated in the Hind Kush Himalayan (HKH) Region between Eurasian and Indian Plates which makes the country vulnerable to earthquake hazard. The Indian plate is continuing to collide underneath of Eurasian plates by approximately 2cm per year, that witness the number of earthquakes in the country from several years (Dixit, 2004) Nepal's steep topography, diverse climatic condition and fragile geology has made the country stand on top 20<sup>th</sup> of the most multi-hazard prone countries in the world, Nepal lies on the 4<sup>th</sup> in terms of climatic change hazard, 11<sup>th</sup> in terms of earthquake hazard and 30<sup>th</sup> in terms of flood hazard (MOHA, 2015). Fig. 1. below shows the earthquake hazard and risk map (GEM, 2018) of the world where it's clearly seen the comparatively high level of hazard and risk of Nepal.

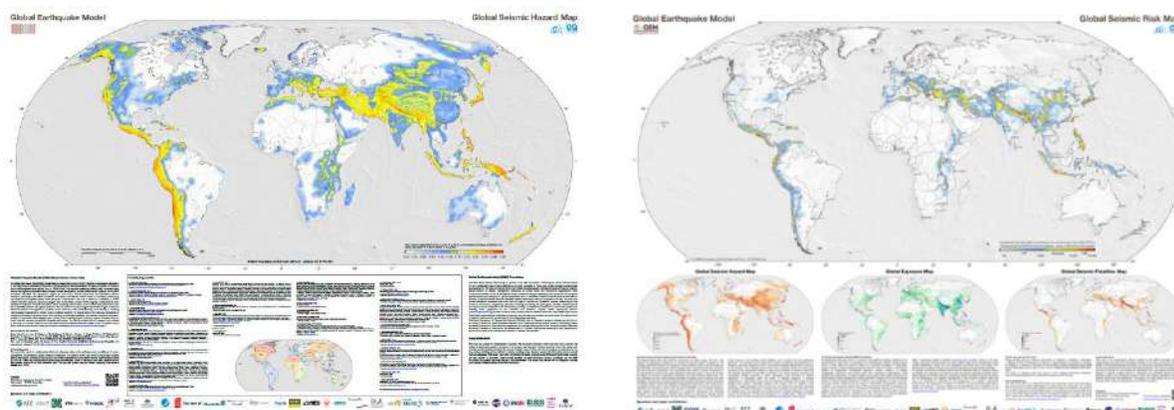


Fig. 1: Global Seismic Hazard and Risk Map (Source: GEM, 2018)

Nepal encounters multiple disaster every year losing lives and properties. The record of DesInventar database in fig. 2 shows Nepal had total 34,984 events in last 48 years from 1971-2019 with average 2 events per day causing 49,545 total casualties with average 3 casualties or missing per day. Earthquake, flood, landslide, epidemics and fire are the top five hazards Nepal faces every year (NSET/DesInventar database, 2021).

Nepal is a highly hazard prone country with high vulnerabilities such as vulnerable buildings, infrastructures, unplanned urban cities, and low level of preparedness, resulting in very high risks of disasters. Figure 3 below shows one of the findings of a research report of Global Earthquake Safety Initiative (GESI) in 2003 where building collapse has been identified as the main source of earthquake risk.

Another recent report on Detail Damage Assessment after 2015 earthquake also shows that 99% of the source of human casualty was due to building collapse during the earthquake.

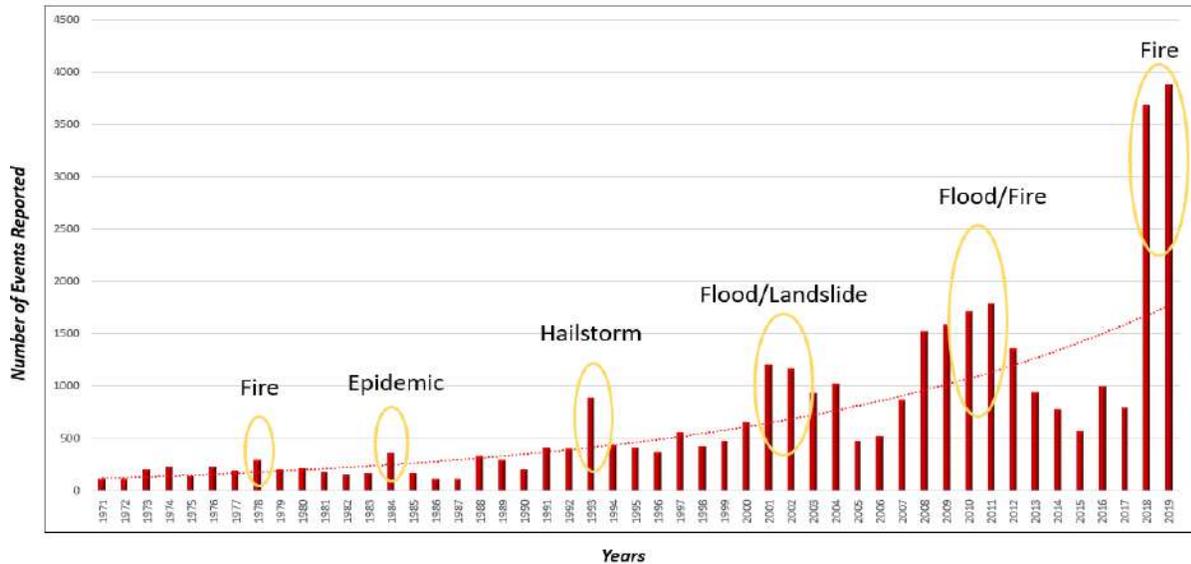


Fig. 2: DesInventar Database showing disaster events from 1971 to 2019 (Source: NSET, 2020)

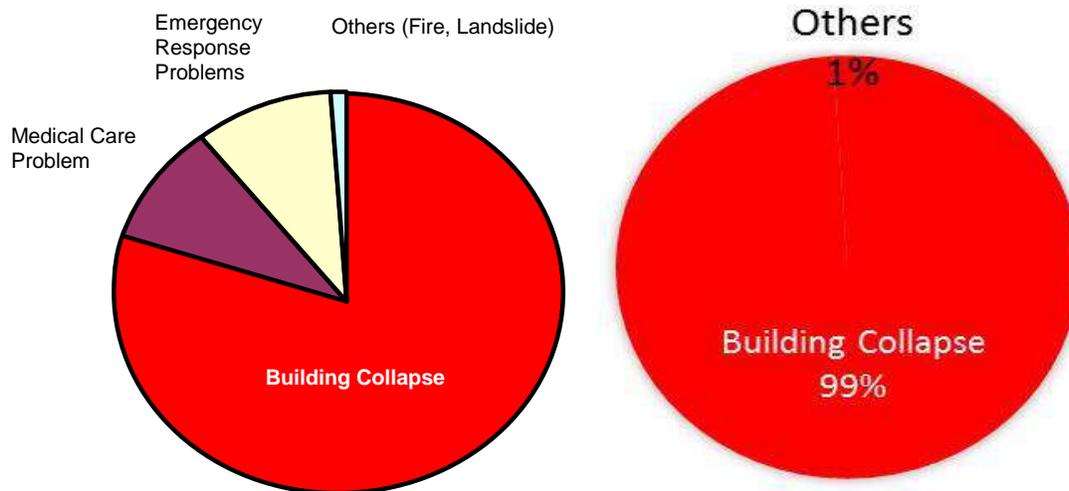


Fig. 3: Sources of Earthquake Risk from GESI Report, 2003 and Detail Damage Assessment Report of 2015 Gorkha Earthquake, NSET

### Nepal's journey on Disaster Risk Management and Resilience building

Nepal indulges in the disaster risk management since early 1990s with its representation in the First World Conference on Natural Disaster in Yokohama, Japan in 1994. Since then, Nepal continues to contribute to disaster risk reduction and management through awareness raising, advocacy, capacity building to policy

formulation. Nepal has promulgated, in 2017, new Disaster Risk Reduction and Management Act, and National Disaster Risk Reduction and Management Authority (NDRRMA) has been established in 2019 for enhancing leadership, coordination and cooperation among all the players on DRRM. The establishment of NDRRMA has open the avenues of widening DRR in all sectors of the society.

## Key Approaches: Achievements of Two and half decade long efforts on Resilience Building

National Society for Earthquake Technology-Nepal (NSET) is a non-governmental organization established in 1993 with a vision to make earthquake safe communities in Nepal. It is a multi-disciplinary professional society of professionals belonging to various physical and social sciences related with aspects of earthquake risk management. Since its establishment NSET has been working in various aspects of DRR in all sectors of the society.

This paper elaborates some of the successful approaches NSET has initiated during its 28 years journey on resilience building in Nepal and in the region.

### Use of Innovative Tools on Awareness Raising

Awareness raising has been a foundation of all kinds of DRR efforts of NSET. All its program and projects consist of public awareness raising components. NSET being a science and research-oriented organization has highly emphasized on bringing scientific knowledge from technical literatures and research labs to the grassroots level communities (NSET, 2018).

#### **i. Earthquake Safety Day (ESD)**



Fig. 4 Earthquake Safety Day Rally of 2018

NSET initiated dialogue with then His Majesty's Government of Nepal to declare January 15 (or 16) as the National Earthquake Safety Day of Nepal to commemorate the Great Nepal-Bihar Earthquake of 1934. Government agreed to the proposition and declared Magh 2 of Nepali calendar (January 15 or 16) as the National Earthquake Safety Day. Nepal observes annual ESD every year since 1999. Government established an Earthquake Safety Day National Committee (ESD Nat COM) under the leadership of Ministry of Home Affairs (MOHA) for observing the Day annually throughout Nepal. ESD Nat COM draws representatives from all emergency response organizations, critical facilities, and many civil society organizations. NSET serves as the Member-Secretary of the Nat Com to organize month long various activities. The main events are the Earthquake Safety National Meeting and Symposium. Other events include public broadcast of earthquake safety message by the Prime Minister; awareness rally through the streets; national meeting with the government ministers; shake-table demonstration of traditional building models with and without seismic safety elements; children essay/painting competition; street drama on earthquake safety, etc. Numerous publications such as information leaflets, calendars,

earthquake-resistant construction posters were distributed to the public. Nowadays, ESD program has been adopted by Local governments and widely observed in 753 municipalities (NSET, 2018; Dixit & Shrestha, 2008).

## ii. Shake Table Demonstration

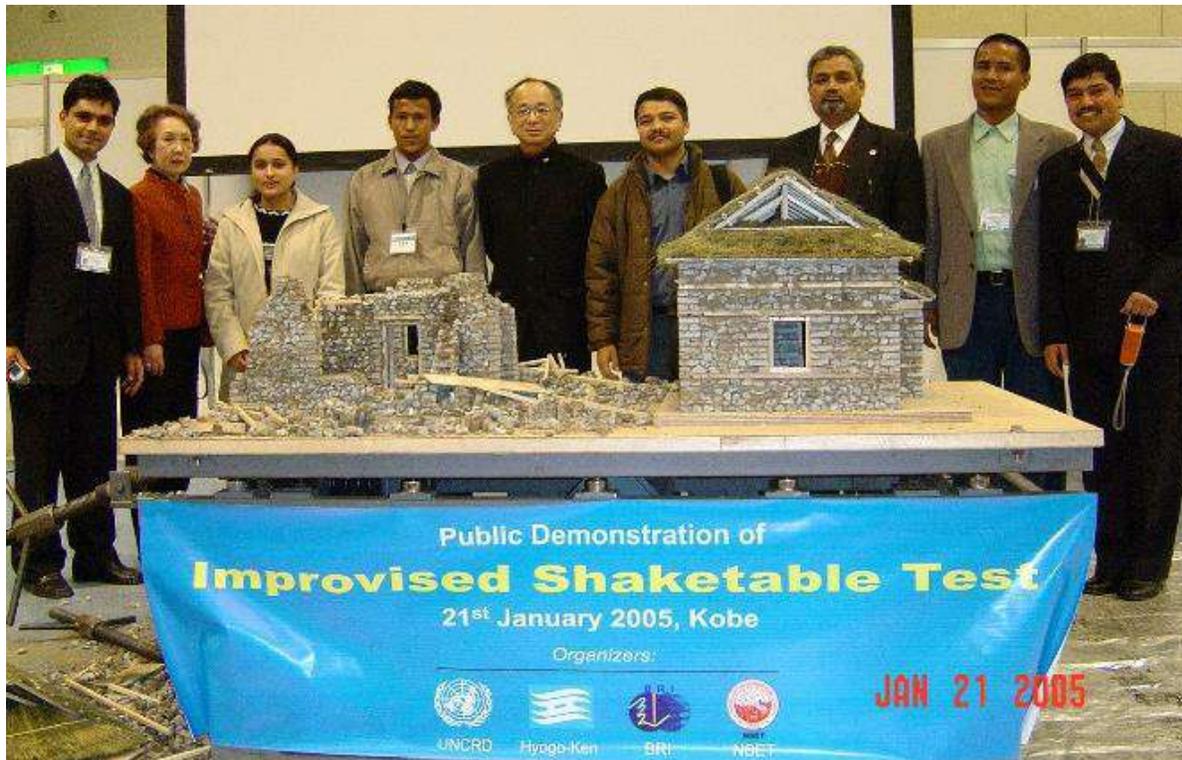


Fig. 5: NSET Demonstrated its first Shake-table in January 1999

The Concept of Shake Table Demonstration is to place small-scale model building side by side on the vibrating table and public can observe the consequence through the live demonstration of earthquake resistant construction technology and normal construction. NSET used shake table demonstration for awareness raising in schools and communities. This innovative tool has proved "Seeing is Believing" as an effective awareness raising tool (Upadhyay, 2004). The concept of Shake Table Demonstration has won the "Tech Museum Award" in 2001 from the Microsoft Education Award for its low-tech innovation to reduce risk from earthquakes. This concept has been demonstrated in many cities in Nepal and also in many countries in Asia Pacific Region by NSET and its partners including at the World Conference in Disaster Reduction (WCDR) organized by UNCRD at Kobe, Japan in 2005 (NSET, 2018).

## iii. Awareness raising through mass media campaign

NSET has been collaborating with local FM Radio Stations in different areas of the country to spread awareness messages on earthquake/disaster safety to wider population. Several local radio and TV programs aired earthquake safety and preparedness messages on a regular basis using NSET's publications as the basic guide for mass education.

NSET has also collaborated to broadcast the television programs in last several years. NSET provides expert knowledge to the program. Increasingly, NSET management and professionals are invited by national radio/TV channels to deliberate on aspects of earthquake risks. The program targets the homeowners to convince them on the possibility and affordability of making their homes earthquake-resistant and making their family safe by learning earthquake preparedness; and targets policy makers to discuss on the DRR approaches and the need of the country (NSET, 2018; Dixit & Shrestha, 2008).

### School Earthquake Safety Program (SESP): School to Community Resilience

NSET initiated School Earthquake Safety Program (SESP) in 1997 with the aim to ensure safety of school children and to encourage local communities to follow the earthquake safe construction practices through the demonstration safer school building construction and retrofitting of old buildings. SESP is a holistic program of safer construction of school buildings, conducting mason trainings, providing awareness sessions and orientation to teachers and students, providing community awareness and engagement, and ensuring involvement of multi-stakeholders including relevant government authorities in the process. The concept of school safety has now been adopted by the government, and relevant programs are now being led by Center of Education and Human Resource Development (CEHRD) under the Ministry of Education.



**Fig. 6: Bhuaneshwori Lower Secondary School, Bhaktapur, the first retrofitted school by NSET, above pictures are of before and after retrofitting in 1997 (Source: NSET Archive)**

SESP approach was tested successful by 2015 Gorkha Earthquake. Before the Gorkha Earthquake NSET in close collaboration with Department of Education and in support of USAID/OFDA and other donors was able to retrofit nearly 300 school buildings. All these buildings stand strong without serious damage or collapse during the earthquake and also served as shelters to the local community during the continued aftershock periods (NSET, 2018).



Cumulative Date (1994-2021)

Fig. 7: NSET's Efforts on Making Schools Safer (Source: NSET)

## Enhancing Preparedness for Emergency Response

Enhancing preparedness for emergency situations has been another major priority areas of NSET, and it has been implementing preparedness elements through its program and projects.

The following are NSET's main efforts on enhancing preparedness for emergency response.

### i. Community Preparedness for Emergency

Community preparedness is the key for ensuring earthquake safety, everybody in the community has to be aware of earthquake consequences and get prepared for it. Being prepared alone will not work always for others. Therefore, a massive program for preparing individuals from all communities and different stakeholders was realized. Keeping this in mind, NSET incorporated Disaster Preparedness and Emergency Response activities through various projects in the past 28 years. Earthquake orientation and evacuation drills are one of the various initiatives that NSET carry out on demand of stakeholders (NSET, 2018).

Several training courses have been developed targeting various stakeholders involved in earthquake risk reduction. These courses aim to raise awareness of individuals and communities on the associated hazards and vulnerabilities, prepositioning the emergency supplies, develop response plan, and strengthen the coping capacity and resilience, using locally available resources. Basic Emergency Medical Response (BEMR), Community Search and Rescue (CSAR), Damage Assessment Training (DAT-1001) are few to name the community-based trainings. Besides these trainings, NSET also initiated the prepositioning of Emergency Supplies for local community so that the first responder could use those tools to rescue at local level, preparation of Go-Bag, and Household Emergency (HH) Kit for families and household as well as positioning of community search and rescue (CSAR) kit for institutions and community, pre-positioning of Emergency Rescue Store (PPERS) in 8 strategic locations within Kathmandu valley (NSET, 2018). Figure 8 shows different community preparedness activities.



Basic Emergency Medical Response (BEMR) Training      Community Search and Rescue (CSAR) Training

Fig. 8: NSET conducting BEMR and CSAR training in the community



Fig. 9: 2015 Gorkha Earthquake Search and Rescue chart (Source: EERI, 2016)

Above chart shows the significant importance of community level preparedness and response capacities at local communities. This shows the data related to rescued victims during 2015 Gorkha Earthquake. There were 76 international fully equipped and self-sufficient international SAR teams and emergency response capabilities of the three national security organizations, namely the Nepal Army, the Armed Police Force and the Nepal Police, and the community members in the affected areas (Nepalese Army, 2015; APF, 2015). The ratio of live victim rescued by local responders vs national responders vs. international responders was 1000:225:1. This demonstrates the significance of community level preparedness to be associated and closely linked with the professional response capacities and the international support; these all three need to work hand in hand.

**ii. Preparing Search and Rescue Capacity in the Country and Region**

NSET implemented Program for Enhancement of Emergency Response (PEER) since 2003 till 2021 with aim to enhance the overall disaster preparedness and emergency response capacity of South Asian Countries. PEER conducted various professional training courses across the region. Community Action for Disaster Response (CADRE), Collapsed Structure Search and Rescue (CSSR), Medical First Responder

(MFR), Hospital Preparedness for Emergencies (HOPE), and Swift Water Rescue (SWR) course are the core emergency preparedness courses under the program. Fig. 9 below shows the PEER Program achievements in South Asian Countries since the beginning till 2021.

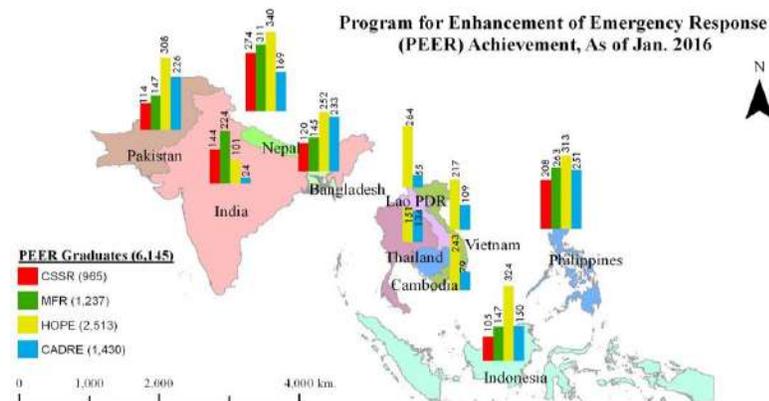


Fig. 10: Number of Professional Responders developed in PEER program countries

## Preparing Hospitals for Emergencies

Hospitals and health facilities play vital role for lifesaving during and immediate aftermath of any disaster and large-scale incidents such as earthquake. They must provide health services even more efficiently than in a normal condition. Hospitals, health facilities and health workers should be ready and able to function well in the emergency time therefore with aim to prepare hospitals and health facilities for emergency response.

### a. Seismic Vulnerability Assessment of Major Hospitals of Nepal

NSET in close collaboration with the Ministry of the Health, Government of Nepal conducted two studies “Structural Assessment of Hospitals and Health Institutions of Kathmandu Valley” and “Non-structural Vulnerability Assessment of Hospitals in Nepal” in year 2001 and 2003 respectively (NSET, 2018). NSET undertook these assessment works as per the Health Sector Emergency Preparedness and Disaster Response Plan Nepal prepared by the Disaster Health Working Group, Epidemiology and Disease Control Division (EDCD), Department of Health Services (DHS), the Ministry of Health and WHO-Nepal. The findings and recommendations of both the studies have been very helpful for reducing vulnerabilities in the hospitals. The recommendations for structural and non-structural vulnerability reduction have been implemented and the hospitals are made prepared for disasters.

### b. Hospital Preparedness for Emergencies (HOPE) Course

NSET has been collaborating with key institutions to organize Hospital Preparedness for Emergencies (HOPE) courses. HOPE course is targeted to build the understanding and capacities of senior management and medical professionals of hospitals and health institutions for enhancing preparedness of hospitals for emergency situations. HOPE was implemented with aim to impart knowledge and skills to healthcare medical personnel and managers to develop risk reduction and disaster response plans to enable their facilities during complex emergencies such as earthquakes, floods, epidemics, fires and other mass

casualty incidents. HOPE graduates have vital skills in hospital disaster planning, mass casualty emergency management and effective response. HOPE trainees learn about multi-hazard risk management to make their healthcare facilities safer. More than 2,500 HOPE graduates have been developed in the countries of South Asia.

During the 2015 Gorkha Earthquake, with more than 25 hospitals and 1,000 other health facilities destroyed in the affected districts; however, the medical response quickly picked up. A review one year later stated that the health sector's response to the earthquake was rapid, well-coordinated and tailored to the needs of the affected population. Seismic retrofitting of few hospitals in Kathmandu and training of staff in mass casualty management and existence emergency response plans helped much (Dixit & Thakuri, 2021).

### Building Code Implementation: Journey from Awareness to Institutionalization

The journey of Building Code implementation was initiated by NSET through the implementation of "Kathmandu Valley Earthquake Risk Management Project (KVERMP)" in 1997-1999. Under KVERMP, NSET conducted various activities contributing towards promoting earthquake safety which includes assistance to municipalities and municipal professionals in implementing seismic provisions of building code; trainings to the engineers, architects, technicians, contractors and masons on the aspects of earthquake-resistant construction technology; seismic vulnerability assessment of critical facilities, lifeline structures and public buildings within Kathmandu valley, suggest vulnerability reduction measures and assist in implementation of suggested measures and design.

