

Community Support During Disasters- A Review of Disaster Pattern in the Bigu Rural Municipality of Dolakha District and their Management

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Abstract

In this research, I am focusing to identify the causes of disaster occurrences and the coping mechanism of the vulnerable community. This research will cover the action plan of preparedness and community capacity for disaster management. Nepal is one of the most disaster-prone countries of the world due to complex geophysical condition and poor socio-economic situation. The country is facing various types of natural disasters like: flood, landslide, fire, earthquake, windstorm, hailstorm, lightning, glacier lake outburst flood, drought, epidemic, avalanche and so on. Further it is also exposed to various types of natural disasters due to rugged and steep topography, extreme weather events, and fragile geological conditions.

The key research question is the analysis of the community's resilience to the frequent natural and man-made disasters. This will include understanding of: the in-situ coping ways of the community within their families as a unit and the preparedness measures that they have and how do they act when disaster occurs. The research will further investigate and analyse the patterns of the disasters in the study area, the impact of the past disasters on the community and the landscape.

These actions will help in framing the project narrative describing the disaster patterns, impacts, community coping mechanisms incl. preparedness and mitigation measures. Key Words: Hazard, Vulnerability, Capacity, Disaster, Risk, Mitigation

Nepal - scenario of disaster management

Nepal is one of the most disaster-prone countries of the world due to its complex geophysical condition and poor socio-economic situation. The country is facing various types of natural disasters like: flood, landslide, fire, earthquake, windstorm, hailstorm, lightning, glacier lake outburst flood, drought, epidemic, avalanche and so on. Further it is also exposed to various types of natural disasters due to rugged and steep topography, extreme weather events, and fragile geological conditions. Nepal's vulnerability to disasters is compounded by rapid population growth, and development of haphazard and unplanned settlements. The rural houses are built mostly with the wood and thatched roofs and are hence very weak and majority of them remain highly vulnerable to disasters such as fire hazards, earthquakes, landslides, and floods. The disaster occurs almost every year in one or the other part of the country.ⁱ

Thousands of families every year become homeless due to natural disasters and most of these are poor families as they usually live in the disaster-prone areas due to socio economic conditions and the repressive caste system. It is obvious that they are more victimized as they are in un planned settlements in the hazard/risk affected area with minimal preventive measures (using poor construction materials), haphazard use of land for agriculture and other activities.

Large tracts of the rural areas are often inhabited by low income earning communities dependent upon agriculture, livestock, daily wage, forest products, small business, and service for their livelihoods. Once the disaster occurs, these extremely vulnerable people are mere dependents (for a long time) on external aid in absence of community safety nets and weak government infrastructure and support systems.

The types of natural and human induced hazards in Nepal, drawn from the active dataset (table 1) maintained by MoHAⁱⁱ, covering a period of 45 years (1971 to 2015) tells us that a total of 22,373 disaster events have been recorded during this period. This works out to an average annual exposure to 500 events of disasterⁱⁱⁱ.

Table 1. Major hazards in nepal: loss and damage (1971-2015)

Hazard Type	No. of death	No. of persons missing	No. of persons injured	No. of houses damaged or destroyed	No of affected families	No. of incidents
Epidemic	16,564		43,076		512,970	3,448
Earthquake	9,771		29,142	982,855	890,995	175
Landslide	4,832	165	1,727	32,819	556,774	3,012
Flood	4,344	6	527	215,427	3,702,942	3,720
Fire	1,541		1,379	83,527	256,445	7,187
Thunderbolt	1,502	129	2,444	952	6,880	1,505
Cold wave	515		83		2,393	390
Snowstorm	87	7	7			5
Avalanche	16	3	2			2
Wind storm						16
Hailstones				6	2,608	17
Heavy rainfall				4	5	3
Others*	1,092			15,323		2,892
Total	40,264	310	78,383	1,330, 913	5,932, 012	22,372
<i>The category 'other' represents unidentified events and was recorded till 2013</i>						
<i>Source: AMCDRR 2016, Nepal Disaster Report^{ivv}</i>						

Rationale of the study

Nepal has been classified by the World Bank 2015 as one of the 'hot- spot' countries in the world with high risk for multi-hazard and disasters. Accordingly, "Nepal is ranked as 11th at most risk country in the world in terms of its vulnerability to earthquake, 30th with respect to floods and ranked 4th at risk of climate change induced disasters, making it the 20th most disaster-prone country among 198 countries in the world" (UNDP/BCPR, 2004). According to "National Strategy for Disaster Risk Management in Nepal 2009" of the Ministry of Home Affairs (MoHA), Nepal suffers a loss of about 1000 people's life every year due to natural hazards, and a direct loss of an average of nearly 1208 million Nepali rupees per year. Every year millions of national and international expenditures are spent on disaster response activities, which absorbed a great deal of resources which would normally be allocated for well-grounded national development efforts.

Nepal is one of the most disaster-prone countries of the world due to complex geophysical condition and poor socio-economic situation. The country is facing various types of natural disasters like: flood, landslide, fire, earthquake, windstorm, hailstorm, lightning, glacier lake outburst flood, drought, epidemic, avalanche and so on. Further it is also exposed to various types of natural disasters due to rugged and steep topography, extreme weather events, and fragile geological conditions.