Although the building code was developed in 1994 and made mandatory in 1998 through Nepal Building Act, the formal implementation was started only in 2003. Then Lalitpur Sub-Metropolitan City (LSMC) became the first municipality in Nepal to announce the mandatory enforcement of NBC into the building permit process. NSET and other professional groups supported the initiative of LSMC. Since then, several municipalities have initiated the enforcement of building code.

As a replication process of the successes of the KVERMP, NSET successfully piloted "Municipal Earthquake Risk Management project (MERMP)" in Banepa, Dharan, Vyas and Pokhara Municipalities in 2003. Through this program, NSET embarked upon the process of promoting earthquake safer construction using 4 strategies (a) Raising awareness (b) improve capacity of Engineers (c) improve capacity of masons, head masons and petty contractors (d) institutionalize quality control of construction materials. Dharan Municipality announced the enforcement of building code in 2007.

NSET implemented 'Nepal Earthquake Risk Management Project (NERMP)' during 2005-2010 as a logical continuation of long-term effort in reducing earthquake risk in Kathmandu Valley and Nepal. NSET conducted "Earthquake Safety Construction Skill" training for masons and construction technicians in Bhadrapur, Gaur, Bhaktapur Thimi, Kirtipur and Kathmandu Metropolitan City. In 2008, NSET implemented 'Municipal Disaster Risk Reduction Program in Nepal (MDRIP)' under the program (GRIP) of UNDP/Bureau for Crisis Prevention and Recovery (BCPR). NSET was involved directly or indirectly to assist municipalities to implement the building code effectively.

Despite efforts by different organizations including NSET, till 2011, there were only few municipalities in Nepal where building code has been officially enforced. Among them, Dharan and Lalitpur were effectively implementing the building code while municipal areas of Panauti, Banepa, Ilam, Vyas and Hetauda also started implementing the code.

NSET developed a program 'Building Code Implementation Program in Nepal (BCIPN)' and implemented in 30 municipalities from 2012-2017 with funding support of USAID/OFDA. NSET worked in close collaboration with these 30 municipalities under the direction of the Ministry of Urban Development (MOUD) and Ministry of Federal Affairs and Local Development (MoFALD) and the supervision of the government Department of Urban Development and Building Construction (DUDBC). BCIPN focused on assisting the municipal governments in enhancing their capacities to develop and administer the building permits and control system for ensuring improved seismic performance of all new building construction.

BCIPN focused on three main components to implement from local to national level. The first is raising awareness of local community, related stakeholders and government representatives on root cause of earthquake risk and possible ways to mitigating the risks. Secondly, building the capacities of the construction workforce - local masons and contractors on earthquake-resistant construction technology; and building capacities of engineers and technical professionals to design and supervise construction of safer building is another major strategy. Thirdly build the institutional capacity of municipalities to effectively enforce building code and institutionalize the code compliance system.

BCIPN assisted the municipal governments in enhancing their capacities to develop and administer the building permits and control system properly for ensuring improved seismic performance of all new building construction. This entails, on one hand, helping the municipalities to develop an effective mechanism for building code implementation, and on the other hand, enhance earthquake awareness of the residents and technical knowledge of the municipal official on aspects of earthquake risk management including earthquake-resistant design and construction.

Under BCIPN program was carried out during the program period to understand the change in building drawing and construction practices, to identify the existing non-compliance parameters for monitoring and planning for building code implementation system. A total of 5,796 buildings on design/drawings and 5,045 buildings on field were assessed in 30 program municipalities. In those 30 municipalities, the average compliance rate in drawings improved from 15% in 2012 to 82% in 2016 and 99% in 2018, and in actual construction, compliance increased from 19% in 2012 to 77% in 2016 and 97% in 2018. These results indicate that Nepal's municipalities can enhance the seismic performance of new buildings but need technical assistance in present context of Nepal (NSET, 2019).

## Reconstruction for the Resilience Building

Nepal was hit by 7.6 magnitude earthquake on 25<sup>th</sup> of April 2015 following more than 300 aftershocks greater than 4.0 magnitude killing more than 9,000 people and damaging 8 million houses (NPC, 2015). Nepal homed into earthquake reconstruction by establishing the National Reconstruction Authority (NRA) which was tasked to build back better in the 32 earthquake affected districts in five year period. To support the efforts of National Reconstruction Authority (NRA) and other ministries and departments engaged in

post-earthquake reconstruction, NSET implemented Baliyo Ghar Program with the support from United States Agency for International Development (USAID). Baliyo Ghar (meaning ‘Strong House’) program implemented during October 2015 – September 2021 aimed at promoting earthquake safer housing reconstruction through owner-driven approaches and provided socio-technical assistance to the beneficiaries to ensure safer reconstruction in selected villages/municipalities of 4 districts (Dhading, Nuwakot, Dolakha and Kathmandu) (NSET, 2021).

In shorter-term, the program aimed at ensuring disaster resilient reconstruction of all houses in the program areas; whereas, for longer-term, the program aimed to establish a system of disaster-resilient construction to achieve the goal of disaster-resilient communities in Nepal. Baliyo Ghar program has made key contribution to develop total 14 national level policy documents to support housing reconstruction.

About 63,000 households were benefited from the direct approach of intervention. Baliyo Ghar program oriented approximately 1,47,00 people within the program districts, trained 20,000 people (including 13,474 masons, 2554 engineers, 635 Social mobilizers, 3,202 government officials and 139 instructors) in total and contributed significantly to capacity building component of the National Reconstruction campaign (NSET, 2021).

BG program was successful in changing the perception of people towards disaster-resilient construction techniques. Perception Score of communities on possibilities of disaster resilient construction increased by 60% from the baseline value which is a tremendous progress in terms of changing the mindset of people towards risk reduction.

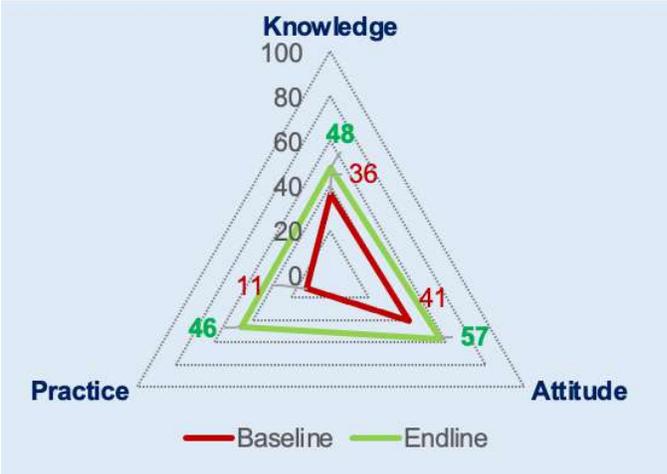


Figure 1: Knowledge, Attitude and Practice (KAP) Scores of respondents in Baseline (2016/17) and End line (2020) Risk Perception Survey

As a direct result of the capacity building activities for masons and other construction stakeholders, a significant proportion of house owners in Baliyo Ghar Program areas were able to employ trained masons in construction. The survey results showed that overall, 86% of the house owners employed trained masons in construction (NSET, 2021).

It was observed that almost 95% of the houses built in the Baliyo Ghar program area were compliant and they have already received the third tranche of the reconstruction grant support (NSET, 2021).

## Scientific Collaboration for the Multi-hazard Risk Reduction

Bringing “substantial change in the application of technology to the many facets of earthquake disaster management for saving the lives of the people” has remained the guiding philosophy of NSET ever since its inception, with this motto NSET has been collaborating with scientific institutions and academia for enhancing the knowledge on earthquake hazard and risks, to identify possible risk reduction measures, and to find ways to effectively implement risk reduction measures in the communities. The following are few important recent scientific collaborations of NSET.

### **i. Collaboration with GEM for enhancing understanding of seismic hazard-risk assessments**

The Global Earthquake Model (GEM) drives a global collaborative effort in which science is applied to develop high-quality resources for transparent assessment of earthquake risk and to facilitate their application for risk management around the globe. Open Quake is a web-based platform and offers an interactive environment for modeling viewing and managing the earthquake risk developed by GEM (GEM Webpage). It is an open source but at this stage only risk professionals can use the system for risk assessment. NSET now is using this Open Quake platform for risk assessment. Since 2014, NSET sits in the Governing Board of GEM. NSET served as one of the members in the Science Board of GEM during 2009 – 2012. GEM and NSET have jointly organized several training courses, workshops and learning events in Nepal. Several NSET and other Nepali professionals also attended GEM training courses in GEM Foundation Pavia, Italy.

### **ii. Collaboration with USGS for seismic hazard studies**

NSET has been working with USGS along with Department of Mines and Geology (DMG), Government of Nepal with aim to enhance our national capacity in earthquake risk reduction since 2015. USGS has been supporting for a collaborative scientific study of earthquake hazards through establishing network of low-cost accelerometers, and by capacity enhancement trainings on seismic hazard assessment methodology and tools, earthquake monitoring, aftershock forecasting, micro-zonation etc. to Nepalese professionals.

### **iii. NSET-Durham University Collaboration: Sajag -Nepal Project**

NSET in leadership of Durham University and collaboration of many international and national research institutions has been implementing Sajag-Nepal Project with aim to studying disaster risk in the context of wider transformational change in Nepal through 1) development of Earthquake-triggered hazard chain - National-scale dynamics of population exposure over different time scales, 2) Monsoon-triggered hazard chain -Capacity to model average and forecast monsoon impacts on runoff and slope stability, 3) Upscaling of landslide monitoring and modelling to multi-hazards at national scale, and 4) Co-produced guidelines on mountain hazard chain for practitioners and researchers.

### **iv. Modelling Exposure through earth observation routines (METEOR)**

NSET together with GEM, British Geological Society, ImageCat, UK Space Agency and other partners implemented METEOR project in Nepal with aim to co-developing innovative Earth Observation (EO) protocols to deliver robust national-scale hazard, Exposure, and vulnerability data, focusing on Nepal and Tanzania which includes multi-hazards such as landslide, earthquake and flood. These multi-hazard data has been integrated in the national disaster database called "Bipad Portal" in Nepal.

**v. Tomorrow's Cities: Reducing disaster risk for the poor in tomorrow's cities**

Tomorrow's cities is an interdisciplinary research hub which is working globally to bring multi-hazard disaster risk management to the centre of urban policy and practice. This project is being implemented in Istanbul, Quito, Nairobi and Kathmandu under the leadership of Edinburgh University and with funding support from Global Challenge Research Fund (GCRF). In Kathmandu NSET is working together with Practical Action, Tribhuvan University (IOE), South Asia Institute of Advanced Studies (SIAS), National Disaster Risk Reduction Centre (NDRC), Nepal Development Research Institute (NDRI), and Lumanti.

This project is developing a two-stage Tomorrow's Cities Decision Support Environment (DSE) based on detailed multi-hazard scenarios co-developed with stakeholders. The decision support system will provide a transparent and rigorous assessment of potential risk inherent in urban design, housing and infrastructure planning, around which decision makers and those at risk might consider the risk consequences of particular decisions.

**vi. Risk Informed Landslide Management in Nepal's Hill Area**

Risk Informed Landslide Management in Nepal's Hill Area Project (Pratibadha) is being jointly implemented by a consortium of People in Need (PIN), Scott Wilson Nepal (SWN), NSET, Durham University (DU), and Northumbria University (NU) with funding support from European Civil Protection and Humanitarian Aid Operations (ECHO). The main objective of the project is strengthening local disaster risk management in Nepal's highly exposed rural hill areas through participatory risk-informed landslide management. Increasing awareness of landslide risks and mitigation measures, building capacities of local stakeholders for landslide risk reduction and supporting for formulation of appropriate policies and plans are major components of the project.

## Major Achievements of Past 3 Decades

National Society for Earthquake Technology – Nepal (NSET) has been collaborating with various agencies of Government of Nepal, communities, academia, private sector, and number of national and international organizations during its 28-years long journey. There are many achievements and lessons learnt during this course of action.

NSET has partnered and provided technical assistance to more than 60 municipalities for the implementation of building. These efforts have been instrumental in effective implementation of NBC and institutionalize the building code implementation systems in the municipalities. With the intervention, code compliance has improved significantly from 20% upto 75% in those municipalities and building code compliance systems have been well established.

Majority municipalities have now entered the process of implementing NBC and ensuring safer construction practices as well as institutionalization of the efforts. These efforts are gradually expanding towards Rural Municipalities as well. While the task of building capacity and developing institutionalized systems on NBC implementation in all 753 local governments is much challenging. This is almost impossible for one single agency to take over this huge responsibility. Collaborative efforts of government agencies, non-government organizations and private sector are the must to achieve this.

During reconstruction and recovery works after 2015 Gorkha Earthquake, appreciable achievements have been made in sectoral policy formulation, capacity building & skills enhancement, public awareness and collaboration & coordination amongst various stakeholders. While contributing to Nepal's resilient reconstruction campaign, NSET provided technical support to ensure affected families and communities build resilient housing and other infrastructures. Nepal has accomplished massive reconstruction after 2015 Gorkha Earthquake, and need is now to consolidate and institutionalize all those knowledge and learnings acquired in due course of reconstruction for the sake of resilience building in our communities.

Nepal has been doing remarkable works in promoting school earthquake safety. School retrofit is one such much commendable effort. Under the leadership of Ministry of Education and Center for Education and Human Resource Development (CEHRD), NSET has worked with schools and local communities for making resilient schools. NSET has so far contributed for retrofitting for 300 school buildings in different parts of the country.

Significant level of Emergency Response Capacity has been achieved at various levels. NSET has contributed to develop more than 600 professional instructors and 2,400 trained responders on emergency health response, search and rescue operation, hospital preparedness for emergency in Nepal and contributed to develop more than 10,000 emergency response professionals in the region. Regional level response coordination and support exchange in view of responding to disaster emergencies have been enhanced.

2015 Gorkha Earthquake has exposed the fact that communities are the first responders to the disaster emergencies. Community based disaster preparedness and capacity building efforts conducted by NSET collaborating with local governments and communities have been a key to build community resilience. NSET continues implementing community level efforts on disaster preparedness, response capacity and curricula-based training activities.

The awareness activities on earthquake safety, trainings on resilient building construction & capacity building, various policy instruments for effective implementation of building code and ensuring safer construction have been the major achievements of Nepal's efforts towards enhancing earthquake safety. Till now, NSET has been able to train more than 72,000 individuals on disaster risk management, preparedness, earthquake resistant construction and many aspects of disaster/earthquake risk reduction. More than 700,000 persons have got orientation on aspects of earthquake safety. During past 28 years of NSET's operation, more than 800,000 persons have been directly benefitted while more than 4.6 million persons have been indirectly benefitted. **But, still these numbers are not enough considering the high level of disaster risks. Awareness has been appreciably increased but that is yet to translate into**

**practice. There is long to go for sustained culture of resilient construction and preparedness at community level.**

Due to the collective efforts of many, Nepal has achieved significant progress in disaster risk reduction particularly on policy formulation, planning and implementation, and capacity building. Guided by new Constitution of Nepal 2015, the country has enacted Local Government Operation Act, 2017 that clearly outlines the role and responsibilities of local government in regard to disaster risk management. The Act does not limit to response-centric approach, rather it embraces holistic approach of disaster risk reduction, and views disaster risk reduction efforts to implement at local and community level. Many municipalities (urban/rural) have started preparing and implementing Local Disaster and Climate Resilience Plan (LDCRP). Nepal has formulated new Act, Policy and Strategies for disaster risk management, and a new entity “National Disaster Risk Reduction and Management Authority (NDRRMA)” has been established as envisaged in policy documents that has commenced operating in planned ways. This has provided a more conducive environment for organized and sustainable disaster risk reduction efforts in Nepal.

## Lessons and Way forward

While implementing earthquake risk management efforts at central to local levels during the past 3 decades, there have been several important lessons learned. These key lessons are:

- Collaboration with all relevant institutions and individuals is the key. Disaster risks cannot be reduced by one single agency and even only by the government institutions. Therefore, collaboration among various players is the key element for the successful disaster risk management.
- Mixed approach of bottom-up and top-down is required at all levels. Policy formulation, regulation and enforcement from central level is essential which needs to be support by awareness at the grassroots and community levels. Horizontal networking and exchanges among the stakeholders is also important.
- Locally available, affordable, and cost-effective solutions for reducing physical vulnerabilities are must.
- We need critical and innovative approaches and collective actions to reduce the risks drastically
- Use of simple language to help understand complex scientific knowledge and solutions
- Transparency in all activities and financial matters is critical.
- Promote and work with local champions and local leaders.
- A continuum of awareness raising, capacity building and institutionalization is the pathway of sustainable disaster risk management.
- We need to have a critical mass of people to ensure the continuity and sustainability of disaster risk management at local levels. Based on the experience of working with local communities and municipalities, we need to reach to 30% of people at communities, 50% masons, construction workers, engineers and technical professionals, and reach to 20% municipalities

so that the DRM efforts becomes locally owned and self-running in a sustainable manner. We have not yet reached to this critical mass of people, and we need to continue working on it.

- Most importantly, continued and persistent long-term efforts is the core to establish the feasibility of disaster risk reduction and resilience.

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# Indigenous Technologies for Disaster Risk Reduction in Nepal

Prof. Dr. Jiba Raj Pokharel

## Abstract

Nepal has been facing disasters since time immemorial. Nepali people have developed some indigenous technologies to reduce the risk. With the passage of time, such technologies have been sidelined due to the arrival of modern technologies. But such technologies can be revived and used for both the disasters coming from above the ground such as fire, wildfire, landslide, flood, death due to wild animals and climate change and those coming from below the ground such as earthquake. This article focusses on such indigenous technologies which can be used to address the aforementioned disasters.

**Key words:** indigenous technology, flood, landslide, wild fire, climate change, earthquake

## 1.0. Introduction

Disasters have been occurring since time immemorial. Our ancestors have been using different means for addressing disasters mobilizing local skill, manpower and resources. Unfortunately, this local knowledge has been in shadow since quite a long time. Now, wisdom has again prevailed leading to the realization that the indigenous and local knowledge should be researched and used if found scientific and rational. In this context, different charters such as Hyogo Framework and Sendai Framework have focused on this aspect. The local knowledge is being increasingly used in the contemporary times (Cuatton et al, 2020, Dube et al, 2019).

This article focusses on the indigenous technologies that were underway in Nepal which however have been put in the backburner for the time being. The main objective of this article is to use them as they are simple and provide local employment duly using local material and manpower.

## 2.0. Indigenous Technology

The word indigenous has its origin in the *latin* word *indigenus* which means born or originating in a particular place. This word is said to have been used for the first time in the year 1640 ([en.wikipedia.org/wiki/Indigenous\\_peoples](http://en.wikipedia.org/wiki/Indigenous_peoples)). At that period King Laxmi Narasimha Malla, the father of famous Pratap Malla was ruling in Kantipur (Sharma, 1951). Pratap Malla constructed Ranipokhari pond which helped towards the prevention of flood as the rain water would collect in the pond and halt immediate flooding. The pond had dried up but now it has been restored back to its glory with a beautiful temple at the center. This temple also had been affected in several earthquakes thereby changing its form including the last 2015 Gorkha earthquake and it has been reconstructed in its original *granthakut* style.

Technology comes from the word Greek word *technologia*. It is said to be the combination of two words *techne* and *logia*. *Techne* means art, skill or craft and *logia* means study of ([www.defit.org/technology/](http://www.defit.org/technology/)).

Indigenous technology is thus the use of skill or craft which is local and born in a particular place. In this article, the indigenous technology used for disaster risk reduction have been addressed.

## 3.0. Recommendation of local knowledge for Disaster Risk Reduction

Several Global Conferences on DRR, such as Yokohama Declaration (1994), Hyogo Framework of Action (2005-2015) and Sendai Framework (2015-2030) have recommended for the use of local knowledge as well as indigenous technologies in DRR. The Yokohama Declaration has suggested for the application of traditional knowledge, practices and values of local communities for disaster reduction. Similarly, the Hyogo Framework of Action has recommended for the incorporation of traditional and indigenous

knowledge. The Sendai Framework also has alerted to ensure the use of traditional, indigenous and local knowledge and practices, as appropriate, to complement scientific knowledge in disaster risk assessment.

#### 4.0. Indigenous Technology used in Nepal

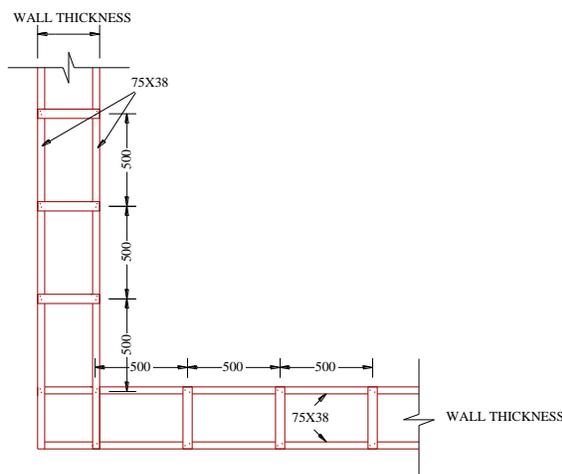
There are various technologies that are in use in Nepal. The most glaring is the earthquake technology used for the case of stone masonry buildings in Jumla. Jumla is the origin of Nepali literature and culture and it is located in the north west part of Nepal across the Annapurna Himalayas.

This technology consists of putting the timber ties in the sill as well as the lintel level of the stone masonry construction. This can be seen in the photographs of the house shown below. Similar kind of a technology is prescribed for the construction of masonry buildings even now.



(Houses of Jumla)

Timber members 75 x 38 unit??mm? in section are used at about 500 center to center in the construction of the masonry buildings in order to make them earthquake resistant.



(Detail of earthquake resistant technology used in masonry buildings at the present) is there a source??

These buildings belong to the Licchavi period in Nepal or even earlier. Because a Licchavi period inscription is existing in the cave of Jumla Lamthada in Jumla(4). The Licchavis are said to have ruled from

the first century to 879 AD (Mary, 5). So, these buildings must have been constructed earlier than the first century.

Such indigenous technologies have performed admirably well in Turkey also. When the earthquake occurred in the 1999 Marmara earthquake which resulted in the death of 25000 people. Very few persons were trapped in the traditional buildings (Rai Pribat et al, 2019).

## **5.0. Two Types of Disasters and the application of Local Knowledge**

The natural disasters primarily occur from below the ground such as earthquake and from above the ground such as fire, wild fire, lightning, flood, landslide and climate change. The use of indigenous knowledge and its direct as well as derived application can address all the aforementioned disasters.

### **5.1. Disasters from above the ground**

The disasters that hit the land from above the ground are the fire, flood, landslide, lightning, wild fire and the incoming pollution and those due to climate change.

#### **5.1.1. Fire**

Fire is one of the major disasters that trouble people in Nepal especially in the Terai and also in the hills and the mountains where the buildings are made of thatch roofing.



(The thatch roof has gone but the interior is intact because of mud plaster amidst the charred timber posts)

Fire has been taking lesser number of lives compared to flood and landslide but the total physical damage is more when compared with the flood and the landslide. In the last two decades (1983-2003), 1293 people are said to have lost their life to the fire. If we take the number of the missing persons, the loss is much more. The major factor contributing to this state of affairs is the fire that starts from a small kitchen in areas of high population density in Terai generally.



(Mud plaster prepared by mixing mud and pieces of thatch and straw)

According to Nepal Living Standard Survey, III, 18.1% of the people in Nepal use thatched roofs in their houses. 21.9 per cent of the houses in Nepal in the rural areas have a roof made of thatch (Central Bureau of Statistics, 2011). These houses are very vulnerable to fire. 34.5 per cent of the poorest quintile use these kinds of houses. Due to its fire vulnerability people have been using GI Sheet roofing which is uncomfortable in the summer as well as winter. The aforementioned survey has shown that people use 28.4% of the GI Sheet roofing and 20.3% of concrete roofing in Nepal at the present.



(Plastering with mud plaster)

### **5.1.2. Use of indigenous Technology for fire prevention**

This indigenous technology uses mud plaster which is put above the roof. It is then covered by silpauline plastic sheet. When the fire catches from below it does not spread because the mud plaster does not let air to go up due to lack of convection. The fire coming from the outside only burns the plastic sheet but it is extinguished due to the mud below.



(Demonstration by burning the roof with fire and kerosene)

The roof does not burn even after subjecting it to the fire flame. It also does not burn after spraying with kerosene or diesel.

### **5.1.3. Fire resistance technique for short circuiting**

Many buildings catch fire because of short circuiting. For this, if the wiring is given an outer layer of lime stone powder, it prevents the burning because the high temperature of short circuiting decomposes the Calcium Carbonate into Calcium Oxide and Carbon-di-oxide (Mitra, 1963). Like in a fire extinguisher, the carbon di oxide prevents the fire from spreading.



(Photograph of fire in the wire due to high current while the conduit with lime remains unaffected)

This provision should be made in the building code. Generally, a 25 mm dia conduit is used in concealed wiring. The employment of 63 mm conduit will accommodate the lime powder as suggested.

## **5.2. Flood, Landslides, Wild Fire, Lightning, Climate Change**

All the aforementioned disasters can be reduced to a large extent through the construction of the ponds. Such ponds need to be constructed from little below the mountain tops along both side of the gullies. Part of the rain water that is contained by these gullies is diverted to the pond so that the remaining rain water will maintain the gully ecology. The pond is connected to an overflow pipe whose discharge is again directed to the gullies or natural storm water drainage channel.

The ponds have several advantages. They prevent floods (Wenjun Chen et al, 2019) and check the flow of sediments as well as landslides (Mingquan Lu et al, 2019). Their positioning in the forest allows drinking water to the animals which would otherwise come to the settlements causing trouble to the villagers (Acharya Krishna Prasad et al). It discourages wildfire due to the rise in humidity and fall in temperature. Most forest area attracts lightning (Qianqian Wang et al, 2018,) which would otherwise fall on comparatively dryer settlements. It contributes to climate change as the pond water dissolves carbon dioxide at 1.5 kg per cubic meter. The carbon dioxide at 412 ppm at the present is about 75 mg per cubic meter. (Source??) So, the pond water can dissolve up to twenty times the carbon dioxide in the air. The water percolates inside the ground fast. It was seen very prominently in Chure hills. The Carbon dioxide helps in photosynthesis giving rise to the growth of the vegetation making the hills lush green which otherwise appears high and dry with little vegetation.

At the present, research is underway to find ways to store carbon dioxide below the ocean and in the mountains. But it requires a lot of energy. The hill ponds perform this job by making use of gravitation which is free energy.

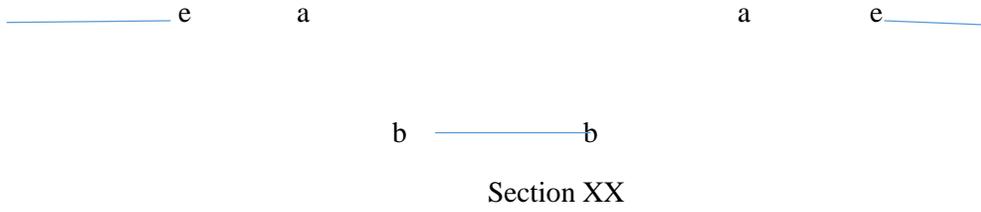
### 5.2.1. The Different Kinds of Ponds

The sizes of the hilly ponds vary but they can generally not be more than 26 ft square on account of little flat land available in hilly areas. The depth is 4ft because digging deeper is not easy. Mechanical devices like JBC (full form??) cannot be used in steep terrains. They have to be dug manually. The height of the embankment of 1'6" and a freeboard of 6" make it 5 ft deep. The embankments are 9" to 1.5 ft high and 1 to 1.5 ft wide making it a trapezoidal section having horizontal sides at the top and bottom at 3' to 6' and the inclined sides of 1'6" to 3 ft and 9" to 1'6". The inclination is 2:1 in the interior and 1:1 in the exterior. The sizes can vary according to the excavated landmass and space available.

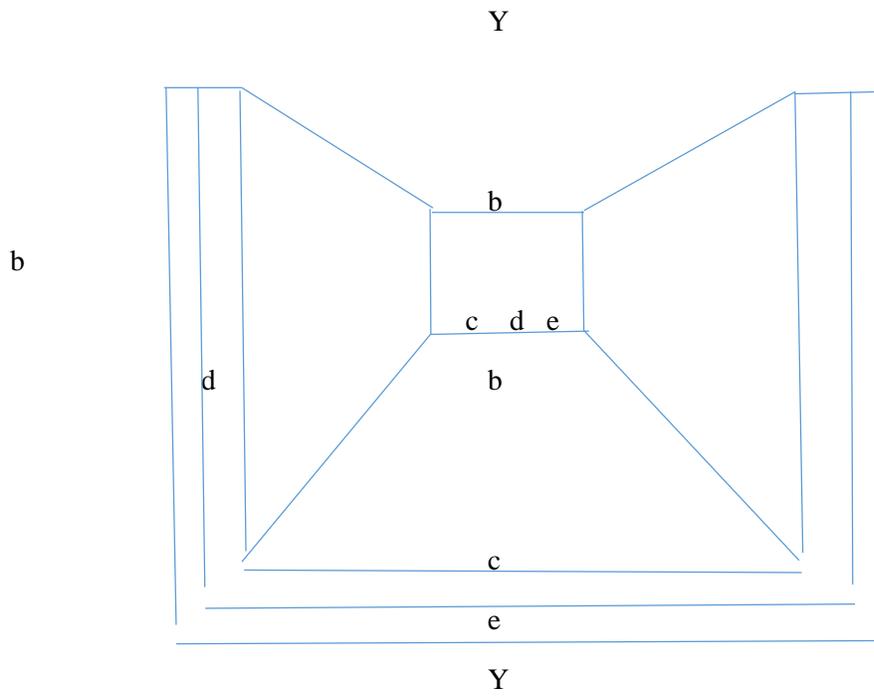
These ponds are constructed to interrupt the storm water and are thus constructed on either side of the natural channel. Half of the storm water is deposited in the pond and half of it allowed to flow downstream to maintain the ecology.

Sn	Size of excavated pond	Size of actual pond	Interior side	Inclination ab and bc	Depth d	Excavation cu ft	Total Volume of water cft
			b				
1	20' x 20'	26'x 26'	4	2:1 and 1:1	4'	576	1300
2	16' x 16'	20'x 20'	4		3'	500	650
3	12' x 12'	14'x 14'	4		2'	200	226
4	10' x 10'	12'x12'	2'		2'	76	160
5	8' x 8'	10'x10'	2'		1'6"	50	70
6	6' x 6'	8'x8'	2'		1'	34	35



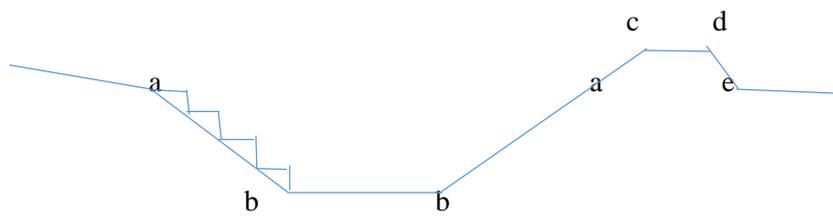


upstream



downstream

Plan



Section YY

The overflow pipe of the ponds is directed to the natural channel so that the excess rain water not accommodated by the pond flows down the natural channel mostly gullies.

### 5.2.2. Construction of Ponds in Bardibas, Kalapani, Mahottari

Some 101 Ponds have been constructed in Bardibas, Kalapani up the Chure hill and Kharpa Khotang with the support of Rotary Club Thamel and Nepal Academy of Science and Technology (NAST) respectively. The construction of the ponds was carried out by following the below-mentioned steps:



(Pond no 59 of 101 ponds in Bardibas)

- a. Identification of the pond location along rainfall drainage channels like gullies small and big
- b. Measuring its size for example 16 ft square with 4 ft by 4ft square at the center going down to 4 ft. depth depending upon the land availability
- c. Taking out the green top materials on the side.
- d. Digging the pond in such a way that it is 4 ft. deep at the center with a slope of 1:2 on the four sides.
- e. The dug soil is put in the three sides to construct a trapezoidal embankment 2ft. tall with a similar slope of 1:2.
- f. Putting an overflow bamboo pipe 4 inches in diameter.
- g. Putting back the green top materials so that the dug portion is restored back to its original position.

This construction is very simple as it contains only two activities- firstly of digging the ground and secondly of turfing and it employs 4 persons in a day to complete one pond. It can be seen in the above that all the natural materials have been used making it a nature-based solution. The overflow pipe is also of bamboo which is available in plenty in the villages.

### 5.3. Another indigenous technology for the prevention of landslides

In Nepal in the past the diversion of the storm water to the natural drains in either sides were carried out which was known as *Bhal Katne* or drainage technique. Similarly, the filling up of the cracks was done by

filling the crack with the neighboring soil and putting a green turf at the top which is known as *Chapari purne* or cracks filling.

The drainage and crack filling has been recommended by Huang (2015). It explains the relevance of the indigenous technique. This technique is very cheap and can be constructed with local material, skill and financial resource. This work was carried out in Siranchok, Gorkha with the help of Care International and DPNet. The crack should be observed carefully. Otherwise it can develop as it happened in this case. But the landslide has stabilized despite receiving heavy rainfall this year.



(Crack filling with Green turfing topping, Drainage canal in the left and the landslide in the right)

#### **5.4. Construction of Ponds in Kharpa, Khotang**

Altogether 75 pond of varying sizes have been constructed in Kharpa, Khotang district whose altitude varies from 500 meters to 2000 from the sea level. The ponds are mostly 12 ft. square on account of the steep slope and availability of lesser land to construct larger ponds. These ponds have been constructed around the settlement as the people demanded them very earnestly.



(Small pond of size 8' x 8')

In fact, there was one historic pond also called Ahal which was used as a dipping pond for the buffaloes and drinking water source for other cattle. But the pond got filled up due to the heavy migration of the people towards Terai. Later, a road was constructed and the pond went out of existence.



(Ponds of size 16' by 16' in Kharpa)

But the people staying in the pond downstream realized later the benefit of the pond. When there was the pond, the trees bore very juicy and large-sized fruits. The vegetables also grew fast providing lush green leaves. But after the pond was filled, the trees dried and the vegetables also started becoming small in size and lesser green and tasty. This news spread around the village and they knew the benefit of the pond. So the people were very demanding to construct the ponds in their land. It was however ensured that the ponds fell on the rainwater pathway to reduce the risks due to flood and landslides. The villagers were very happy because they not only had the pond in their land but also earned sufficient money on the eve of the national festival Dasain by digging the ponds themselves.

#### **5.4. Disasters from below the ground**

The most prominent disaster that hits the earth from below the ground is an earthquake. Earthquake travels in the form of, firstly, the body waves which are primary waves and secondly the surface waves which are Rayleigh and Love wave (Pankaj Agrawal et al, 2010). Though the body waves strike the buildings first, the surface waves do the most of the damage at the end. This technology dampens the surface waves considerably.

##### **5.4.1. Damping of the earthquake**

It has been found that the buildings using stone masonry in open joint have been resistant to the earthquake. The damping of the earthquake has been held responsible for this effect. In Pasargade, south west of Iran, the tomb of Emperor Cyrus constructed in the year 550 BC is still intact while several buildings have perished because of regular occurrence of earthquake (Bayraktar, et al, 2012).



(Tomb of Emperor Cyrus)



(Bhimshen temple)

In Nepal also during the excavation of the foundation of Bhai Deval located in Patan Durbar square, constructed in the year 1668 (Slusser, Mary Shepherd, 1982), open jointed stone masonry in the trench has been found. In the nearby Bhimshen Temple constructed in the year 1680 (Slusser, Mary Shepherd, 1982) similar structure was found.



Accordingly, a square was encircled by the open jointed stone masonry wrapped in plastic sheet in order to prevent the soil from entering. Two accelerometers were put outside and inside the square in a drum to save from rainfall. In the event of occurrence of the earthquake it was found that the wall damped the earthquake by about 50 per cent.



Parajuli et al had also carried out the experiment for the damping of earthquake by the open jointed as well as mud mortar stone wall. He found that the damping was 51 and 38 per cent respectively.



(Source: Parajuli Hari et al)

## Damping estimate for dry joint stones

Estimate	1	2	3	4	5	Avg.
1	52.16	56.23	56.29	54.75	54.3	54.5
2	46.12	46.06	48.29	46.23	46.63	46.8
Average equivalent viscous damping (%)						51.0

(Source: Parajuli Hari et al)

The settlement can be enclosed with such stone wall as shown below. In so doing, the houses will be subjected to only about 50 per cent of the earthquake intensity (the wall is not in scale). This wall can be curvilinear or of any other shape do suit the location of the buildings.



The trench has to be dug little wider than the actual 3feet by 5 feet depending upon the availability of stones. Because, the same stones that are found during digging are to be filled in the trench. The green turf, the stones and the soil are kept near the stone wall so that the stones can be put back without much problem. The soil is put at the top of the trench and green turf, (dubo in Nepali) can be implanted.

### 5.5. Conclusion

It can thus be seen that the indigenous technology can be used for the disasters coming from below like earthquake and those from above which are flood, landslide, lightning, wild fire and climate change.



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# **Strengthening Shock Responsive Social Protection in the context of Nepal**

Ram K. Gurung,

Free-lance consultant, DRM, Humanitarian actions and social protection

Corresponding email: [gurungram2003@gmail.com](mailto:gurungram2003@gmail.com)

## **Introduction:**

### **1. Social protection in Nepal**

Social protection program is one of the most popular programs being implemented by the Government of Nepal. In spite of lack of certain needed milestones and policy framework. The program has been going well since its conception back in 1994.

The constitution of Nepal has guaranteed the right to social protection (SP) and security, health, education, employment and housing as fundamental rights to its citizens. The constitution has also provided for other fundamental rights that are reserved for *Dalits*, women, children, people with disability and senior citizens. Along with it, social justice has been also embedded as a fundamental right as well as a guiding principle for state governance. All those who are economically poor, helpless and are not able to look after themselves, people with disability, endangered ethnicities, children, single women can enjoy the right to social security.

The core mandate of social protection and inclusion is to address vulnerability and poverty. In this regard, the policies have to prioritize the targeting of economically poor members across the communities, regions and gender. When these rights are included, they provide legal and constitutional grounds as well as the mandate to access all the programs related to social protection and make sure that not any of the eligible population are deprived of exercising their fundamental rights to get access to those services deliveries.

The social protection program in Nepal has been characterized by a scattered program scenario across various ministries and departments with a very restricted institutional capacity to coordinate across numerous programs/interventions. The transformation to federalism went along with the continuation of the same programs and delivery systems developed and implemented during the previous governance structure. At the same time, delayed capacity building of the local governments and kept continuing lack of clarity about their roles at the different levels in the changing scenario of a new federal structure added further complexity and challenges of the transformation. However, decentralization provides an ample opportunity to improve beneficiary selection and identification, coverage, adequacy and quality-of-service delivery at the local level.

Every government who comes to the power bolsters the SP programs to be their first priority. It is good for some reasons since the program targets the poor beneficiaries. However, it must have delivered through certain policy framework and indicator-based program as well as other set milestones rather than just distribution of fund on an ad hoc basis. It has become difficult to measure the actual impact of the program owing to the lack of well-defined milestones and indicators.

In 2015, Nepal was politically restructured in 3 tiers of governments including local, provincial and federal. Local and provincial governments now hold different types of political, financial, as well as administrative powers. There are some concurrent powers with the federal government. Local governments (LG) are autonomous for policy formulation, resource generation and allocation; develop program plans and projects to address local-level socio-economic issues, financial management, resource mobilization, and monitoring and evaluation of the projects and programs in their own context. In regard to social protection, local governments are currently implementing federal and provincial government-funded social protection programs as well as their own social protection program which are scattered into different sectors. There are high chances of occurring duplications and loopholes for manipulations in service delivery. It has been found that some local governments are implementing their own social protection programs as well and some of them have formulated policies, procedures and regulations to drive their initiatives to benefit the people. But this practice has not been able to be amplified among other LGs. Recently, it has been realized that such policies, procedures, and regulations must be in place for the smooth implementation of the programs as well as to measure the impact created by the program which will encourage to enlarge the program in the future based on the impact by which it will be easy to increase the coverage.

## **2. Why should social protection be shock responsive?**

The basic of shock responsive social protection (SRSP) is to highlight the shocks that strike and affect a large portion of the population at the same time (covariate shocks). It includes the adjustment of the existing routine social protection programs and systems to cope with the changing context and demands after a large scale shocks or one that is responded by scaling up of the program in the event of an emergency (OPM, 2016). This can be an ex-ante action where better preparation of emergency response can be done by developing shock responsive social protection systems, plan and required partnership ahead of a shock; or ex-post, to assist the affected households after the shock has occurred. For that reason, social protection could play a pivotal role in the scenario of increasing hazards, shocks and stresses (World Bank, 2018).

Shock Responsive Social Protection (SRSP) has been coined as an approach that is most suitable to the poor and the population with limited coping capacity, who are most exposed to various recurrent shocks such as flood, landslide, drought, fire, cold wave and others. To search for an appropriate medium that can assist in the use of existing social protection and other support mechanisms and models for humanitarian support of the beneficiaries, different innovative approaches have been targeted for long. A wide range of stakeholders' recommendations, feedbacks, and suggestions have been referred to integrate humanitarian assistance and actions into government-led social protection allowance program linking anticipatory actions making it a bit more shock responsive that will further enhance the readiness among the LGs and will ultimately support in saving lives and assets of the most vulnerable population prior to a disaster who are extremely vulnerable to various types of shocks. It will also help in developing mechanisms to identify and target the most vulnerable populations living in the disaster-prone areas and get them registered as potential beneficiaries to reach out shortly aftermath of a disaster

where social protection mechanism/system has been identified as one of the most relevant and appropriate pathways in many countries around the world.

The necessity to execute the Shock Responsive Social Protection (SRSP) in Nepal was realized among the development partners and other concerned stakeholders in the aftermath of the Gorkha earthquake, 2015 where various development partners including UNICEF implemented SRSP program having a special understanding with the government (OPM, 2017). In this light, the government has committed to bolster the SRSP in its *15th national plan* and *integrated national social security structure* which is in a draft form and due to be published. Apart from that, other government agencies are also working on contributing to some of the essences of the SRSP such as preparing the poor HH data so that specific programs could be formulated addressing their need and building their resilience to enhance the risk-bearing capacity as well as withstand the various shocks. Though SRSP is a new approach to Nepal and many things are yet to be clarified as SRSP delivery differs as per the context and geography of a certain country, many things are yet to be tested and implemented. Still, there is ample room for everyone to explore it further.

## **2. Why this is an important topic?**

There are many reasons that make it focus on Shock Responsive Social Protection (SRSP). Some of them are,

- a. The number, complexity, severity and the time duration of humanitarian crises are on the rise and have *overburdened orthodox humanitarian assistance systems*;
- b. It has been observed that recent crises have caused the displacement of the affected population on an *unprecedented scale*;
- c. Most of the shocks are broadly predictable, recurrent and/or protracted, *with routine caseloads (Development Initiatives, 2016)*. To make it clear, some of the shocks and disasters are a bit more predictable and regular than others where existing and routine social protection can play an important role;
- d. Short-term humanitarian strategies for assistance, funding mechanisms and cycles along with programs are neither intended nor able to *support protracted crises and the interplay of shocks with poverty and chronic vulnerability*.
- e. There has been increasing evidence of the wider cost-effectiveness in executing an *early action via existing systems rather than ad hoc, ex-post responses practices*;
- f. Established social protection systems *in low and middle-income countries are increasingly being leveraged to respond to emergencies*.
- g. The grand bargain emphasizes the need to link cash payments with the provision of social protection: *“Delivering cash should, where possible and appropriate, use, link or align with a local and national mechanism such as social protection”* (Grand Bargain document, 2016,p.6) Yet, the existing social protection system offers a promising potentiality but the existing weak status is not a straightforward option to move ahead with it unless it is bolstered (ODI, 2016).

### 3. Nepal context: Opportunities and challenges

Nepal has a large and robust portfolio of social protection programs such as cash transfers, public works, scholarships, school meals, health subsidies, etc. and the country is having high exposure to a variety of shocks as well.

**a. Coverage:** The social protection program coverage is based on mostly demographic and categorical targeting and on top of that, all the poor and the vulnerable populations who are extremely exposed to various shocks and disasters have not been covered for the social protection programs. As a result, social assistance programs cover less than 40 per cent of the households in the poorest asset quintile. To date, Nepal does not have a cash transfer program that is targeted at the poor, similar to the *Benazir Income Support Program (BISP)* in Pakistan or the *Pantawid Pamilyang Pilipino Program (4Ps)* in the Philippines. However, the 2018 Social Security Act has a provision for a transfer to the economically poor (TEP) which could address this gap (World Bank, 2020). Since, the Ministry of Land Management, Cooperative, and Employment is working on the identification of poor households now and there is a possibility of opening the door with new schemes/programs dedicated to the economically poor. For now, we have to wait until it is introduced and fully operationalized. Presently, the prime minister's Employment program, which is underway to guarantee to provide employment for at least 100 days to the unemployed population, has the potentiality to cover the working poor and proper targeting is required for the same. At the same time, the social registry system and the process should be strengthened and properly operationalized to cover all the eligible beneficiaries. This will facilitate in getting access to the benefits from the offered program.

**b. Programs:** The government has been implementing many programs for its citizens and proved to be beneficial for the regular working atmosphere. Yet, these programs have not been designed or planned in a way to be *scaled up* in the face of shock and disaster. That is one of the pre-requisites for any programs to be shock responsive and that will be an issue with regular development programs in an event of a covariate shock making it difficult to scale up or scale out in terms of either coverage or funding.

**c. Delivery mechanism:** The existing support delivery system and mechanisms are still nascent in terms of their operation. The programs are scattered across various line ministries and departments and uncoordinated beneficiaries database management and system have made the operation even more difficult. At the same time, an integrated social registry system is not in place due to which eligible beneficiaries are facing many hurdles for getting registered i.e. they have to register separately for multiple programs offered by the government. For example, Social protection scheme, being a popular and large program, there is still a low coverage of an estimated 35.5 per cent of households in 2018 (Walker, Kawasoe, and Shrestha 2019). To make the SP program effective enough, there should a robust payment system in place for fast delivery yet the payment system are being slowly developed or still nascent.

**d. Financing:** The government spends a substantial amount of money on social protection programs. For example, a total amount of Rs188 billion, almost 12.8 per cent of the total national budget (office of the auditor general, 2020) has been allocated for social protection programs. Similarly, a large share of budget is spent on public pensions. Apart from that, the provision for contingent financing linked to the social protection programs is not clear.

#### **4. What next in Nepal: shock responsive social protection**

Through advocacy and lobbying from various sectors, there is an increase on thinking and adopting shock responsive social protection approach aligning the existing large portfolio of social protection in Nepal. Many development partners are also implementing various cash-based interventions referring them as shock responsive social protection. Yet, there are many pre-requisites or mechanisms are to be in place before moving ahead. In short, the concept of executing SRSP will not be viable and functional in the absence of basic pre-requisites. In this regard, the following systems or mechanisms are to be established or functional to functionalize shock responsive social protection.

##### **a. Establishment of shock responsive information system for identification and selection of vulnerable households to various shocks:**

To move ahead with this, there should be a viable policy framework with set milestones and indicators to establish a shock responsive information system that should be based on social registry, which is another requirement to make the data information system robust. Apart from that, there should be a national social registry system with uniquely identified households and their members having their demographic, socioeconomic as well as special data building on the existing database. In addition, there is a need of interoperability between the social registry and social protection beneficiaries' database by using a unique identification. Furthermore, an early warning information system should be made robust enough to avail the required information to plan for early response or actions.

##### **b. Develop risk-informed or shock-responsive programs that promote resilience and have scalability properties for response and recovery:**

There is the need to ensure that the newly designed programs must have the properties of scalability in the face of emergencies to make the immediate adjustment as per the requirement. There is also the need of revisiting the existing and newly developed programs such as the *prime minister Employment program* (PMEP) and any other such programs to ensure the coverage of the poorest and the most exposed population along with the households to various shocks. At the same time, there is a need to design and execute various kinds of public work programs to build assets for the community resilience having incorporated the programs with action plans for climate change adaptation along with other disaster risk management activities. Most importantly, there is a need to have the provision of social protection programs namely social security allowance to allow for temporary scaling up so that humanitarian assistance can be complimented as well as defined rules for horizontal and vertical expansion and establish certain trigger mechanisms, such as linking early warning system for early action.

##### **c. Develop shock responsive financing mechanism for ensuring timely response:**

Financing capacity plays a pivotal role in various phases of disaster management such as preparedness, humanitarian response, recovery and reconstruction. Since huge financial resources are required to address the situation that occur because of disaster, financial security is necessary for a country like Nepal to avoid the mobilization of the development fund in humanitarian actions. Use of social protection system including social registry and payment system that can be made avail for immediate relief to the shock affected populations and households can address these issues. Disaster contingent financing for disaster response should be established at all levels of government as mandated by the DRRM act and should formulate a long-term disaster risk financing strategy with a mix of instruments including contingent budgeting, contingent credit lines such as catastrophe-deferred drawdown options and risk transfer product such as insurance. Some initiatives of endorsing disaster risk financing (DRF) has taken place where DRF strategy has been formulated and the Ministry of Finance (MoF) has signed a \$50 million financing agreement (CAT DDO) with World Bank in 2020 to be available in the case of a natural disaster or health emergency in the country which is indeed a good move.

**d. Establish robust institutional linkage between Disaster Risk Management (DRM) and Social Protection (SP):**

Nepal is running around 90 programs associated with social protection through various ministries and departments which are scattered around. This may pose an issue in availing services to beneficiaries. It also tends to create delays in timely service delivery. Due to this, the beneficiaries are facing many problems to receive the services. Therefore, it should be ensured that the national disaster risk reduction and management authority is solely responsible for managing disaster-related affairs, has a separate section or unit for facilitating social protection for aligning with humanitarian actions. Apart from that, all the agencies should work in a coordinated way to deliver the scattered social protection programs across many ministries and departments. For example, finance, programs, and MIS must work together in a coordinated way to ensure timely and hassle-free program delivery to the beneficiaries.

**5. Way forward:**

a. The existing government policy has not recognized the shock responsive social protections (SRSP) approach. The federal government needs to formulate or reconstruct the existing policies to move forward making it shock responsive. We can find some indications on this in *National DRR Policy 2018: 7.38 for Social Protection and 7.42 Forecast based preparedness and response plan*.

b. Formulation of a shock responsive Social Protection Policy Framework with clear milestones and indicators is needed.

c. We all must have a common acknowledgment that social protection could play a crucial role in the context of increasing trend of hazards, shocks and stresses. It must strive for reducing poverty and vulnerability as a core mandate of social protection.

d. Only making social protection shock responsive or emergency cash transfer will not sufficiently meet the needs of the assistance-needed households. Coordination with other interventions is equally essential.

e. More consultations, discussions and dialogues among the development partners and along with the government are required to move on further.

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# “Sharing of DEPROSC<sup>1</sup>–Nepal’s experience on Localization and Cash Transfer in DRR and their inevitability”<sup>2</sup>

Kailash Rijal, Ganesh KKC and Ashmi Duwadi<sup>3</sup>

## Abstract

*Localization has become a hot topic in humanitarian discourse with the view to make a response quickly and efficiently to the most needed people in a dignified way. However, different people have different take on the concept of "Localization" making it compatible for the user. Despite, a significant level of efforts has been made in Nepal and throughout the world to acquaint the first responder with tools and resources, however there is much to do yet. First responders have proved that they can do it where ample approaches such as use of technology and cash transfer have not only been instrumental but inevitable.*

*Key words: Localization, Cash transfer, First responder, Dignity*

## Background

Nepal is vulnerable to flood, earthquake and other various disasters. It ranks 11<sup>th</sup> in terms of vulnerability to earthquake (EQ) and 13<sup>th</sup> in terms to floods (MoHA, 2018). Other natural and manmade disasters because of landslide, drought and fire, air pollution and recent COVID-19 pandemic, directly or as precursor, cause heavy economic as well as biological loss in the country. Learning from the bitterness of disaster events, Nepal has initiated strengthening capacity in awareness creation as well as policy formulation. Various stakeholders are now actively engaging in implementation of policy provisions related to disaster management though independently. In this context, DPNet Nepal has been playing and facilitating roles by giving all stakeholders involved in DRR a common platform to share each other’s experience on DRR and management.

In the same line, DPNet organized a 'Learning Sharing National Conference on DRR' on 24-25 February 2022 in a single platform to discuss and share issues, experience related to DRR with technical and financial coordination and support of USAID/Tayar Nepal and in collaboration and support of Ministry of Home Affairs (MoHA), Ministry of Federal Affairs and General Administration (MoFAGA), Ministry of Urban Development (MoUD), Ministry of Forests and Environment (MoFE), National Disaster Risk Reduction and Management Authority (NDRRMA)

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<sup>1</sup> Development Project Service Center (DEPROSC-Nepal)

<sup>2</sup>Presented at Learning Sharing National Conference on Disaster Risk Reduction (NCDRR) organized by DPNet from 24-25 Feb 2022

<sup>3</sup> [rijalkailash@gmail.com](mailto:rijalkailash@gmail.com); [ganeshkcee@gmail.com](mailto:ganeshkcee@gmail.com) ; [ashmiduwadi@gmail.com](mailto:ashmiduwadi@gmail.com)

and other stakeholders. DEPROSC-Nepal 's experience on "Localization and Cash Transfer" along with the activity carried out during the recent Covid-19 pandemic was presented in the conference.

## **Getting into the Topics**

"Localization"<sup>4</sup> now is most talked word especially among the donors, INGO, NGO, CBOs, Government and various Humanitarian forums. Particularly after the Covid -19 Pandemic, attempts from both donor and partners worked hard to get the Aid decolonization, to make it as practical as possible.

Localization in simplest term is to shift power, resources and ownership to local people. The global humanitarian summit 2016 has rightly generated the commitment among the donors and the humanitarian agencies to get more means into the hands of people in need and to improve the effectiveness and efficiency of the humanitarian action. Role of civil societies has been very broad round the world at different points of time depending on political – developmental stage in a country. Broadly saying, non-governmental organizations (NGOs) have performed in almost every sphere of human life that complements the government's developmental as well as humanitarian agenda in order to better address the needs of affected populations whether or not this has been acknowledged or accounted in national balance sheet.

In the arena of the Humanitarian aid system the Grand Bargain was to provide 25 per cent of global humanitarian funding to local and national responders by 2020, along with more un-earmarked money, and increased multi-year funding to ensure greater predictability and continuity in humanitarian response. But till date overall funding towards local organizations (including internationally affiliated NGOs) has not substantially increased from 3% of total humanitarian funding<sup>5</sup> for decades, while the proportion of aid channeled directly to local and national non-government organizations (NGOs) remains as low as 0.4 per cent of international humanitarian assistance. The 2020 Global Humanitarian Report reveals that since 2016, when the percentage of funding to local organizations was 3.1%, small increases were seen in 2017 and 2018. In 2019, shockingly, there was a decrease to 2.1% (US\$444 million) in assistance sent directly to local and national actors. Thus, the lack of real progress on the 25% target suggests apathy and contradictions in the industry and how the current business model makes the path to localization

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<sup>4</sup> <http://transformingcashtransfers.org/>. Maxine Molyneux;

<sup>5</sup> [The global.blog/2020/09/09/localization-of-humanitarian-a](https://www.globalhumanitarianreport.org/blog/2020/09/09/localization-of-humanitarian-a)

difficult<sup>6</sup>. Aid organizations and donors commit to increase the routine use of cash alongside other tools, including in-kind assistance, service delivery (such as health and nutrition) and vouchers.

The Constitution of Nepal stresses for Disaster Management as responsibilities of Local Government together with concurrent responsibilities with provincial and federal governments. Further, Disaster Risk Reduction and Management Act, 2074 has provided a clear direction to deal with all phases of disaster management. It is in line with international practices of Reduce Risk - Respond Locally and Recover Immediately.

The three tiers governance in Nepal is a vivid example indicating importance of localization for making efficient services readily available to the people. In the same style with some improvement in the management system in the local CBOs and NGOS, the local actors/ players become proactive and take lead role for providing immediate services to the victims at time of disaster and the people get quick services which minimizes both economic and biological loss supporting the inevitability of localization of DRR.

Further, these days 'expertise' can be found both at national and international agencies. Some years back, to a certain extent, it was true that local agencies did not have expertise and were more problematic in handling financial resources, but it is not true now. Yes, advanced updated skill and expertise can be with international agencies but with the national expertise knowledge, credibility and community relations is associated with local civil society. Now the local civil societies are more concern in Strengthening Local Leadership and decolonization of resources for humanitarian aid in DRR is inevitable. It would give an opportunity to reinvent the importance of local leadership for the cause of humanity, so that many local organizations and NGOs can come forward to support the community and people within their capabilities and reach. Lately, the role of local NGOs/CSOs as a first responder became very crucial in COVID-19 as there were no international travels, people's mobility even within the country was banned, buying and carrying goods and supplies nationally and internationally was none functional, thereby leaving every hope of response to the local agencies.

Similarly, many of us are familiar that humanitarian organizations have traditionally supported crisis-affected people with physical commodities: food, shelter, water, tents, clothing and medical help. But now various study reports show that with the limited resources cash transfers can help close this gap and provide opportunities to do humanitarian assistance better.

Today a family may instead receive an envelope of cash, a plastic card or an electronic money transfer to a mobile phone, with which they can buy food, pay rent and purchase what they need locally. Changes in technology, growing access to financial services, greater urbanization, and the emergence of government social safety nets are all creating unprecedented opportunities for

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<sup>6</sup> <https://www.thenewhumanitarian.org/analysis/2016/...>

humanitarian support to reach people in new ways. (Overseas Development Institute report 2015). Before the Covid-19 pandemic, many countries were engaged in the process of strengthening core social protection systems and exploring ways to develop their shock-responsive capacity, but after the Covid-19 pandemic the scenario is changing such as in Somalia Aid agencies used remittance companies to provide cash transfers to more than 1.5 million people, similarly, in Lebanon, more than a million refugees now use smart card vouchers to buy goods at local shops, or ATM cards to withdraw money instead of receiving in-kind aid.

### **Cash Transfer Program (CTP) in National Context**

CTP, a practical tool, has been used at a small scale in Nepal for several years<sup>7</sup>. Some examples include, the Government/WFP's Rural Community Infrastructure Work Program (RCIW) in 10 chronically food insecure districts. The 2015 earthquakes marked a major shift towards cash transfer programming, with the Nepal Cash Coordination Group estimating 10% (\$30 million) of the international response by November 2015 used cash transfer modalities (not including vouchers). Similarly, Oxfam started to onboard financial service providers for digital cash transfer to the most vulnerable community without human contact. It was done by mapping of local level cooperatives and digital service providers for cash transfer in remote areas where no banking and cooperatives service was available.

While implementing cash programs, with local government's coordination and cooperation as a matter of fact the benefit stay locally. Cash transfer programs contribute localization by building the fiduciary capacity of local NGOs also as there is the political will. Our experience tell that Cash is the perfect way of supporting people in disaster as the suffer only really knows what are their need and how much they need and how should is it. Cash also allows local NGOs and local governments to really get close to communities, to understand what their preferences are, and what their needs are. So, it is an opportunity to not only build their capacity, but to strengthen their role as a community lead. More over in general local NGOs can implement cash program without much hassles that big international agencies can dot do it programs hassle

### **International practices in DRR**

Disaster leaves no one, no matter where one lives in, whether developing or developed countries (June 25th, 2021, 12 August, 12 and 15 July 2021, heavy rain fell across the United Kingdom, western Germany, and neighboring Netherlands, Belgium, and Luxembourg. Europe Flooding Deaths Pass 125, and latest example is of Covid-19 Pandemic which left no country untouched). Specially, for people in developing countries have been suffering from the disaster menace. Within

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<sup>7</sup> *Laura Gordon: Risk and humanitarian cash transfer programming Background Note for the High-Level Panel on Humanitarian Cash Transfers*

last one decade, over 90 million people around the world had been displaced by conflict and natural disaster. It is ever increasing annually in one hand and in other hand the gap between needs and funding is widening.

### **Hyogo Framework for Action**

The first internationally accepted framework for DRR was WCDR of the Hyogo Framework for Action (2005–2015) (HFA). It set out sequence of objectives with five priorities for actions attempting to 'capture' the main areas of DRR intervention.

The UN's biennial Global Platform for Disaster Risk Reduction provided an opportunity for the UN and its member states to review progress against the Hyogo Framework. It held its first session 5–7 June 2007 in Geneva, Switzerland, where UNISDR is based. The subsequent Global Platforms were held in June 2009, May 2011 and May 2013, all in .

### **Sendai Framework for Disaster Risk Reduction**

The Sendai Framework for Disaster Risk Reduction (2015–2030) is an international document that was adopted by the United Nations member states in March 2015 at the held in Sendai, Japan, and endorsed by the UN General Assembly in June 2015. It is the successor agreement to the Hyogo Framework for Action (2005–2015), which had been the most encompassing international accord to date on disaster risk reduction.

UN member states, NGOs, and other stakeholders made calls for an improved version of the existing Hyogo Framework, with a set of common standards, a comprehensive framework with achievable targets, and a legally-based instrument for disaster risk reduction. Member states also emphasized the need to tackle disaster risk reduction and climate change adaptation when setting the Sustainable Development Goals, particularly in light of an insufficient focus on risk reduction and resilience in the original Millennium Development Goals.

At international level Practice in World Conference on Disaster Risk Reduction DRR are guided by the **Hyogo Framework for Action** and its five priority action plans. After the federalization the local government are directly responsible for Improving risk reduction information and early warning system as well as strengthening the disaster preparedness need to be in priority action lists of Local government as well as local partners for effective response activities. It also supports the local government to take action to strengthened, implement, adapt and own the action plan and clarify the roles and responsibility of local partners also. Its value adds the local governance system as well

## **Other international initiatives**

UN initiatives have helped to refine and promote the concept for DRR at international level, 1990s as the International Decade for Natural Disaster Reduction. In 1999, UN member states approved the International Strategy for Disaster Risk Reduction, which reflected a shift from the traditional emphasis on disaster response to disaster reduction, by seeking to promote a "culture of prevention".

## **Regional initiatives**

African region drafted gender-responsive DRR strategies, Mainstreaming Gender in Disaster Risk Management and Climate Change Adaptation.

## **Bangladesh**

Bangladesh is one of the most disaster-prone and highly vulnerable countries to different types of disasters because of climatic change and extreme events. Bangladesh commenced its disaster preparedness plan following the cyclone of 1991 and has now a comprehensive National Plan for Disaster Management which provides disaster management mechanisms at both national and sub-national levels.

## **Disaster Research Center (DRC)**

DRC was the first social science research center in the world devoted to the study of disasters. It was established at Ohio State University in 1963 and moved to the University of Delaware in 1985. Disaster research deals with conducting field and survey research on group, organizational and community preparation for response to, and recovery from natural and technological disasters and other community-wide crises related fields such as anthropology, human populations, environments and events that create chaos. The research covers long-lasting effects on multiple areas of society including social organization, political organization and empowerment, economic consequences, environmental degradation, human and environmental adaptation and interactions, oral history, traditional knowledge, psychological consequences, public health and the broader historical record of the affected region.

DRC has carried out systematic studies on a broad range of hazards including hurricanes, floods, earthquakes, tornadoes, hazardous chemical incidents and plane crashes. DRC has also done researches on civil disturbances.

The DRC not only maintains its own databases but also serves as a repository for materials collected by other agencies and researchers and it contains over 50,000 items, making it the most complete collection on the social and behavioral aspects of disasters in the world.

## **Initiatives in DRR in National context**

The Constitution of Nepal has assigned DRM as a priority for all three tiers of government. It has assigned the responsibilities of DRM as a shared priority of federal and provincial governments. In this line the Government of Nepal (GoN) has been strengthening DRM policy and institutional capacity at all levels of governments. It enforced the Disaster Risk Reduction and Management (DRM) Act 2017 (amended 2018) and DRM Regulations in 2019. The Local Government Operations (LGO) Act 2017 has also assigned specific responsibilities of managing disaster risk reduction at local levels. The GoN has also formulated the Disaster Risk Reduction National Strategic Action Plan (DRRNSPA). Similarly, as the nodal ministry for capacity building of local governments, MoFAGA in 2018 provided the model Local Disaster Risk Reduction and Management (LDRM) Act, the model Disaster Management Fund Mobilization Guidelines<sup>8</sup>.

The National DRR Strategic Action Plan<sup>9</sup> has several strategic activities aimed at building DRM Capacity at local level. The Local Government Operations Act 2017 is one of the key instruments to localize DRM in Nepal. It stipulates key roles and responsibilities of the local government for DRM. Besides, the GoN has provided sample Local DRM Act, Local Environment and Natural Resources Protection Act, sample Standard Operating Guidelines for Emergency Operation Centers, Guidelines for Local Disaster Management Fund Operation; and Guidelines for preparing Local Disaster and Climate Resilience Plans (LDCRP) to support local governments to prepare and endorse their own context specific DRM acts, policies and procedures and plans. While all of such activities exist as highly encouraging steps, institutionalizing these tools still remains as a looming challenge.

## **DEPROSC -Nepal's Experience on Local Actors involvement in CTP Based Response**

DEPROSC -Nepal was established in September, 1993. It started from scratch but with a clear vision: "Peaceful, Prosperous, Empowered and Resilient Nepal". It has Expertise in eight thematic areas namely Livelihood, Community Infrastructure, Social Protection, Education and Human Resource Development, Access To Financial Services, DRR and Humanitarian Assistance, Migration and Natural Resource Management. Till date it has Worked in 70 districts of all 7 provinces (*For detail info visit [www.deprosc.org.np/](http://www.deprosc.org.np/)*)

This case study is a learning from active participation of local actors during the earthquake. We have also learnt the importance of local actors especially in quick and smooth execution of livelihood responses program in epidemics like COVID-19 and similar natural disaster in future.

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<sup>8</sup>(<http://www.ipoareview.org/wp-content/uploads/2016/04/NEPAL.pdf>;

<sup>9</sup><http://www.lawcommission.gov.np/en/documents/2016/01/constitution-of-nepal-2.pdf>).

An earthquake with a magnitude of 7.6 Richter scale struck Nepal with epicenter in Gorkha district on 25 April at 11:58 Local Time. On 12 May, another earthquake with a magnitude of 6.9 Richter scale struck with its epicenter in Dolakha district. Around 9,000 death and 22,000 injuries were recorded. Approximately 604,930 houses were fully damaged and about 288,856 houses were partially damaged. Report shows 80-100 % school buildings were collapsed. Initially it was estimated that 50% household lost all stored food and seed. Similarly, small agriculture tools and equipment were destroyed and more than 20% livestock were killed throughout the affected districts in Nepal.

Government of Nepal declared national crisis in 14 out of 75 districts. Shelter, food, health, water, sanitation and access to basic services were the most pressing needs in the districts. Loss of food stocks, seed, livestock as well as income were among the key findings consistently coming out of initial and rapid assessments undertaken by the food security cluster and other humanitarian actors.

## **Results for earthquake response:**

### **1. Earthquake response supported by OXFAM**

DEPROSC-Nepal partnered with Oxfam to implement response and recovery program in Kathmandu, Lalitpur and Bhaktapur districts for a period of three years (May 2015-April 2018). The program started with immediate response and relief, followed by recovery and rehabilitation programs. The main goal of the project was to contribute to gender responsive sustainable recovery and reconstruction thereby reducing the risk and increasing the resilience among vulnerable earthquake affected households. The food security and livelihood interventions had designed interventions to assist households recover and build resilience to potential recurring earthquake shocks. Then in partnership with World Vision (WVIN) DEPROSC-Nepal initiated response and recovery programs in Gorkha, Nuwakot and Sindhupalchok, the earthquake affected districts.

The assessment was done through Key Informant Interview (KII), Focus Group Discussion (FGD) and Household Survey. The team conducted KII to identify most affected wards by earthquake in each target Municipality. The team conducted FGD with men and women using semi structured interviews and categorized affected households into different wealth groups and developed seasonal calendar.

The assessment focused on identification of livelihood strategies and barriers to activities as compared to pre-earthquake context, identification of vulnerable livelihood groups and understanding the types and frequency of coping strategies being adopted and identification of most appropriate opportunities and methods to support livelihood stabilization for communities in affected area. The results of the assessment led to design cash-based response for different target group. Initially, the intervention was done with food voucher which gradually moved towards Capacity building, Entrepreneurship development (micro enterprises, cottage industry, small

industry, home-based enterprises, small trades), Infrastructure development (irrigation, processing plants, drinking water, road, seed bank etc.), technology transfer, market linkages (road, collection center, transport system, supply chain, processing, value-chain, etc.) and institutional linkages building with financial institutions. Target beneficiaries were identified through rigorous process of consultation and cross verification with local stakeholders. Various forms of Cash Transfer Program (Food vouchers; Conditional and Unconditional cash grant) have been found to be very much effective not only to revive the market system but also instrumental to effectively recover and rehabilitate the abrupt livelihoods of landless and vulnerable people thereby leading towards resiliency because of institutional linkages.

The interventions were designed for the most vulnerable (ultra-poor/poor) with the inputs from communities at the time of assessment. The organization supported locally led processes to identify the most vulnerable groups that need support at the time of crisis. Four category of wealth groups (ultra-poor/poor/middle/well off) along with their criteria were identified by communities during FGDs. Women participation in FGDs were prioritized. It adopted series of verification process for the selection of beneficiaries for CTP interventions involving municipality, ward citizen forum, community leaders and other local groups. It focused on prioritizing and selecting local vendors in consultation with community that helped in reviving local economy. Use of locally available resources (construction material and skilled manpower) were prioritized in Cash for Work/ Cash for assets/ Cash for repair/maintenance of irrigation canal, roads, schools and other communal properties.

A total of 14,956 socially excluded vulnerable households were benefitted through implementation of livelihood activities in order to increase their ability to restore, develop and sustain a resilient livelihood for a period of May 2015-April 2018 which was divided into response phase, transitional recovery phase and recovery and rehabilitation phase in Kathmandu, Lalitpur and Bhaktapur districts.

In response phase (May 2015 to November 2015), all together 4283 HHs were benefitted by livelihood activities in Kathmandu valley among which 2622 were male and 1661 were female. While disintegrating the beneficiary 28 were people with disabilities, 219 were single women and 557 were elderly population. The activities focused on response phase were food voucher, agriculture inputs voucher, Cash for Work, cash grant to earthquake affected business etc.

In transitional recovery phase (December 2015-March 2016) which was the extended response phase, the interventions reached to 1660 households. The major interventions carried out in transitional recovery phase were kitchen garden, Cash for Work, cash grant to earthquake affected business, livestock support, agriculture training and input support to earthquake affected families.

In recovery and rehabilitation phase (April 2016-March 2018) the interventions reached to 9013 households. The major interventions carried out in recovery and rehabilitation phase were kitchen garden, Cash for Assets, cash grant to earthquake affected business, livestock support, agriculture training and input support to earthquake affected families, technical assistance to households engaged in reconstruction, agriculture infrastructure like collection centre, plastic pond etc.

## Case Studies Related to CTP

### Case 1

#### Masine Village of Chadragiri municipality

Masine Village of Chadragiri municipality is located approximately 12 km drive from the Kathmandu city. Although the village lies in proximity to the capital, there is no proper access to transportation. Majority of the people belong to the Tamang community. An assessment carried out on 6 June 2015 after the two major shocks depicted that around 83% (out of 150 HHs 125 HHs were affected) of the households of the community was affected by earthquake. The result of the assessment revealed that there was an urgent need of diverse dietary food for earthquake affected people as food consumption score was low and people were skipping meals as a part of coping strategy. The other need was for livelihood improvement. Cash transfer was implemented to address these needs of the communities. The program also implemented Cash for Work. Furthermore, through market access survey, it was found that local vendors were traumatized by earthquake and were not in the state to reopen their shops. The nearby market (Thankot bazaar) was functional which would take around 1 to 1.5 hours to reach by foot.

It was a big challenge for DEPROSC Nepal to implement cash transfer program (CTP) because neither stakeholders nor vendors had ever heard about cash transfer interventions. Besides, it was a big responsibility of DEPROSC to orient and convince community about CTP because they were used to receive in-kind supports.

*DEPROSC Nepal and OXFAM team convincing local vendors to carry out voucher intervention in Masine*



The project team designed fresh food voucher interventions in the first phase where beneficiaries were provided with NPR4,000 per family for one month. Each voucher had 19 pages (17 pages of different denominations; NPR 50 (X 2), NPR 100 (X9), NPR 500 (X6) = NPR 4000, and 2 pages as one was the front page showing total voucher value and the last page showed toll-free telephone numbers for complaints, suggestions and feedback. The voucher was designed in such a way that they can be used in different combinations of different denominated voucher's page which was equivalent to the monetary value as mentioned in the specific pages based on the need and requirement of the beneficiary and with identified vendors. Besides this, water mark of proposed currency was also kept in the voucher with validation date from the date of releasing was kept in the bottom of the voucher to minimize the potential risk of duplication and fraud.

The other issue was to convince the local vendors to reopen their shops and to capacitate them on CTP. Since we were distributing vouchers for fresh food items it was impossible for beneficiaries to walk 1.5 hours to Thankot bazaar every day to buy their necessities. So reviving local vendors was very important. Furthermore, opening of local shops would support in reviving local economy of the village as the cash would be injected in the village market. The DEPROSC-Nepal team together with Oxfam team went to convince local vendors. In the beginning, they were reluctant as they had to provide items based on paper voucher which takes time to redeem into money. Since, they had never carried out such interventions they were worried if they could maintain demand and supply. However, we assured them they

*Payment to local vendors*

be provided with all the necessary capacity

building to implement voucher interventions. Finally, they agreed. We signed a MoU with vendors and conditions were agreed based on mutual understanding. The team provided orientations to 4 selected local vendors and all the necessary documents they needed to maintain during the process. Moreover, the vendors were not registered on PAN/VAT and it was another challenge as the transaction amount was huge. To make a common consensus on it, a joint observation visit comprising logistic, finance and programme of DEPROSC-Nepal and Oxfam went and developed their own format (receipt) for each transaction which was accepted by all three parties. (DEPROSC-Nepal, Oxfam and Vendors). Volunteer were deployed in all the selected vendors as a continuous monitoring process throughout the implementation period to avoid the risk of vendors directly redeeming beneficiaries' voucher with money.



The other big challenge was to convince the local stakeholders. When we first shared about the concept of vouchers for cash, it was very hard for them to believe that paper vouchers would be treated as monetary value. It was difficult for them to trust an organisation because many organisations were working in the community and they were facing credibility issues among the communities. However, when we discussed about the benefit of CTP interventions like choice,

dignity, flexibility, empowerment and its successful implementation in the past by DEPROSC- Nepal, they were somehow convinced. However, we provided next level orientation to local stakeholders about CTP and their roles in the whole process. They were oriented on different modality of cash transfer intervention: cash grant, voucher and cash-for-work (CFW).

The next step was to orient community on CTP. They were provided with proper orientation on CTP process and benefits from it. The redemption process of fresh food voucher, contact number of vendors, items they could purchase from vouchers were clearly communicated at the time of orientation. Further, toll free numbers were provided to them for any feedback and complaints. The local social mobilizer was there to help beneficiaries if they needed any.



The voucher was successfully implemented and the beneficiaries were very happy because they could purchase fresh food items of their choice and it provided them flexibility and dignity. One of the beneficiaries, Kanchi Tamang said- ‘My family was compelled to eat beaten rice and noodles because my house is completely damaged and I have not been able to take out anything. The voucher provided our family with options to buy variety of nutritious foods. Similarly, the money I received after working for CFW was useful to buy medicines for my husband who is suffering from chronic illness and pay school fees of my children as none of the organisations were supporting on it. It gave me choices to buy things of my priorities.’ Further, the vendors were not only capacitated on CTP but also the interventions helped them to quickly recover their business from the loss of earthquake. The stakeholders were much happy and requested for additional interventions based on CTP. They also requested other organisations working in those municipalities to come with such cash-based programs. The other modalities of cash transfer like cash grant and CFW were also implemented in later phases of response. A total of 230 HHs were benefitted in that ward with total amount of NPR1.5 million through different CTP interventions in the response phase.

This experience capacitated the whole team of DEPROSC- Nepal including local authorities and communities in CTP based programme which is a good asset for an organization as a whole. However, we still need to capacitate ourselves on e-vouchers/e-payment so that we can be prepared for any disaster that might strike in future.

## **Case 2:**

### **Shita Nagarkoti, Chhampi, Karyabinayak Lalitpur, Age: 29, Family size: 5**

Sita Nagarkoti, a 30 years old married woman from Chhampi village, Karyabinayak municipality of Lalitpur district is sustaining her family by earnings from agriculture, especially seasonal and off-season vegetable cultivation by taking land in lease. She has been utilizing the income in feeding her family, children’s education, medicine. Though her husband is in Qatar, he had not

sent any money for the family since last 3 years. She was involved in cultivating tomato (in poly house), cauliflower, cabbage, rayo and other seasonal and off seasonal vegetables. She used to earn weekly on an average NPR 2,000.

Devastative earthquake had severely affected her family, as her house was totally damaged, lost 23 chickens with a value of NPR 41,400. Earthquake also destroyed poly house tunnel with recently transplanted tomatoes. Last year from same tunnel she had earned NPR 25,000, and this year she was expecting to earn NPR 40,000.

With agriculture inputs voucher, it was a great relief to her. She was very much happy with the vouchers because she bought watering cane, drip irrigation, scissors, super grain bag and modern sickle. She quoted that “the tools she bought saved her time, make her lives easy and she does not have to ask neighbours for the tools.” Furthermore, she added that she was in need of such tools since last 3 years but due to lack of sufficient saving money for purchasing, she was unable to purchase. She was very much happy regarding the quality of input and support and would like to thank DEPROSC and Oxfam.

### **Case 3:**

#### **Shanti Tamang, a single woman of Dakshinkali-11**

Shanti lives with her daughter (one) and sons (two). After untimely demise of her husband, she has to take all the work load. She has to take care of her children and earn money. One of her sons is physically disabled who is suffering from paralysis. After death of her husband, she could not afford her daughter to continue her study because of poor economic condition.

“Due to earthquake, our house has been cracked and we are staying in a small cottage.”-she said. “My daughter and I go for daily labor work. We have to work from 9 am to 6 pm and the daily wage rate is just Rs.350.”-she added. “It’s my pleasure to be a part of ‘CASH FOR WORK’ activities held by Oxfam and DEPROSC-NEPAL. I got the chances to build irrigation canal and also earn money that is Rs.575 per day. I worked there for 15 days and earned Rs.8,625 in total. Our society has discrimination on daily wage between male and female workers with female getting lower wage rate. But this organization gave us equal wage rate.”-she shared her feelings. Before starting the work an orientation was given to us about the process on how we were selected for the task, short term insurance policy up to one lakh, how per day wage rate was fixed, the provision of payments, working time and days, and provision of toll free phone number for complain and feedback. Every worker was guided for work place safety” she added. ”We must use a helmet and gloves while working. There was also first aid kit placed in case of minor injury. And a volunteer used to collect our attendance daily which had made easy for payment.” Finally, she told that she



spent all her money to buy household things and fulfill the needs of her children. She was very happy with this work and she is very hopeful that again she will get chance to work with us in near future. She still has many challenges ahead taking care of entire family.

#### Case 4:

#### **Parvati Pariyar, Age 72, Ward no 3 Mahalaxmi municipality “We received help in painful situation.”**

Parvati Pariyar of Bhaltar lives with her son, daughter-in-law and two grandchildren. She started sewing others clothes from age of 25. She has given continuity to it now with her son and daughter-in-law who are also in the same vocation. "We don't have agriculture land to produce food for us so we trade rice with our service but now a day's people have started giving money. Before earthquake we had three machines. The earthquake of Baisakh 12, 2072 destroyed our house, our 2 machines and other important things. I was worried how in future we will survive with everything broken. I had no hope as I could not continue to sew clothes after earthquake. But eventually we started receiving support”.

Immediately after quake we received rice and tarpaulin from various relief agencies. My family also received fresh food voucher distributed by DEPROSC-Nepal. The voucher worth NPR 4000 gave us choices in buying vegetables and meat. I have never received such support before so it was difficult for me to be convinced that by giving paper to retail shops, they would provide us vegetables and meat (laughs). The voucher was sufficient to eat fresh vegetable and meat throughout the month”-says Parvati.



*Parvati Pariyar before and after receiving SMME support*

“We repaired one of two machines which were damaged by earthquake. But we were not able to work properly as our other small tools and furniture were also damaged. Meanwhile, DEPROSC-Nepal in support from Oxfam was implementing cash grant to small, medium and micro enterprises intervention. Since I met the criteria for the beneficiary of this program, my name was referred by local bodies and stakeholders. I attended two days business development training in which I learnt to prepare business plan and maintain records of my business. We received cash grant of NPR24,000 from which I bought a pair of scissors, iron, a sewing machine, cutting table and a chair. One of the best parts of this support is representative from DEPROSC-Nepal and Oxfam encouraged us to work in groups and start the habit of saving. The earthquake affected receiving SMME grant like us from our village have formed a group named 'Shiddi ganesh samuha'. We didn't have the habit of saving. Now we deposit monthly NPR50 in it. My son is a

member in that group. We had skills but we lacked tools. The support we have received has increased our confidence to take our business back to Baisakh 12, 2072, before the earthquake. I am very grateful to Oxfam /DEPROSC-Nepal for helping us in painful situation with support which will sustain for upcoming days.”

## **2. Earthquake response supported by World Vision**

Similarly, in Social Protection/Vulnerable Families Assistance project supported by World Vision in Gorkha, Sindhupalchok, and Nuwakot pushed the need of the most vulnerable population (including single women, female and child headed households, households with pregnant and lactating mothers, elderly and differently able dependents, and socially excluded groups) through cash transfer to increase their access to basic necessities and services. The project activities were implemented from April to November, 2016.

The summary project achievements include 1) training to 9,643 households on basic topics to improve well-being related to WASH, Mother and Child Health Care, financial literacy etc. and 2) providing cash grants of NPR7,500 per month per household for a period of six months.

## **DEPROSC - Nepal Initiation to Respond to COVID-19**

DEPROSC-Nepal implemented COVID-19 response program in Dang, Nawalparasi, Bhojpur, Dhading, Sindhupalchowk, Tanahu and Syangja districts. DEPROSC-Nepal staff first informed the community through telephone and messages to maintain the social distance and follow precautionary measures. In the field, Awareness raising activities on various COVID-19 protocols was implemented through Miking. At the same time, the communities were informed of relief distribution program by municipalities to the needy people. Side by side DEPROSC-Nepal also supported Local Government/ Palilkas with some materials in kinds. Our field staff collected information of needy people to distribute the relief materials including mask, medicine, social security fund etc in Dang, Nawalparashi, Bhojpur, Dhading, Sindhupalchowk. In Dhading, Sindhupalchowk, Bhojpur, Nawalpaashi, Tanahu and Syanga also information on migrant returnees was collected and helped them keeping in the quarantine. We also helped in rescuing community people from Kathmandu and other locations outside of palikas. Similarly, information keeping of people staying in quarantine in Bhojpur, Tanahu, Syangja and Sindhupalchowk was done. Awareness program were launched to the community against COVID-19.

Activities also included frequent communicating with programme participants, identification of psycho-social status of people, referring for psychosocial counseling, psychological support through telephone against panic situation. Food assistance in collaboration with Palikas was also provided.

### Medical Supplies Support to Kapilbastu Hospital

Kapilbastu hospital had released an announcement on Baishak 26, 2078 to provide financial support to the hospital to assist them in buying oxygen and personal protective equipment's (PPEs) to the frontline staffs on set of growing number of COVID 19 patients in Kapilbastu.

Following the announcement, DEPROSC-Nepal, quickly decided to procure such essential medical supplies from its own resources and handed over to the Kapilvastu hospital in presence of concerned doctors, Mayor of Kapilvastu municipality, ward chairpersons of ward number 2 and 3, Social Development Officer of Kapilvastu municipality and representatives of other various social organizations of Kapilvastu. Cost of handed over supplies was Rs. 300,000.

List of materials handed over

1. PPE – 130 sets,
2. Face shield – 130 sets,
3. N95 Mask – 130 pieces,
4. Gloves – 2500 pieces,
5. Surgical gloves – 690 pieces,



### Food Assistance to Migrant Returnees at the Gadda Chauki (Kanchanpur) Holding Centre

Large number migrants working in different parts of India were returning back home with the growing number of COVID 19 cases and deaths in India. One of the major border-posts that Nepalese migrants coming through was Gadda Chauki, Kanchanpur. Such migrants were kept in the holding centre to test COVID who later were sent to various health institutions as per their situation. COVID negative returnees were also kept in the holding centre until the buses were filled to send them to their respective districts in coordination with private transporters.



*Masks and sanitizer being handed over to security team by DEPROSC-Nepal staff at Gadda Chauki border*

Migrant workers coming to Nepal reached to the border post travelling all day and night from different parts of India. There were no restaurant and hotel for them to eat food in the lockdown

scenario. In this situation, migrants had to remain hungry for hours and had to travel empty stomach until they reach their respective hometown, considering the huge gap of basic food availability, DEPROSC-Nepal from its own resources decided to provide food to them from 8:00 am in the morning to 3:00 pm in the afternoon.

Considering the severity of COVID situation and to reduce the possibility of further transmitting it among the migrants, dry food (a packet of instant noodle, a packet of biscuit, 100 gram beaten rice, two bananas and one apples and a bottle of water) were distributed obtaining the approval from local administration where security was very much supportive in providing us shelter, security and arranging the travelers to receive food in an organized manner.

News related to humanitarian assistance published in local newspaper

<https://www.newscenternepal.com/2021/05/69635>

<http://esajhanews.com/archives/42072>

<https://deshpati.com/2021/05/24/8419/>

### **Compendium of Good Practices in Local Humanitarian leadership (LHL) in Covid-19 Response Management**

Oxfam started LHL COVID19 Practice Group” that brings together Oxfam partners, other local actors and Oxfam staff to jointly inform COVID-19 response and advocacy work, in line with Oxfam's humanitarian approach that seeks to follow the lead of partners and local actors. The LHL- COVID-19 practice group generated ideas for preparing a compendium of good practices in COVID-19 response management. As a founding member of Oxfam LHL network during the COVID -19 peak period, DEPROSC- Nepal as a partner of Oxfam in Nepal worked on the compendium preparation on behalf of the LHL COVID-19 Practice Group. “A compendium of good practices in local humanitarian leadership in COVID-19 response management” was prepared with financial support from Oxfam Hong Kong (HK). The objectives of this compendium preparation are to identify, analyze and document good practices /success stories in context of COVID-19 as a part of knowledge exchange and learning, and create a resource base to answer many field level questions related to COVID-19 response and management.

The compendium is a comprehensive document consisting of 15 cases from Asia and Africa. These cases collated in the document are learning and knowledge exchange on local humanitarian leadership practices and innovative solutions practiced by local organizations in COVID-19 context. It has a knowledge base on different thematic areas like WASH, livelihood, gender, health, shelter, technical innovation and education related to COVID-19 response. It also comprises of cases related to cash and vouchers programming, remote WASH programming, humanitarian

assistance to women, children, disabled people, elderly groups and use of innovative technologies to overcome COVID -19 pandemic effect.

Local actors are critical in every humanitarian operation, especially in the COVID-19 context. Their role is critical as the international travel and movement restrictions made the international community to surge international staff and supplies. In COVID-19 context, though the local actors are affected, they could provide services to the vulnerable group and could scale up operations by adopting preventative measures, though they face resource constraint and could not reach to the needy to the level the local were expecting. However, various studies and cases show that they have been instrumental in running the field operations in COVID-19 epidemics.

The methodology adopted in the process of preparing compendium<sup>10</sup> was simple and was done by developing the outline for the collation of good practices in consultation with the LHL COVID-19 practice group. Then a call template of good practices was prepared and shared with all members of LHL groups and relevant LLNGO member countries. The invitation was sent to larger set of stakeholders to make the process participatory and inclusive. This includes local/ national NGOs, CSOs, Women's/ Youth groups and global, regional and national level networks. Shortlisted cases were then reviewed and compiled in the compendium.

The invitation of call for papers was done in global level however the cases were mostly received from Asia and Africa. Therefore, the cases compiled may not reflect the scenario of localization of humanitarian assistance for COVID-19 at global level. The number of cases received was less than the initially expected. This may be because most of the people seem to be busy at the response of COVID-19 and other multiple disasters, so they have less time to write case studies.

Although a smaller number of cases were received, the compendium preparation process was focused on bringing the quality cases than increasing the quantity. Fifteen case studies were received of which, 3 were from Nepal, 2 each from India, Uganda Bangladesh and Indonesia and, one each from Rwanda, Timor-Leste, Somalia and Iraq. Fifteen organizations namely HENU-Health Nest Uganda, Forum for Awareness and Youth Activity (FAYA), PKPA, Caritas-Rwanda, Caritas-Bangladesh, World Vision International (WVIN), BNPS, Oxfam in Iraq, Integrated Volunteers Network (IVN), Oxfam in Indonesia, Community Empowerment for Rural Development (CEFORD), Women for Human Rights, single women group (WHR), National Disability Persons Organization (DPO)/RHTO and Shaquoodan from 9 countries who carried out humanitarian response support activities obeying respective government's COVID -19 prevention protocols during lockdown. Being the local actor, all could manage to execute the humanitarian activities though they had to face hurdles due to ban on travel and movement for in-kind support. The major

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<sup>10</sup> *Deprosc-Nepal: Compendium of Good practices in LHL in Covid -19 Response Management*

issues as faced by all organizations more or less are common in all 9 countries with some degree of variation in intensity.

The summary of the interventions of the 15 organizations are as follows. This is given without any modification in original doc.

**HENU** from Uganda was for the elderly population affected by the COVID-19. They provided PPE, food items, sugar, soap, sanitizer, and hand washing facilities along with medication, support. There was also provision for psycho-social support maintaining communication. It also carried out awareness creating program forming WhatsApp group for elderly vulnerable persons. HENU also worked with other agencies to ensure that elderly vulnerable persons get access to treatment.

**FAYA from Nepal** conducted response activities in collaboration and financial support from Dan Church Aid, and it providing PPE and Quarantine space, including other accessories of health facilities and sanitizer to local health agencies and personal essentials and bed accessories to 6 quarantines along with the dignity kit for the women residing in quarantines. They also supported food and hygiene materials to 425 highly affected households of freed Kamaiya, dalits, pregnant women, lactating mother and returnee migrant workers. It also engaged in hygiene knowledge/skill transfer to community. It has adopted the 'Mom's Magic Hand' approach of Oxfam reaching out to more than 2,000 most vulnerable households.

**PKPA Foundation** from Indonesia carried an online survey of condition of Indonesian children in the COVID -19 pandemic situation to understand children's understanding on COVID- 19 including knowledge about understanding, symptoms and ways of transmission and prevention steps for COVID-19 that can be done. They further involved in children's participation in discussions and sharing experiences related to the problems. It distributed food packages and hygiene kits to 2,234 households in five villages. They also distributed pocket book "The story of the Butet", education-based games snakes and ladders, online games "Connection Education" and encouraged children's participation in campaigns around COVID- 19.

**Caritas Bangladesh** carried out Home Delivery support for the Extremely Vulnerable Individual (EVI) family. To reduce the potential risk of contamination among this highly vulnerable target group, Caritas delivered a package of Non-Food Items (NFI) to their shelters. Similarly, awareness sessions for the family heads on the importance of safe water, maintaining sanitation and hygienic conditions to protect human health during all infectious disease outbreaks was done.

**Carits Rwanda** intervention consisted of integrated Digital messaging directly to the beneficiaries' phone numbers and the construction of permanent hand washing stations at the selected health centers, which are needed, in the current emergency and for the future. The digital messaging comprised of the Integrated Voice messaging and SMS on recommended Nutrition, *Early childhood development* (ECD), WASH and Agriculture practices in right to maintain the

good nutrition status of the Pregnant and Lactating Women for the benefit of the Children under five years. In the beginning, the Integrated Voice Messaging and SMS targeted selected 8,000 beneficiaries who have the children under two years as they are still in the first 1,000 days. They also constructed permanent hand washing stations at the selected health centers, which are needed, in the current emergency and for the future. The permanent hand washing stations were constructed at the entrance of 8 health centers that have high population .

**The Innovation Lab at World Vision International Nepal (WVIN)** intervention was mostly to Registered Children (RC) and their families along with other marginalized, vulnerable individuals of the demographic specially people with disability, ultra-poor households, female and child led households, family of returning migrants and infected people in quarantine centre and frontline health workers. The response focused on the activities of delivering food aid and livelihood support through a cash and voucher program modality using Sikka through which it is able to monitor the progress of implementation in the field in real time as well as provide remote technical support. The use of Sikka allowed the organization to carry out remote monitoring and avoid directly exposing beneficiaries to the staff or vice versa during this pandemic.

**BNPS from Bangladesh** is an activist women organization whose interventions focused on providing humanitarian assistance at quarantines, isolation, school and office lockdown, public health measures to slowing the spread of disease to girls and women who are at higher risk of violence. They developed a system of one-to-one communication message for the community people. Their staff and volunteers distributed leaflets among the literate people those are developed by the government health department and BNPS. They also orientated the Youths, CBO leaders (Male and Female), Women and Girls on new Pandemic. Besides improving the Gender Based Violence ( GBV )situation during COVID-19 they shared the hotline numbers with them for making available the COVID-19 Test and Services. They had a system of having Focal Persons/ Points and helpline number at union, upazila and district to inform the Violence Against Women and Girls (VAWG )cases during COVID-19 situation.

**Oxfam in Iraq response in COVID-19** focused on providing support to hospital renovations in Jawala district serving at least 50,000 individuals along with the rehabilitation of the sanitation system and installation of new water taps. They also supported in repairing the water system by connecting the main water system with the hospital building and installing a new booster water pump. At another district KIRKUK the training of health workers, personal protective equipment (PPE) for health staff, hygiene kits and the printing and distribution of IEC materials for awareness raising activities was done. Similarly, at Saladin, Ninewa and Anbar, they focused on supporting on WASH and hygiene needs, awareness raising program, caravan to isolation and treatment was provided.

**Integrated Volunteers Network (IVN) from India** initiated Home to Home Volunteering, with technical support from “All India Institute for Medical Science (AIIMS) and Maulana Azad Medical College”. A volunteer taking responsibility of volunteering from her/his Home to next 30 Homes (families) from her/his community of concern to facilitate emergency communication and coordination during lockdown period was effective in India in fighting against the COVID -19 through digital platforms for proper and effective communication and emergency aid. There was online registration of more than 200 volunteers. Volunteers were trained online and they completed WHO Online Certificate Course. Everyday authentic and vernacular communication was sent in WhatsApp group. Further those messages were disseminated to concerned families. It helped more than 1,000 families in various phases of lockdown instantly that too through digital platform following the lockdown protocols.

Oxfam **in Indonesia** focused on integrating gender equality and safe programming to ensure that poor, vulnerable and marginalized people get the adequate, inclusive and safe support to prevent and reduce the infection risk of the COVID-19 disease and to be protected from the negative impacts of state emergency measures to control and respond to the outbreak. The immediate needs of estimated 100,000 individuals were responded through a combined provision of NFIs support and hygiene promotion. The interventions were carried out in three phases where first phase (week 1 to 4) focused on immediate response through a combined provision of NFIs support and hygiene promotion, assessment of local by exercising rapid assessment for target areas and beneficiaries, rapid assessment on partner’s capacity for mapping COVID-19, relevant information gathering and visualising to support hygiene practice and social distancing information and measures. The second phase (week 5 to 10) work was done for developing partners’ Business Continuity Plan BCP and preparedness plan, anticipating secondary crises due to COVID-19. In Phase 3 – (11 to 17) it supported the most vulnerable group in accessing basic need through Cash Transfer Program.

**The CEFORD from Uganda started with** providing information on organizing training cum orientation program to its own staff first in which WHO and Ministry of Health Guideline and SOPs were shared. It developed COVID 19 Preparedness and Response Plan that lays down actions and strategies envisaged to provide a streamlined and coordinated preparedness and response focused on prevention measures and non- clinical interventions. They supported with PPEs such as hand sanitizers, gumboots, hand glove, face masks and communication equipment like mega phones and IEC materials for community sensitization. It included livelihood support program, with seasonal seeds and other inputs and also engaged local actors in constructive dialogues on the status in their areas of operation, opportunities, challenges and the ways forward.

Diversified Intervention of Youth Awareness (**DIYA** )as an **Association of kind-hearted, Generous, Empathetic, Compassionate, institutions from India** contributed essential items, to the needy/ poor persons belonging to the deprived section of the society. With the help of Digital Platform ([www.freerationdiya.org](http://www.freerationdiya.org)) (DIYA) started with assistance of Dry Ration, Cooked Food,

Milk, Vegetables, Medicine and any other monetary support. The response work included supporting Pan India to provide direct relief distribution to 3,018 families, 16,021 people which covered 10 states and one Union Territory, a total of 1,255 blind persons covered who are residing in 37 blind hostels. They supported to mobilize health kits in Government Hospitals of Delhi- (10 Ventilators, 4 Lakh 3ply mask, 2,000-PPE kits, 3,000 Face Shield, 4,000 Later- Hand Sanitizer). Similarly, Nutrition Kit was distributed to the children in the vulnerable areas of Delhi with support of Delhi Commission Protection for Child Rights (DCPCR).

**Women for Human Rights, single women group (WHR) From Nepal** initiated response program with the aim to have better management response to the COVID-19 with help desk setup at WHR central office, mobilized the awareness team at the community, carried out need assessment throughout the country using virtual platform, conducted community survey with the Food bank beneficiaries maintaining the safety guidelines. WHR operated the first women led quarantine by the women and for the women. WHR in coordination with the Government of Nepal (GoN) provide Chhahari (shelter homes) in support to developing space for quarantine and isolation program in 10 districts including head office at Hattigauda in Kathmandu district with total of 365 full functional beds. WHR has supported quarantine services to 32 migrant workers from India and have successfully supported the transfer of these people in their respective local addresses after the **rapid diagnostic test (RDT)** RDT and polymerase chain reaction PCR testing. The community level activities included single women groups at the districts who were mobilized to coordinate with the local government and stakeholders for the accessibility of the relief materials to the marginalized women.

National Disabled Persons Organization /Ra'es Hadomi Timor Oan (RHTO), DPO/RHTO Timor-Leste was supporting to disability actors to build their capacity to understanding of inclusive disaster management. As the COVID-19 crisis hit the world and the countries began closing borders, Timor-Leste was hit with a double humanitarian crisis; the largest flash flood ever hit the capital of Dili affecting 16,000+ people and the COVID-19 pandemic. DPO was actively involved in the government led rapid assessment and response. This work laid the way for further inclusion in the COVID -19 response. During the COVID-19 response a RHTO staff member based in each municipality supported humanitarian actors' responses. In addition to supporting disability inclusion in the field level work, it has been a key player in the COVID -19 civil society task force, monitoring the government's DPO/RHTO and other actors' COVID-19 responses.

**Shaqdoon from Somalia** assisted in setting up an effective call centers and platform to manage multiple calls from the same single short code, designing the platform to provide on demand up to date information and simple mechanism for callers to check on their symptoms through the mobile to determine if they are at risk of COVID -19. Shaqdoon and its partners' support initiated supporting the government to receive and make calls to the application through existing three-digit toll free short code and manage region-based calls and direct to appropriate call centers in the six

Somaliland regions. Shaqodoon also assisted to capacitate the existing call center in Hargeisa and established additional 5 call centers with three health workers manning each call center.

In summary, broadly the interventions were in food item support, medical health services support, advisories services, psychosocial services, cash support and use of modern IT system for response and establishing call centers. No matter which tool or mechanism was used, it was effectively done in all the countries by all the agencies. Common issue as faced by most development partners was getting right information to identify the real sufferer especially the disabled, older group, women, children, vulnerable group and casual labor (including migrant workers, rag pickers, construction labors), homeless, Visually Impaired persons, etc. who are facing severe hardship in fulfilling their bare minimum or basic requirements of feeding themselves. Such families who live on daily casual works in remote villages were also found unable to afford food commodities and hygienic materials and products as all services were closed and the casual works were limited. Timely availability of food items, some lifesaving medicine, and unavailability of adequate PPE to provide to front line workers, resource limitation, causing inadequacy of fund to run the humanitarian work smoothly was reported by most organizations.

#### **Lessons learnt from programs for COVID-19**

- “No single organization can tackle a challenge alone during emergencies” is a point to be noted and a lesson to be remembered while implementing the humanitarian program in emergency. The collaborative approach enabled the organizations to reach out to the neediest in the community.
- All countries must duly consider in developing the health facilities at community level so that even after COVID-19 accessing medication can be easy at a community level. There is a need to establish a toll-free call center for in distress so that it can facilitate quick reporting of cases even after COVID-19.
- Technology has played a central role in COVID-19 response where response has been carried out considering physical distancing. The organizations that were reluctant to adapt technology in their response have realized that technology plays key role in every sphere of life and at this situation it is must to adapt and update with ongoing digital world. Cases of Sikka, Call Centre, Integrated Digital Messaging, Home to Home Volunteering, Homedelivery Support, Online help desk and other digital platforms are the examples how this pandemic has triggered an unprecedented demand for technology in humanitarian assistance. Access to mobile phones and good connections with beneficiaries has been the main driver of the effectiveness of the technology-based interventions.

- During the COVID-19 crisis, the major problem was to get authentic information. Sharing accurate information in the right language and through trusted channels is critical to address fear, panic and rumors that can undermine efforts and lead to increased transmission risk. Therefore, help desk and awareness program were effective interventions to share the reliable information and to actively listen to the problems of community people. Hence, such information and data are valuable assets for future advocacy and planning that can be used as the reference for the policy and implementation guidance to the government and the CSOs.
- Further, localization of global resources as per the demand of local community is a first step to start. Realization of the bottom-up collaboration with local community in program planning and execution has been the most important factor in localization. Therefore, everyone should focus to capacitate local stakeholders including partners for remote partnering and programming and prioritize community led responses. Communication in the time of self-isolation will be critical to connect community leaders and groups to manage and implement the response. Importantly, providing a response that is evidence-based and adapted to the different needs and rights of women, men, boys and girls, with specific attention to persons with disabilities is applicable in all cases. Focus should be on capacitating local community and local stakeholders to be prepared for future disasters. The local stakeholders should give attention to revitalization of the economic condition of the most deprived, marginalized and impacted by COVID-19, migrant workers, people with disabilities, single women, and children.
- It is indeed a great humanitarian action supporting the people in distress being a human to his/her fellow human being. All the actions need to be taken as a lesson to learn and to be replicated in the future depending upon the suitability of own local situation of sharing and learning from each other.
- As an Endorser Member of Charter4Change declared by World Humanitarian Summit, NGO need to be committed toward localization. The first one is the localization of global resources and support as per the necessity and demand of local community, second is the localization of global knowledge and technologies and the third and the most important issue is the bottom-up collaboration with local community in program planning and execution.
- In the similar line that Digital Platform should be established in Government Mechanism under one umbrella where local, national, and international organizations work together to reduce the overlapping of relief retribution during the crisis situation. In the same line with WHR from Nepal 's experience regarding the funding, the beneficiaries have learnt that not only Government but CSOs also does such humanitarian work which have encouraged

CSOs to continue humanitarian work. Therefore, humanitarian funding should be increased in the days to come for the community-based organizations who are engaged in emergency.

- The five strategies namely raise awareness, work with organizations of persons with disabilities, identify people with disabilities, reducing barriers and monitoring, can be taken into consideration to increase the inclusion of people with disability.
- The criteria for the cash-based program should be well defined and agreed in discussion with community people, government line agencies and respective district authorities. After disaster like one of 2015 earthquake which affected resilience of the whole nation, all people in the community want support in any kind or cash, despite the difference in capacity and vulnerability. Thus, criteria for targeting beneficiaries should be well defined, discussed with community and accepted by community for smooth implementation.
- Encourage local vendors to open and operate bank accounts and prioritize electronic transfers to avoid cash transaction. If such solutions are not feasible, the next best alternative is use of microfinance outlets. Contacting and conducting Memorandum of Understandings (MoUs) with multiple local service providers for regular supply of goods must be carefully done.
- Enough time should be allocated for the beneficiaries' selection process and following the process itself. The process should be well explained in the targeted community. However, during emergency relief based on the local situation, selection process should be carried out.
- Experienced and committed team members are required for effective and timely implementation of project of this nature, where there is huge pressure from socio-political alliances, local elites, and key persons in the beneficiary selection process.

### **Best Practices**

- All cash distributions were done through financial institutions (e.g. Deprosc Laghubitta Bittiya Sanstha Limited( DD )and , Mega Bank). All the financial transactions and cash distribution processes were transparent and accepted by the beneficiaries. Financial institutions provided point distribution services in areas, where no financial institutions were available and in places existing financial institutions do not have capacity to support our beneficiaries. This provided fast, easy, and smooth cash to the beneficiaries at their doorstep.
- Regular consultations with relevant stakeholders, community representatives and community for the settlement of any disputes in the community or complaints registered in

accountability were best practice. All the complaints were clarified during community meetings. In case of disputes, the decision was made in consensus of community as a whole.

- In Lho and Prok (then VDCs) of northern Gorkha, community people have come together to collect seed fund required for the construction of micro- hydropower. The availability of physical cash in the areas where the villagers have limited options to earn money, has been a support to the villagers. The collective effort taken by the community people to find the permanent solution for electricity is commendable.
- Moreover, local NGOs managed to respond with the requirement of various segments of the society at the time when pandemic has affected some sections of the population more than the others. There are growing concerns on disproportionately affected groups particularly elderly people, chronic patients, women, children and people with disability. The timely and quick humanitarian response provided to these vulnerable groups by local actors has proved to be efficient and effectiveness of local humanitarian organizations.
- Cases of gender-based violence, and rape cases were also traced out. The perpetrators were brought under legal orbit. Psychosocial counseling was of utmost requirement in this pandemic which were well addressed by local responders. Mobilization of community to conduct awareness at various locations and advocacy against discrimination and social taboos were raised.
- Advocacy with local, provincial and national governments regarding all sorts of humanitarian requirements got succeeded either in placing policies, or issuing executive orders or decision to mobilize resources.
- In a nutshell, local NGOs have been able to demonstrate that they are a vital segment in the humanitarian response sphere which further emphasizes the need to strengthen all the work streams raised in Grand Bargain mainly the localization.

## **Conclusion**

- Cash transfers have become a more significant element of humanitarian response. At the same time, donors and agencies are responding to humanitarian emergencies in increasingly fragile and complex environments, where corruption or diversion of aid, including to terrorist groups and parties to the conflict, is a risk. But, cash transfer program may bring distinct advantages for reducing and managing fraud risks.

## **Acknowledgement**

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## **SRHR in emergencies: UNFPA’s learning from recent disasters in Nepal**

### **Introduction**

Sexual and reproductive health and rights (SRHR) is an integral part of the human life. According to the International Conference on Population and Development (ICPD) Programme of Action, sexual and reproductive health (SRH) is not merely the absence of disease and infirmity, but is a state of complete physical, mental and social well-being in all matters relating to the reproductive system and its functions and processes. SRH therefore implies that people are able to have a satisfying and safe sex life and that they have the capacity to reproduce and freedom to decide if, when, and how often to do so.

Globally, SRH problems are the leading cause of death and ill-health among women and girls of childbearing age. It is estimated that 274 million people in need of humanitarian assistance and protection around the world today (OCHA,2022) and more than a quarter of the numbers are women in their childbearing years. Further, 60 percent of maternal deaths occur due to fragile contexts and more than 500 women die every day from the pregnancy and childbirth related complications (OCHA,2016). In many instances, women die due to the lack of access to basic sexual and reproductive health care services. At any time, approximately, 4 percent of any displaced or disaster-affected population will be pregnant and 15 percent of these women will experience complications (WRC,2021). In addition, violence against women and girls often escalates during humanitarian crises.

SRH is an essential component of the humanitarian response. Since, at the onset of disasters, the access to health services often declines in contrast to the growing SRH needs. Due to population movement, women are forced to give birth even in wayside, in unhygienic conditions (WRC,2021). The absence of law and order, commonly visible during the natural disaster and conflict situations, together with men’s loss of power and status and the loss of income for women who find themselves as the sole responsible for the household, lead to sexual violence, rape, sexual abuse, and involuntary prostitution. This may pose a risk of HIV and STIs transmission, particularly putting adolescents in a vulnerable situation. Despite the increased demands on health systems, the supply is mostly insufficient to assure universal precautions against the transmission of HIV. Furthermore, the system of safe blood supplies usually breaks down leading towards the shortage of blood transfusions against the increasing needs. Lack of family planning (FP) services may lead to unintended pregnancies posing the risks of complications such as unsafe abortions. In the context of Nepal, the geographical disparities, poor health facilities including human resources, the country virtually has inadequate capacity to manage the disrupted health system at the onset of disaster

All people, including those living in humanitarian settings, have right to access SRHR services. Different international conventions, mandates and policies are place to address the SRHR needs during emergencies. The Constitution of Nepal 2015 guaranteed ‘fundamental rights’ by mentioning specially, under article 35 (right relating to health) and 38 (rights of women) in Nepal. The right to Safe Motherhood and Reproductive Health Act 2018 and related regulation 2020 are cornerstone in ensuring reproductive health rights enshrined in the constitution.

## **Minimum Initial Service Package (MISP) for Sexual and Reproductive Health and rights- a life-saving intervention during emergencies**

To enable the availability of SRHR services that have the most impact on reducing SRH-related morbidity and mortality in the early days and weeks of new emergencies, Interagency Working Group (IAWG) on Reproductive Health in Crises— represented by more than 30 international organizations, including UN agencies developed the MISP in 1996 globally (IAFM,2018). The MISP is a coordinated set of activities designed to prevent and manage the consequences of sexual violence; reduce transmission of human immunodeficiency virus (HIV); prevent excess newborn and maternal morbidity and mortality; prevent unintended pregnancies and to plan for comprehensive RH services. Additional priority activities include to ensure: Safe abortions care is available to the full extent in the health facilities, access to contraception for existing users; syndromic management of sexually transmitted infections (STIs); continued access to antiretroviral (ARV) drugs for those in need, as well as prevention of mother-to-child transmission (PMTCT) of HIV; and access to menstrual hygiene supplies. The MISP is inter-agency standing committee (IASC) standard and SPHERE Project (humanitarian Charter and minimum standards in humanitarian response) to address the SRHR needs during emergencies. Since beginning, the United Nations Population Fund (UNFPA) is working to ensure that the MISP is systematically implemented in all emergencies.

For effective implementation of the MISP, it relies on the availability of specific materials and supplies. The IAWG has designed thirteen Interagency Reproductive Health Kits with supplementary kits to facilitate the emergency response with supplies for a 3-month time period. UNFPA is the custodian of the kits and the kits can be ordered, depending on needs and the population size.

### **Experience of implementation of MISP for SRHR Services in Nepal**

#### **i) 2015 Gorkha Earthquake in Nepal**

The Gorkha earthquake in April 2015 affected 5.6 million people in the 4 most-affected districts including 93,000 pregnant women (UNFPA,2016). Damage to infrastructure disrupted the delivery of basic social services including healthcare. Access to SRH services were thus interrupted, putting the health and lives of pregnant women and their unborn babies as well as newborns at risk. In addition, in the aftermath of the earthquake, pre-existing vulnerabilities of women and adolescent girls were exacerbated exposing them to an increased likelihood of GBV.

In the immediate aftermath of the earthquake, UNFPA in coordination with the Ministry of Health and Population, the Ministry of Women, Children and Social Welfare, and many other partners, reached out to the most vulnerable population in the 14 most-affected districts to deliver SRHR services, with a special programme for adolescents, and to prevent and respond to GBV(Chaudhary et. al.,2017). UNFPA's integrated RH and GBV response focused on conducting mobile RH camps, establishing Female Friendly Spaces, delivering dignity kits, providing life-saving reproductive health equipment and supplies and building the capacity of the health service providers. Further most vulnerable affected population were reached out through radio messages related to SRH, GBV and ASRH airing from 18 FM stations in local languages (including Tamang).

As part of the earthquake response, UNFPA, aligning with its guiding principle, initiated the “Dignity First” campaign. It advocated for the need of empowering women and girls, helping them to maintain their self-respect and the ability to provide for their families by supporting their needs for safety, security, hygiene, health and information. The campaign contributed as a reminder to the government agencies and humanitarian actors that women and girls deserve special attention for their dignity preserved and respected. UNFPA was also actively involved in inter-agency and government-led assessments, including the post disaster need assessment (PDNA) to ensure SRH and GBV issues are addressed properly in the recovery phase. After completion of response phase, UNFPA developed its transition plan which included plans for continuation of some key interventions, and handover and discontinuation of others depending upon the changing conditions in the districts.

In September 2015, the Women’s Refugee Commission together with UNFPA and government of Nepal evaluated the implementation of the MISP in Kathmandu and Sindhupalchowk. The evaluation found that the objectives of the MISP implementation was largely achieved in both districts (WRC,2016). According to the evaluation, disaster preparedness; leadership and commitment among national, international, and district level actors; fundraising for reproductive health; strong coordination; existing reproductive and child health services and community outreach programs; and supply chain management are the key facilitating factors for successful implementation. Similarly, the evaluation also identified some of the barriers that include limited staff, facility and capacity in rural areas; low availability of care for clinical management of rape; and low awareness of GBV services and benefits of timely care (Myers et al. 2018).

## **ii) COVID-19 Response on SRHR**

Despite significant progress in reducing maternal morbidity and mortality, Nepal still faces a highest maternal mortality rates in the region (239 per 100,000). COVID-19 further aggravated the situation. The pandemic disrupted access to life-saving SRH services, as the health system remained stretched and resources were diverted from various programs to address the pandemic. The lockdown impacted the essential lifesaving SRH services, resulting in higher rates of maternal mortality reported during the period. Furthermore, the period evidenced higher incidence of unintended pregnancies and unsafe abortions putting the lives of women and girls at risk. Likewise, crisis and time of unrest have been linked to increased incidence of violence against women and girls, and the COVID-19 pandemic is not an exception. Evidence shows that women and girls are at higher risk of intimate partner violence, domestic violence, and also face increased risks of other forms of GBV, including sexual exploitation and abuse.

In responding to COVID-19 pandemic, RH sub-cluster and GBV sub-clusters were activated in April 2020 in federal and provincial level. Determining the situations, five rounds of assessment on impact of COVID-19 on reproductive, maternal, newborn, child and adolescent health (RMNCAH) services covering all seven provinces were conducted (UNFPA,2020). Based on the rapid need assessment, an interim guideline on RMNCAH developed, updated and provided orientation to the health service providers; supplied PPE and IPCs to the health facilities; quarantine sites; and the point of entry; established helplines for SRH counselling and referral services; developed and disseminated COVID-19 risk, SRHR and GBV service related messages through print and electronic media (radio and Television) across the country, distributed the inter-agency reproductive health kits to health facilities to continue essential SRH services and provisioned ambulance services for pregnant women for referral services in 27 districts (UNFPA,2021).

Likewise, a training module to survivor sensitive and multi-sectoral respond to GBV was developed and roll out across the country, mapped GBV referral pathways; strengthened capacity of One Stop Crisis Management Centre and GBV service providers and provided services to GBV survivors (UNFPA,2021). Further, COVID-19 affected women and adolescent girls were reached with Dignity and Kishori kits.

### **Challenges to SRHR in emergencies**

- Although the government counterparts and stakeholders at federal, provincial and local levels recognized the importance of SRH and GBV in humanitarian situations, the limited capacity to prioritize these issues and obtaining adequate funding remain a challenge at all levels;
- Cluster/sub-cluster coordination for RH and protection/GBV remains a challenge at federal and province level due to a high turnover of staff who serve as focal points, particularly in the government.
- The logistical challenges associated with the large volume of procurement, delays in the arrival of essential supplies due to international procurement and transportation to the areas as a result of the geographical complexity of the terrain were significant. The rainfalls and landslides of the monsoon season have also hampered access and delivery of supplies to targeted areas. Availability of logistics and their transportation during COVID-19 context was difficult due to lockdown and restrictions.
- Difficulty in finding capable and competent implementing partners having expertise and experience of integrated approach for SRHR and GBV service management.

### **Key lesson learned**

- The role of RH and GBV Sub-cluster at federal and sub-national level was well recognized and crucial in supporting well-coordinated and integrated SRH and GBV responses. The strategic leadership of the government in both the GBV and RH Sub-clusters was clear and coherent, providing an important sense of ownership to the national counterpart whereas international and humanitarian partners brought specific technical know-how and tool.
- A stand-by work plan and capacity building for implementing partners is vital for the timely implementation of response activities.
- The prepositioning of humanitarian supplies such as inter-agency reproductive health kits, dignity kits, tents must be continued in strategic locations to enable a more rapid response in emergencies. Logistical difficulties to procure locally as a result of the destruction and chaos created by the earthquake and restrictions during COVID-19, prepositioning of these supplies became ever crucial.
- Participation of young people during the emergency response was an effective way to reach adolescents
- Effective coordination and communication in the RH and GBV sub-clusters and inter-clusters are essential for earthquake and COVID-19 response efforts and contributed to ensure the lifesaving SRH and GBV interventions for women and girls during emergency response.
- Adaptation of MISP training package by MoHP/National Health Training Centre and integration of MISP sessions in integrated Rapid Response Team (RRT) training package developed by Epidemiology and Disease Control Division and capacity building of health service providers, RRT members and stakeholders is essential to continue SRHR and GBV services in emergencies.

- Sensitization of policy makers, elected bodies and disaster management committees, as well as integration of SRHR and GBV in disaster preparedness and response plan is important to internalize and prioritize SRHR and GBV issues at all levels.

## Conclusion

SRHR is too often overlooked in emergencies resulting in a serious consequence to women, girls and men. SRHR is one of the key components of the public health system response during the emergencies. It has become essential, especially in the immediate aftermath of a disaster, to reduce mortality and morbidity through timely implementations of the MISP. The MISP saves human lives, especially among women and girls. Implementing the MISP can also prevent STIs including HIV and helps to prevent sexual violence and provide assistance to survivors by ensuring protection, medical services and psychosocial support.

The MISP/SRHR is an inter-agency and the Sphere standard for humanitarian response. Since the disaster management is concurrent responsibility of three tiers of government of Nepal, SRHR elements should be incorporated and promoted within disaster preparedness and response so that it can be implemented whenever it needs. In addition, all the Hub and Satellite hospitals have to integrate the MISP in their Disaster Response Preparedness Plan, to be prepared accordingly to deliver the essential SRHR services during emergencies. The capacity building of health and GBV programme coordinators, service providers and stakeholders, and prepositioning of essential medicines and supplies should be continued at all levels. The disaster management fund is being established at provincial and municipal level. This fund operation guideline should incorporate the provision of SRHR services for humanitarian response so that women and girls receive lifesaving services during the humanitarian crisis.

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# Need of Medico-Legal Death Investigation Systems to Enhance Response on Management of the Dead (MotD)

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**Meen B. Poudyal Chhetri, M.A., B. L., Ph.D., Post Doc.<sup>11</sup>**

*Adjunct Professor, Queensland University of Technology (QUT), Brisbane, Australia*

*Immediate Past President, Nepal Centre for Disaster Management (NCDM), Kathmandu, Nepal*

*Chairperson of The International Emergency Management Society's (TIEMS) Paper Review Committee*

*Advisor & Former President, Disaster Preparedness Network-Nepal (DPNet-Nepal)*

*Advisor & Former Vice-President, Himalaya Conservation Group (HCG), Kathmandu, Nepal*

*Council Member of the International Society for Digital Earth (ISDE)*

*E-mail : [meen.chhetri@yahoo.com](mailto:meen.chhetri@yahoo.com)*

## **Abstract**

*The Medico-Legal System problems relating to the management of the dead which are faced by governments around the world are remarkably similar: the wrong body released to the family; a body wrongly identified; two bodies mixed up; wrong body autopsied;<sup>12</sup> wrong evidence provided in a trial or public hearing; disputes about post mortem findings; organs not returned to the body after an autopsy; wrongly labeled samples leading to results attributed to the wrong body; disrespectful treatment of a body; etc. The quality of a death investigation system is difficult to evaluate, nonetheless, it can be measured with some indicators. While there are technical aspects to the solutions, there are almost always deeper Medico-Legal System issues that need to be addressed to properly respond to the problem. When people die during wars or disasters, or in course of migration, their bodies must be handled respectfully and with dignity; and the remains of unknown individuals must be searched for, recovered, and identified because human beings have the right not to lose their identities even after death. It is evident that there is a substantial public need for accurate death information. Humanitarian work has come to include these tasks, for which forensic science offers matchless tools and expertise. One particularly compelling need is for information about the cause and manner of death for criminal justice. Moreover, ensuring the security of the remains facilitates proper identification of the remains, maintains a proper chain of custody, and safeguards property and evidence. Therefore, humanitarian efforts by the concerned government(s) are required to include these tasks for which forensic science offers matchless tools, expertise, and techniques.*

## **1. Background**

The medico-legal death investigation system is responsible to carry out death investigations and confirming the cause and manner of unnatural and unexplained deaths. Unnatural and unexplained deaths include homicides, suicides, unintentional injuries, drug-related deaths, and other deaths that are sudden or unexpected. All countries in the world have some form of

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<sup>11</sup> 208-Teenkune Marga, Kuleswor, Kathmandu - 14, Nepal.

<sup>12</sup> Medico Legal autopsies are vitally important to medicine, especially as a tool for quality assurance, as a means of exposing medical errors and promoting quality and trust in medicine.

Medico-Legal System,<sup>13</sup> part of which includes the investigation of deaths. It is seen that the countries with stronger Medico-Legal Systems are generally able to manage the dead and protect their dignity. This includes identifying the dead bodies so that they do not become missing people and discovering something about how they died. These outcomes enable the fulfillment of the families' right to know the fate of their relatives. Dead people are also a category of the victim for whom the International Committee of the Red Cross (ICRC), together with the authorities concerned, have responsibilities under the International Humanitarian Law, including the Geneva Conventions, the Additional Protocols, and the Customary International Humanitarian Law.

International Humanitarian Law (IHL) and International Human Rights Law (IHRL) are two distinct but complementary bodies of law. They are both concerned with the protection of life, health, and dignity of the people. IHL applies in situations of armed conflict while human rights law applies at all times, in peace and in war. In addition, those who die in natural or other disasters, or as a consequence of migration, come under the broader umbrella of the Red Cross and Red Crescent Movement. The ICRC directs and coordinates the international activities conducted by the Movement in armed conflicts and other situations of violence.

## **2. The Problems**

- i) Most countries do not have an extensive leadership or management system in running a Medico-Legal System which would enable more experience-based advice to be provided.
- ii) There is no easily available and appropriate literature covering the leadership or management of the Medico-Legal System governing its operation.
- iii) Forensic Services are often not empowered; there is usually no expertise within the wider government bureaucracy relating to the Medico-Legal System.
- iv) There is a shortage of skilled personnel. This problem is exacerbated due to the inadequate funds and resources by the governments for operations and employees.

## **3. Objectives of the Medico-Legal Death Investigation Systems**

A reliable death investigation system is essential to a properly functioning justice system, which in turn underpins a safe and fair society. The fundamental purposes of the death investigation are as follows:

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<sup>13</sup> The medico-legal death investigation system confirms the cause and manner of unnatural and unexplained deaths including homicides, suicides, unintentional injuries, drug-related deaths, and other deaths that are sudden or unexpected. The medico-legal death investigation system, importantly for the ICRC, is also responsible for the identification of unidentified human remains – even in cases where the manner or cause of death may be evident.

3.1 In the public interest, to ensure that defined deaths are subject to independent and accountable investigation and judicial review to support criminal and civil justice.

3.2 To determine who has died, why and how the death occurred.

3.3 To determine if further action should be taken in relation to the death.

3.4 To use information derived from the investigation to try and prevent other death and injuries.

3.5 To support family, friends, and others directly affected by these deaths.

#### **4. Missing people: The right to know**

Under the international humanitarian law, States bear primary responsibility for preventing “Disappearances” and meeting the needs of the families. The governments should seek advice from experts and professionals on how to investigate cases of missing people. At the same time, they should manage human remains and support forensic investigations carried out to identify the dead. All along the way, the governments should help those families struggling for answers.

#### **5. What needs to be done?**

According to International Humanitarian Law (IHL), the remains of people who have died during armed conflict or violence, or emergencies must be handled with dignity and managed properly. Therefore, the concerned government(s) should attempt to influence all parties in armed conflict to respect IHL so that critical infrastructures are protected from damage, life-saving personnel can continue working, and humanitarian actors are protected. Scene investigators<sup>14</sup> must recognize the varying jurisdictional and statutory responsibilities that apply to individual agency representatives (e.g., law enforcement, fire, emergency management team, judicial/ legal, etc.). Determining each agency’s investigative responsibility at the scene is essential in planning the scope and depth of each scene investigation and official statement of information to the public.

A systematic and reliable death investigation system is essential to a properly functioning justice system, which in turn reinforces a safe and fair society. Generally, such policies and tools might be to deal with specific problems which have arisen, to build or strengthen the Medico-Legal System. These policies and tools will include, but not focus on, elements to properly respond to emergencies. Hence, the concerned government(s) should provide the relevant background, information, and possible tools helping the Medico-Legal institutions responsible for the

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<sup>14</sup>The Medico-legal death investigator is an agent of the medical examiner and is generally the first point of contact for law enforcement. That person is responsible for determining the details of the death and for supporting in the scientific identification of the deceased and in tracing and notifying the next of kin. Hence, the Medico Legal death investigator’s role is vital.

management of the dead to develop local policies. It is also necessary to identify, delineate, and assemble a set of investigative tasks that should and could be performed at every death scene.

For an effective national death investigation system or MotD -- a well-structured framework is needed which contains the following prerequisites:

- 5.1 A Focal Agency;
- 5.2 Independence;
- 5.3 Ability to Manage Disasters;
- 5.4 Jurisdiction;
- 5.5 Accountability;
- 5.6 Centralizing and Managing Forensic Information
- 5.7 Forensic pathology;
- 5.8 Forensic Psychiatry; and,
- 5.9 Clinical Forensic Medicine

## **6. Rights and Needs of the Families**

One of the needs that are frequently expressed by those affected by war is a need for mental health and psychosocial support. Such support is particularly important for separated family members. This includes persons who have lost contact with their families as a consequence of an armed conflict or other situation of violence or after a natural disaster or emergency. In addition to the above to know the fate of their loved ones, recover the remains of their dead, and pay their last respects are the rights of families. The dead and their bereaved family members, relatives, and friends must be respected at all times. Management of the Dead (MotD) can be more advanced to deal with the families of the missing, and the families of victims of disasters. The mass of data involved in such circumstances requires an institution on a national scale to create the policies, frameworks, and organization necessary for these to be dealt with efficiently and judiciously.

As far as possible, religious and cultural requirements should be observed and normal procedures for mourning and burial should be allowed. "Priority should be placed on helping people recreate social networks to avoid isolation, and to give people an appropriate opportunity to mourn."<sup>15</sup> Religious and community leaders can play a vital role in helping relatives to better understand and accept the recovery and management of dead bodies. Local communities should be

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<sup>15</sup> Lynne Jones, International Medical Corps child psychiatrist

encouraged to carry out traditional rituals and grieving processes and observe whatever cultural and religious events they normally practice. “If deaths are not dignified - that is, lacking proper burials or mourning rituals - this denies people the means to accept and come to terms with their loss,” Jones told IRIN<sup>16</sup> after the Haiti earthquake.

## **7. Dignified Handling of the Dead**

Appropriate planning for the disposal of dead bodies and the adoption of best practices in protecting and handling dead bodies is of vital importance, while dignified handling of the dead is the supreme human right. Therefore, a prompt, impartial and efficient investigation and MotD is the key to ensuring that a culture of accountability – rather than impunity – prevails.

There are several stages, or steps in the investigation of death (including human identification) such as -- scene of death review; body transportation; body identification; examination; post examination; and death documents. The examination phase includes an examination of the circumstances surrounding the death and what may have led up to the death. Also included in this stage is an examination of the scene with supportive photo documentation. A medical examiner<sup>17</sup> may decide to do an external exam or an autopsy on the deceased’s body based on their medical history, the circumstances of their death, and an initial review of their body.

## **8. The Roles and Responsibilities of a Medical Examiner**

The medical examiner should meticulously search for clues, both through an internal investigation and through an investigation of the body’s surface, and record all obtained information through an extensive, post-mortem examination, fluids, tissues, and other samples are removed and examined through microscopic work, while other samples are biopsied. Through the analysis of acquired data, medical examiners are often able to determine an individual’s cause of death.

A medical examiner is responsible to:

- a) Investigate sudden and unnatural deaths;
- b) Perform forensic medicine and pathology consultations;
- c) Counsel the families regarding the manners and causes of death;
- d) Testify in courts regarding autopsies and the results of the autopsies;

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<sup>16</sup> The New Humanitarian (formerly IRIN, Integrated Regional Information Networks)

<sup>17</sup> The Medical Examiner can be thought of as a forensic pathologist who also functions as a coroner. They often have little public hearing (or inquest) function. The death is reported to the medical examiner who will decide what form the investigation will take, including whether or not there will be an autopsy. The medical examiner will often have specialist death investigators, often with nursing or emergency medicine backgrounds. This system predominates in the US. Its weakness is its lack of public hearings in deaths where the community has a major interest e.g. deaths in custody. (Prof. Stephen Cordner).

- e) Conduct physical examinations and laboratory tests resulting from court or district attorney requests; and
- f) Conduct investigations and serve summons for witnesses.

## 9. Medical Examiners vs. Coroners:

The medical examiner and coroner are two distinctly different professions. Medical examiners and coroners have different training, different job responsibilities, and different employment avenues. For example, coroners are elected officials who may or may not have medical training, while medical examiners possess well-defined medical backgrounds. Coroners have the authority to convene a court to determine a cause of death, and they often call on medical examiners to complete the post-mortem examinations. Many medical examiners work in the government sectors, where they are usually appointed, while others work for hospitals and medical schools. Coroners generally work for law enforcement agencies on a contract basis.

## 10. Recommendations

To a varying extent, depending on the jurisdiction, the major deficiencies in the Medico-Legal Death Investigation system are -- inadequate resources; inadequate expertise; imperfect legal structure; inadequate facilities; inadequate technical infrastructure especially for detecting infectious diseases and bioterrorism; inadequate training of the professional disciplines involved in death investigations; lack of practice standards and standardization of information; lack of quality measures and quality control mechanisms; lack of adequate access to and use of information technology and information systems to collect and retrieve data; and lack of research. Therefore, the Medico-Legal Death Investigation system could be improved by adopting the following measures:

- 10.1 *Referral-based Medical Examiner System.* A local system would be best with regard to the need for communication, travel, and investigative response time, but it may be impossible because of an insufficient population or tax base. A referral-based medical examiner system could improve the function of coroner systems that do not have ready access to qualified pathologists and needed services.
- 10.2 *Trained Professionals:* Death investigation systems must be led by trained and qualified medical professionals. As many agencies and institutions of government rest on the backs of a very small group of death investigators. Hence, training, infrastructure (capital investment in physical plant), and information are highly desirable.
- 10.3 *Investment in personnel and facilities:* Increasing the investment in personnel and facilities is necessary to attract qualified people. This goal could

be achieved by increasing the level of education, training, and qualifications of death investigators, and in the modernization of facilities.

*10.4 Involvement of Volunteers:* Apart from the dedicated rescuer, different people or groups of volunteers will likely be involved in documentation and body recovery. The body recovery task must be done rapidly but appropriately to correctly identify the dead and reduce the mental tension on the survivors. If available, the dead bodies should be placed in body bags. If body bags are not at hand -- plastic sheets, shrouds, bed sheets, or any suitable materials might be used. So the trained, briefed, advised, equipped and supported volunteers can be involved for this difficult task.

*10.5 NGOs may also be involved under the direct supervision of legal authority.*

*10.6 Health personnel, journalists have also roles to play.*

*10.7 Change in the System:* As the coroner system lacks proper training and is troubled with potential conflicts of interest, particularly when coroners are funeral directors, as they often are, for whom publicity affects business, the coroner system should be replaced by the medical examiner system.

*10.8 System Financing:* Creative thinking is needed to develop funding mechanisms that support a major leap forward. Another area for improvement regards legal structure, including the requirement that the coroner or medical examiner has the proper training and expertise; the scope of the Medical Examiner's jurisdiction; and state responsibility for planning and overall quality. The question is not whether the system should be federal or local, but rather whether all countries should have better planning for an effective MLDI system throughout their country. That may involve having a state medical examiner system, a well-organized regional system, or multiple country system.

## **11. Conclusion**

The Medico-Legal Death Investigation System should be in the public interest, to ensure that defined deaths are subject to independent and accountable investigation and judicial review to underpin criminal and civil justice. MLDI system is required in order to determine -- who has died, why and how the death occurred, and to see if further action needs to be taken. In addition -- to try to use information derived from the investigation and prevent other death and injuries, and to support family, friends, and others directly affected by these deaths -- MLDI is necessary.

**Ω Ω Ω**

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## **PRIVATE SECTOR IN DISASTER RISK REDUCTION MANAGEMENT**

**Darshana Shrestha**

Disaster Risk Reduction is about protecting people and communities from any kind of disasters whether they are caused by nature or by humans. Disaster Risk Reduction management decreases the impact on the vulnerable communities, businesses and people.

Federation of Woman Entrepreneurs of Nepal (FWEAN) as a strong private sector has been representing the collective efforts and voices of women entrepreneurs in the economic progress of the nation which is a crucial role taken at all levels of socio economic sector. Thus, FWEAN mobilized itself to support its members all over the country who have been affected by any kind of disaster. Although FWEAN was established as a federation to promote and support women entrepreneurship it has started to spread its wings in the Disaster risk reduction Management believing that the two parts, entrepreneurship and DRRM align for sustainable businesses for economic growth.

FWEAN is an apex body of all Women Entrepreneurs' Associations (WEAN) of Nepal since 2003. It represents 4000 women entrepreneurs covering all 7 provinces and 57 districts. FWEAN has a specific agenda to transform socio-economic status and empower women through entrepreneurship. FWEAN aims to promote women entrepreneurship through advocacy, networking, information dissemination and capacity building throughout the nation.

Women's entrepreneurial activities in Nepal are still evolving due to the embedded structural constraints and socio-cultural constraints. In many parts of the country women are perceived as a vulnerable population and are not given the same privileges as men. However, we have seen women entrepreneurship emerging amidst the difficult socio-cultural environment. Many obstacles and challenges await women entrepreneurs from the very beginning, from implementing the right business knowledge to competing in the right market. Additionally, during the unprecedented COVID 19 pandemic, the gender gap widened even more and their economic activities slowed. Furthermore, women have 14 percent fewer mobile phone users than males and are 43 percent less likely to engage in internet activities. (Digital strategy 2020-2024, USAID.) 2020, which sets out the start of normal operations during the crisis.

In Nepal, according to the Central Bureau of Statistics (2019), 99% of registered businesses are micro, small, and medium sized enterprises. 95% of employment is created by these private sectors and 29.8% belong to women. Also, they are creating significant jobs and mobilizing local resources. As a result, the contribution made by women as private sector workers cannot be understated.

The world faced the worst economic crisis since the Great Depression of the 1930s, Kristalina Georgieva, managing director of the IMF, said during the covid pandemic. The covid 19 had a significant impact on the global economy. Many businesses were forced to close their doors, and many employees were laid off all over the world. In developing countries like Nepal, the impact was even stronger. During the Pandemic women entrepreneurs had to close or scale down their businesses due to disruptions in the market and cash flow problems. Also, the chances of women entrepreneurs' survival were low since they operated their businesses in a traditional manner. When all businesses wanted to use digital platforms, the women entrepreneurs lacked the skills to use the digital platforms.

FWEAN identified the following challenges faced by women entrepreneurs during the pandemic and sought Tayar Nepal's assistance in intervening to mitigate the challenges and resurrect their businesses timely.

- a) Lack of data on women entrepreneurs and disaster management
- b) Safety and stress management
- c) Disruptions in supply chain management
- d) Difficulties in loan repayments and payments of rent and wages
- e) difficulties in communication/access to information

In 2020, FWEAN launched a four month project called "Revitalizing Business of Women Entrepreneurs Amidst Covid 19" to address the concerns and challenges outlined. FWEAN executed the initiative in collaboration with two other women-led organizations, EMERGE and Thulo.com supported by a part of the USAID/Nepal Tayar Nepal – Improved Disaster Risk Management Project, implemented by DAI Global LLC (DAI). This project was designed with the objective to help micro, small, and medium-sized women entrepreneurs cope with the impact of COVID-19 on their businesses and lay the groundwork for disaster preparedness, economic recovery, and resilience. And, also to support FWEAN in implementing and advocating evidence-

based, gender-friendly disaster risk reduction and management (DRRM) policies and programs. The project's main components were implemented in Kathmandu Valley with representatives from the FWEAN's Provincial Chapters being empowered and trained.

The project was focussed to ease the disruption of women entrepreneurs' supply chains, product sales, and cash flow management by digitizing their businesses through the platforms of Thulo.com. A powerful MA Udhami campaign was launched by thulo.com and highlighted the challenges and achievements of women entrepreneurs to inspire other aspiring women entrepreneurs. Thulo.com promoted the products of women entrepreneurs and connected them to the e-payment system. This had allowed women to rejuvenate their supply chains and cash flow. Finally, women entrepreneurs were ready to go digital for the company and acquire all the knowledge about their digital presence.

The project encouraged women entrepreneurs to move their businesses forward from the traditional ways of doing business, and was able to bring in the latest business knowledge such as to keep their businesses in difficult times. It was started with their emotional well being through various psychological awareness sessions and different business management sessions.

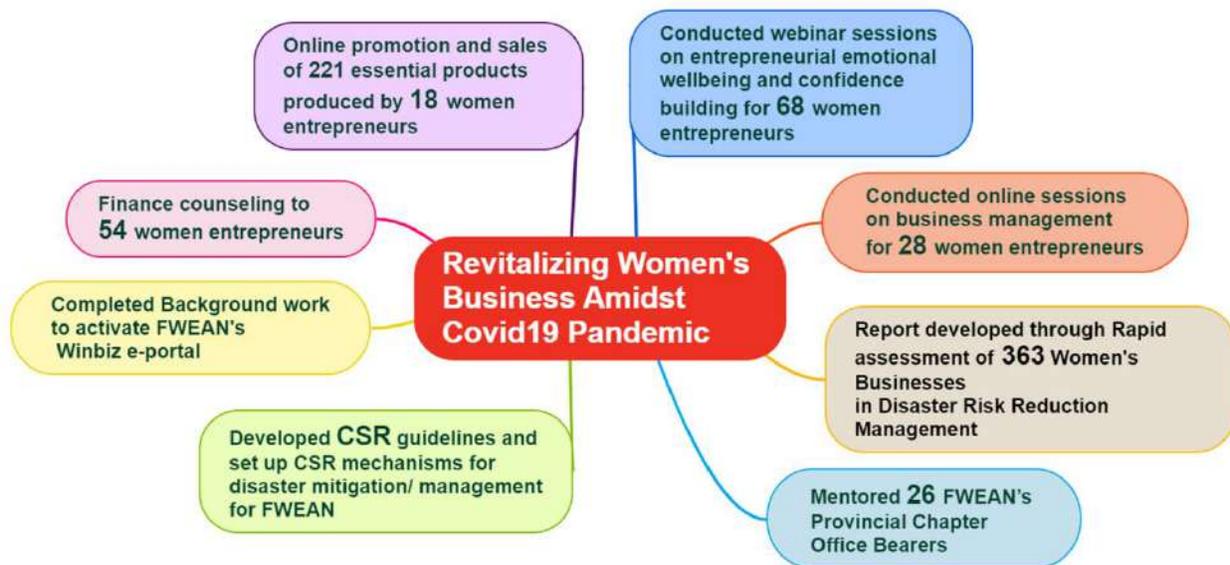
One of the project's main goals was to have a resilient business for women entrepreneurs, capacitate FWEAN and its chapters in disasters of all kinds. This was addressed by establishing a corporate social responsibility (CSR) fund in FWEAN to mobilize for organizational development, capacitate its chapter, Women Entrepreneurs Association of Nepal (WEAN) and disaster risk reduction management (DRRM) in the future.

Gender responsive lobbying and advocacy training given to Provincial leaders of chapters during the project helped them network with the local bodies and seek funding and support from the local governments at the time of disasters.

Finally, the project was able to develop evidence-based gender responsive DRRM policies and programs focusing on the preparedness of businesses of women entrepreneurs of Nepal to lobby and advocate regarding disaster preparedness and DRRM. The assessment was done to 363 businesses of women from 17 districts to help FWEAN and its members and other stakeholders assess the challenges faced by micro and small women entrepreneurs in the event of a disaster and manage the negative effects of COVID 19 and other disasters. It also aims to help women

entrepreneurs prepare for disasters and economic recovery and encourages them to prepare their Business Continuity Plan (BCP).

The results of the assessment were eye opener to FWEAN and other stakeholders regarding the importance of disaster preparedness, DRRM and business continuity planning for women entrepreneurs and for future plans and programs. 87% of women entrepreneurs are unaware of disaster preparedness, only 13% know about disaster risk reduction management. 77% of women entrepreneurs are not aware of managing the impact of disasters as they do not have proper BCP in place. FWEAN has created CSR and DRRM guidelines to guide the CSR and DRRM committees that have been set up to intervene in the event of a disaster in the community.



### Key Highlights of the projects

FWEAN as a federation of private sectors has been providing services to all its chapters and members. After the project was successfully completed, apart from its objective of empowering women economically through entrepreneurship it has started to intervene in the field of disaster risk reduction management of its members believing that disaster preparedness and mitigation play a major role in business continuity.

Furthermore, the private sector is an important part of the community, improving the resilience of vulnerable communities by investing in society, creating jobs and providing products and services as needed. Therefore, access to relief efforts and disaster recovery assistance is equally important

to the private sector as it plays an important role in economic recovery and contributes to humanitarian response in terms of resources and capacity in the affected areas.

Since Nepal is a disaster-prone country, it is important to form public-private partnerships for disaster preparedness and mitigate disaster risk at all levels and build a resilient society. It is equally important to enhance the capacity of private sectors for them to respond effectively in disaster risk communities and include them in all levels of DRRM of the country for the efficient implementation of preparedness and risk management. Also, the government and development agencies must come up with a comprehensive relief and recovery package for effective DRRM that takes into account the expectations of businesses to include financial support, grants, loan guarantee/interest rate subsidies, tax holidays, etc. Private sector associations like FWEAN must lobby for such DRRM packages to ensure their needs are addressed through consultation during the designing of relief and recovery packages. There must also be specific targeted assistance for businesses depending on their size, sector, and the intersectionality of entrepreneurs, including women entrepreneurs.

Finally, to support the national agenda of the country in DRRM, FWEAN is planning to integrate DRRM into its strategic plan to further strengthen the involvement of more private sectors in DRRM at all local levels through the involvement of its chapters. Furthermore, FWEAN is participating actively in NPDRR and partnering with other private sector initiatives in DRRM.

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# **Importance of Geohazard investigation for sustainable risk reduction in the Nepal Himalaya**

Basanta Raj Adhikari

Centre for Disaster Studies, Institute of Engineering, Tribhuvan University, Nepal

## **Abstract**

The occurrence of natural hazards in the Nepal Himalaya is common due to active tectonics and Asian monsoon. This region has experienced a considerable number of large natural hazard events in the recent decades. The spatio-temporal landslide analysis shows that the number of events and casualties are increasing in recent years. It is utmost necessity to understand the impact of climate change and seismic activities to understand the causes and consequences of these events. The geohazard investigation includes the understanding of the thawing of permafrost, landslide distribution and sedimentation to the Himalayan Rivers. Nepal has significantly progressed on the community-based early warning systems. These low-cost early warning systems should be replicated in the other parts of Nepal. The establishment of hydro-meteorological stations at high altitude, implementation of risk-sensitive land use planning considering multi-hazard and monitoring of mountain slopes will provide unique opportunity for the sustainable risk reduction in the Nepal Himalaya.

**Key words:** Geohazard, Nepal Himalaya, Disaster Risk reduction, Early Warning System

## **1. Introduction**

Nepal Himalaya lies in the central part of the Himalaya, which is one of the seismically active mountain belts in the world. It is formed due to collision between Indian plate and Eurasian plate where numerous tectonic faults/thrusts exist. The tectonic movements within these tectonic discontinuities and deformed rocks are responsible for triggering many earthquakes (Bilham et al., 2001; Kobayashi et al., 2015; Kubo et al., 2016; Mencin et al., 2016; Sapkota et al., 2013). The  $M_w$  7.8 Gorkha Earthquake-2015, Nepal has ruptured a 150-km long section of the Himalayan décollement and triggered more than 19332 co-seismic landslide (Gnyawali and Adhikari, 2017) in the central Nepal. The landslide distribution is primarily controlled by the rupture direction, seismo-genic fault and the landslide number density increases towards the SEE direction. These

landslides are carrying large volume of sediment to the rivers and deposited in valleys and foothill of the Himalaya. The occurrences of natural hazards in this region are common due to active tectonics, rugged topography, steep and fragile landscapes and strong Asian monsoon. Moreover, the increasing climate extremities due to climate change are also responsible for the generation of natural hazards. For example, the hailstorm (Figure 4) with heavy rainfall on 21<sup>st</sup> February 2022 in the Pokhara valley of western Nepal is very unusual, which damaged worth of NRs 110 Million (Republica, 2022). The thawing action of the permafrost can reduce the ground stability that can causes rock failures and increase the risk of glacial lake outburst lakes (Bolch et al. 2019) in the Nepal Himalaya. The increasing number of forest fire in recent decades has multiple consequences in Nepal's forest ecosystem. A recent study shows that more than half of the total forested area (65%) is in the high fire risk in Terai Arc Landscape (Parajuli et al. 2020). The forest fire changes the soil properties by decreasing soil moisture percentage, which helps for land sliding and slope failure. In recent years, the construction of road without geological and engineering investigation has been generating million tonnes of sediments to the Himalayan rivers by creating landslide and slope failures. It is found that the occurrences of rainfall-triggered landslides are more than twice as likely to occur within 100m of a road as the landslide generated by earthquake in the Sindhupalchowk district (McAdoo et al., 2018).



*Figure 4: Hailstorm occurred in the Pokhara valley on 21st November 2022*

Mountains slopes are unstable due to reoccurring earthquakes and intense rainfall. For example, a high-intensity rainstorm (540 mm in 24 hours) in July 1993 hit the central Nepal and 52 houses were destroyed and 62 persons were killed by a debris flow and deposited 5.1 million m<sup>3</sup> sediment volume in the Kulekhani Reservoir (Dhital, 2003). A recent study by Adhikari et al. (2022) shows that there are more than 4 thousand landslide events in the Nepal Himalaya from 1971-2020 (Figure 5). These landslide took more than 5 thousand fatalities (~111 deaths per year). The concentration of landslide numbers in the mid-hill region of the Nepal Himalaya shows the influence of anthropogenic activities, strong monsoon and weak geology. Geologically, the concentration of landslides is high in the lesser Himalaya due to having low-grade metamorphic rocks and low-strength rocks such as phyllite, schist and gneiss. The aforementioned arguments show that there are multiple factors are responsible for creating geohazards and it is utmost necessity to understand the geohazards and their cascading effects in the Nepal Himalaya.

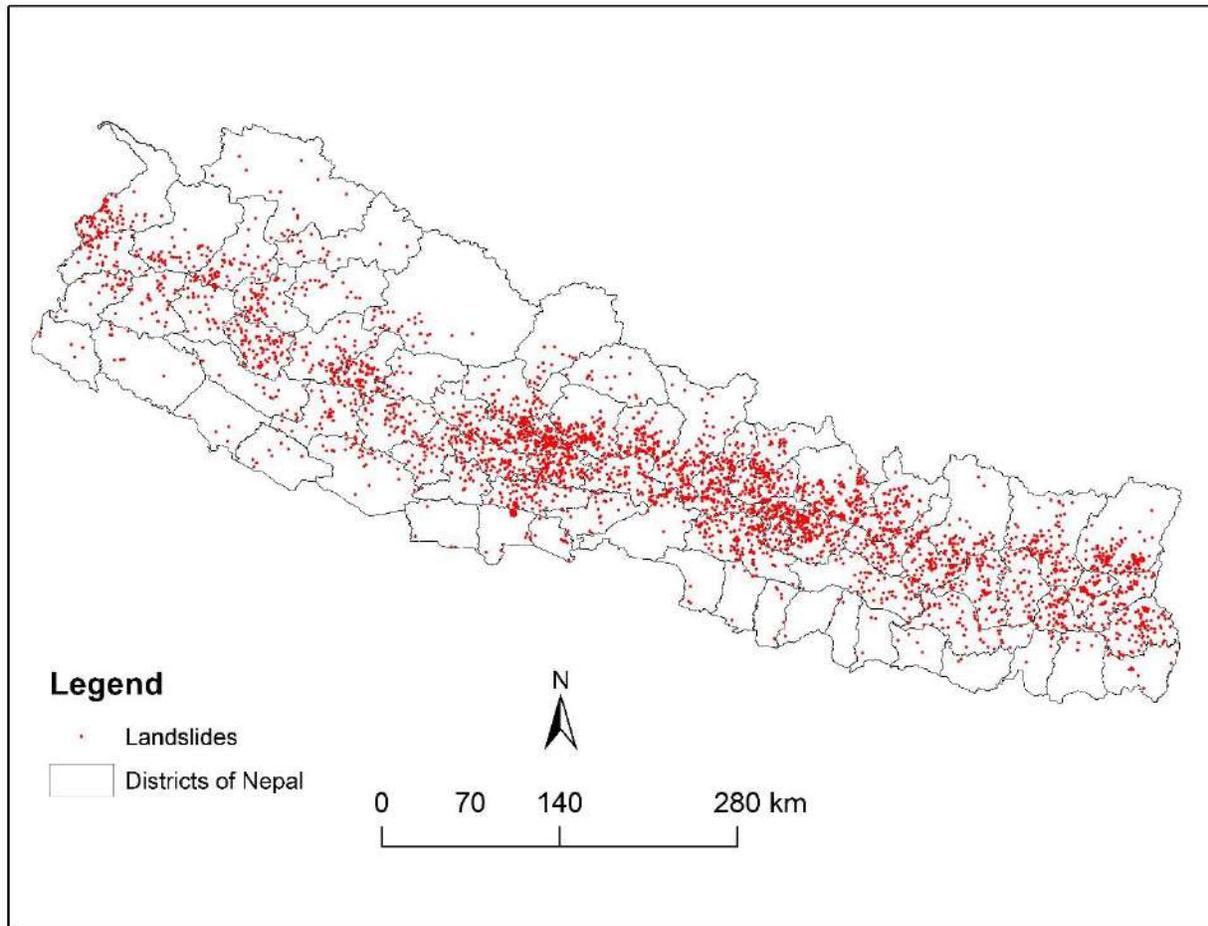


Figure 5: Landslide distribution in the Nepal Himalaya from 1971 to 2020 (Adhikari et al. 2021).

## 2. Large scale events in the Nepal Himalaya

Nepal Himalaya has experienced different large scale events in the past. Some of the Himalayan valleys are developed by the several catastrophic events. For example, an outstanding research on Pokhara valley has suggested that this valley was formed due to catastrophic events in ~100, 1255 and 1344 C.E based on radiocarbon dates from peat beds, plant microfossils and humic silt in fine grained tributary sediment (Schwanghart et al., 2016). Therefore, tectonic and geomorphic adjustment to several catastrophic aggradation pulses has been ongoing for many centuries in this region. These valley fill sediments always remind the scale of the events and the vulnerability of the region. In addition to this, reoccurring earthquake and cloud bursting have negative impacts to the livelihood in the mountainous region. Moreover, most of the human settlements in the

mountains lie within the large scale landslides and people are constructing mountain roads without proper investigation of these large geomorphic landforms.

In modern history, some large earthquakes occurred in 1934, 1988 and 2015 generated many co-seismic landslides/debris flow. Most of the landslides/debris flow have destroyed lives and properties in the different parts of the country (Table 1). Among them, some of the large scale events are described below.

*Table 1: Large scale landslides/debris flow in the Nepal Himalayas*

<b>S. N.</b>	<b>Date</b>	<b>Name</b>	<b>Location</b>	<b>Description</b>	<b>Source</b>
1	1934	Nepal	Nepal	1934 Earthquakes has triggered many co-seismic landslides	(Auden, 1935)
2	1962	Darbang	Myagdi	Buried the Darbang Bazaar and Killed 500 People	(YAGI et al., 1990)
3	1968	Lapu Besi	Gorkha	Blocked the Budhi Gandaki River and breaching of dam destroyed the settlement downstream	(Sharma, 1981)
4	1969	Bajhang	Bajhang	1969 earthquake triggered many landslides	(Upreti and Dhital, 1996)
5	1976	Jharlang	Dahdi	Jharlang Village has shifted to another location	(Yadav, 1976)
6	1976	Bhagawati Tar	Kaski	Landslide killed about 75 people	(Upreti and Dhital, 1996)
7	1978	Tinau	Palpa	Dry Landslide destroyed a newly-built bridge over the river at Butwal	(Upreti and Dhital, 1996)
8	1980	Bajhang	Bajhang	Earthquake of 6.5 magnitude has triggered many landslides and 178 people died.	(Sharma, 1981)
9	1988	Darbang	Myagdi	Killed 109 and dammed Myagdi Khola	(Upreti and Dhital, 1996)

10	1993	Phedi Gau	Makarwanpur	Large scale landslides and debris flow in central Nepal and destroyed property. Phedigaon debris flow destroyed 52 houses and 52 death.	(Dhital et al., 1993)
11	1993	Jogimara	Dhading	The landslide blocked the Prithivi Highway and carried two buses with passengers into the Trishuli River	(Upreti and Dhital, 1996)
12	2001	Krishabhira	Dhading	The debris and boulders blocked the prithivi highway for 11 days	(Maskey, 1999)
13	2014	Jure Landslide	Sindhupalchok	Landslide has buried a village with 156 death and blocked the Sunkoshi River forming 55m high dam.	(Van der Geest, 2018)
14	2015	Central Nepal	Central Nepal	Gorkha Earthquake 2015 has triggered more than 2000 Landslide killing many people	(Gnyawali and Adhikari, 2017)
15	2016	Bhotekoshi Flood	Central Nepal	The Glacial Lake Outburst Flood damaged the houses and infrastructure along the Bhotekoshi river	(Cook et al. 2018)
16	2021	Melamchi Debris Flow	Central Nepal	Destroyed the Melamchi Bazaar and more than 20 people died and	Nepalitimes, 2021

## 2.1 Seti Flood 2012

The Seti flood was occurred on 5<sup>th</sup> May 2012 in the Seti River, Pokhara valley of western Nepal. The pre- and post-disaster satellite images showed that the trigger of the debris-flood was rock slope failure of estimated volume of 22 million cubic meters in the southwest flank of the Annapuran IV (Sabque Cirque) (Petley and Stark, 2012). It was reported 71 death and the flood destroyed 7 tractors, 3 mini trucks, 1 van, 52 goats and 17 counts (Bhandary et al. 2012). The flood destroyed a suspension bridge and a picnic spot at Kharapani area (Figure 6). The process is still unknown but the generation of high amount of flood during this event



*Figure 6: The destruction caused by the 2012 seti Flood in the Kharapani area, Pokhara*

might be due to the river damming at certain point of the Seti River. The rock fall in the Annapurna region might be due to permafrost melting. So, the extreme event shows a cascading phenomenon of the natural hazards in the Nepal Himalaya.

## **2.2 Glacial Lake Outburst Flood in the Bhotekoshi River, 2016**

The effect of global climate change has negative effect in the Himalaya where glaciers are melting forming glacial lakes. The hydrostatic pressure due to glacial lakes weaken the end moraine. So, the occurrences of GLOF events are increasing in recent decades. There are 3624 glacial lakes equal to or larger than 0.003 km<sup>2</sup> in the Koshi, Gandaki and Karnali river basins of Nepal, the Tibet Autonomous Region (TAR), China and India based on Landsat OLI images of 2015 where 47 lakes are potentially dangerous glacial lakes (Bajracharya et al. 2020). Out of 47, 21 lakes lie in the Nepal Himalaya. The effect of the glacial lake burst can be very catastrophe in nature. One example can be taken from the Bhotekoshi River where the GLOF event was occurred on 5<sup>th</sup> July

2016. The Gongbatongshacuo Lake in the TAR, a  $1.7 \times 10^4 \text{ m}^2$  moraine-dammed lake, was burst and damaged different infrastructures and agricultural livelihood to the downstream (Cook et al. 2018). This GLOF event was responsible for bank erosion in numerous sections of the Bhotekoshi River (Figure 7).



*Figure 7: bank failures due to GLOF event in 2016 in Bhotekoshi River*

This event shows that long-term valley evolution in the Himalayan Region driven by large-scale event such as GLOF frequency and magnitude rather than by precipitation (Cook et al. 2018).

### 2.3 Melamchi debris flow, 2021

A debris flow occurred on 15<sup>th</sup> June 2021 in the Melamchi River, Sindhupalchowk district, Nepal. The region of this event is still unknown but it might be occurred due to intense rainfall in the upstream of the Melamchi River but the meteorological station at further downstream did not record high rainfall. The landslide/debris flow generated huge mass of sediments in the

Bhremathang area. These sediments were transported by the river and devastated a large number of infrastructure and houses along the river corridor. Moreover, this event had collapse the river banks generating millions tons of sediments to the river bed, which then deposited more than 20 feet thick pile of fine sediment at the Melamchi Bazaar area (Figure 8).



*Figure 8: sediment deposition at the Melamchi Bazaar*

The big size boulders can be seen in the upstream of the Melamchi Bazaar near the intake of the Melamchi Drinking Water supply project (Figure 9). This event has damaged the intake area of the drinking water project. This event is a unique example of cascading effect of the natural hazard in the Nepal Himalaya (ICIMOD, 2021).



*Figure 9: Big size boulders exist near the intake area of Melamchi Drinking Water Supply Project*

### 3. Community-based early warning system (landslide and debris flow)

The history of landslide and debris flow early warning system is very short (Adhikari and Tian, 2021). The Gorkha Earthquake-2015 has shattered rock mass forming numerous cracks. These cracks reactivated in the subsequent monsoon in the following years. Therefore, it is important to monitor these cracks to understand the geo-hazard phenomenon in the Nepal Himalaya. The risk reduction of landslide/debris flow can be done with the help of both structural and non-structural measures. Some previous initiative has clearly shown that small scale intervention can be fruitful solution for low-income countries like Nepal, however, structural measures are not always sufficiently effective due to difficult terrain and unpredictable geological as well as meteorological conditions. In such conditions, non-structural measures such as Early Warning Systems (EWS) is one of the most effective disaster risk reduction approaches.

The community-based Landslide Early Warning System installed in the Sundrawati Rural Municipality, Dolakha by the Department of Forest and Soil Conservation, Government of Nepal with the help of Food and Agricultural Organizations (FAO) demonstrated the successful example. The system includes rain gauge, soil moisture sensors and extensometer for the landslide monitoring. The system was equipped with a mobile SIM card to provide an alert message and siren. Altogether 495 people from 117 households benefited from this system and saved their lives during the landslide event that occurred on 28<sup>th</sup> May 2018 (Thapa and Adhikari, 2019). The

successful pilot project demonstrated the usefulness of community-based landslide early warning system. The establishment of flash flood early warning system in the Himalaya is always challenging due to the terrain conditions. Adhikari and Sitoula (2018) have prepared Flash Flood Early Warning System that includes solar panel, siren, Ultrasonic sensor, processing unit and battery. The ultrasonic sensor sense water level and the siren activates automatically. The sensor detects the water levels in different time period and activate the siren.

#### 4. Conclusion and recommendation

Nepal Himalaya is very prone to natural hazards due to the coupling effect of active seismotectonics and Asian monsoon. The nature of natural hazard shows cascading in nature. The freezing and thawing action of permafrost triggers the landslide/debris flow, which then block the rivers creating landslide dam. The failure of landslide dam can create landslide dam outburst flood that destroys the lives and properties to the downstream. The past events such as 2012 Seti Flood; GLOF events in the Bhotekoshi River in 2016 and Melamchi debris flow, 2021 indicate the urgent necessity to understand the mountain slope. Therefore, it is required to establish hydro-meteorological stations at the high altitude (>3000m) in the Nepal Himalaya. The establishment of multi-hazard early warning system should be establishment with strong monitoring equipment. Moreover, risk-sensitive land use planning should be strictly implemented while developing new urban areas in future. The establishment of community-based early warning is very effective tools for the sustainable risk reduction in the Nepal Himalaya.

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