The key research question is the analysis of the community's resilience to the frequent natural and man-made disasters. This will include understanding of:

- a) The in-situ' coping ways of the community within their families as a unit and
- b) The preparedness measures that they have and how do they act when disaster occurs

the research will further investigate and analyse the patterns of the disasters in the study area, the impact of the past disasters on the community and the landscape.

These actions will help in framing the project narrative describing the disaster patterns, impacts, community coping mechanisms incl. preparedness and mitigation measures.

Review of literature

Until the 1970s, disasters were understood as synonymous with natural hazards/events such as earthquakes, windstorms, floods and landslides. The magnitude of a disaster was considered to be a function of the magnitude of the hazard. For instance, earthquakes and windstorms are not avoidable;

the emphasis of national governments and the international community, therefore, was mainly on a reactive approach of responding to the events (disasters) and in the best of cases, preparing for them, with an assumption that disasters are inevitable to be dealt only with response actions. ^{vi} But, from the 1970s onwards, and with the start of million decades from 2000s, especially following the Hyogo Framework of Action (HFA), it has been established that disasters are intimately connected to the processes of human development. Natural hazards like windstorm, floods and earthquakes, however intense, inevitable or unpredictable, translate to disasters only to the extent that the society is unprepared to respond and unable to cope (which reflects the state of their vulnerability) and consequently, severely affected. In other words, there is nothing natural about disaster; it is the outcome of human inaction or lack of appropriate action in development (World Bank). So, there is now a new paradigm shift that natural hazards themselves do not necessarily lead to disasters. Natural hazards are triggering disaster events, but that for a hazard to become a disaster, it has to affect vulnerable people. If people can be made less vulnerable, or non-vulnerable, then a hazard may still occur, but need not produce a disaster. It is now recognized that disaster risks (physical, social, and economic) unmanaged (or mismanaged) for a long-time lead to occurrence of disasters. The possibility that a disaster might or might not occur will depend on whether those risks are adequately managed or not. Disasters are the results of ill-planned and un-planned development. Even the occurrence of recent climatic abnormality attributed to global climate change is traced to human activities as the emission of unmanaged and extremely high greenhouse gases (CO₂, methane...). Looking at disaster from this perspective, the management of the emergency (response) itself ceases to be a priority.

As such disasters result from the combination of hazards, conditions of vulnerabilities that are usually accumulate over time, and insufficient capacity or measures to reduce the potential damages. This is reflected in a simple empirical formula:

$$\text{Disaster risk: } \frac{\text{Hazard} \times \text{Vulnerability}}{\text{Capacity}}$$

Since little can be done to reduce the occurrence and intensity of most natural hazards, actions and activities should focus on reducing existing and future vulnerabilities to damage and loss. This clearly establishes that reducing vulnerabilities is the key to disaster risk reduction which should be acted upon as the integral component during the development phase of the program. It is not to be left upon for action by humanitarian actors in the aftermath of a disaster.

Table 2. Paradigm shift from disaster management to disaster risk management

Disaster Management	Disaster Risk Management
Reactive Approach	Proactive Approach
Disaster is natural, same as Hazard	Disaster is not hazard, but correlated with vulnerability
Relief/Response Focus as 1 st priority	Disaster Risk Reduction (DRR) as the primary focus, disaster response secondary
Disaster normally seen as separate issue from development	DRR integral component of development
Disaster management seen as the responsibility of humanitarian actors	Disaster/DRR- responsibility of development actors- right development approach
Disasters impede development gains/Disaster response does not address the root causes of disasters	DRR sustains development gains, minimize or prevents impact of disaster addressing the root cause of vulnerability
Large scale funding requirement-with separate fund allocation out of development budget to address disasters response	Cost effective and Small-scale funding required as integral component of development budget to guide proper development practice to reduce vulnerability

Disaster response focus entails continues focus on humanitarian action, less focus on vulnerability reduction and hence does not alter much the status quo of vulnerability population (continues loss of life and property)	Disaster Risk Reduction/Disaster Risk Management contributes to protection of life and livelihood of population by ensuring the continuity of services even in the situation of hazards.
More focus on bringing status to normal conditions (MDG)	Focus more on sustainable development outcomes (SDG) with resilience community development approach
<i>Source: IFRC^{viii}</i>	

It is a concept applied in an integrated approach towards a disaster event in which the management cycle can be carried out through a sequence of activities/ phases, each being responsible or designed to address a specific type of intervention. Disaster risk management as an action to cope with disasters could refer to any purposive undertakings before, during and after disaster occurrence as a cycle with different phases, from preparedness through response, from prevention, mitigation and readiness through relief, recovery and rehabilitation. The disaster risk management is pivotal because of its ability to promote the holistic approach to disaster risk management and to demonstrate the relationship of disasters and development.

The relationship between disaster and development as a cycle reinforces the fact that disasters, however inevitable, could be managed through adequate planning and preparedness for response. Disaster risk management cycle on prevention, mitigation and preparedness comprises the development portion, while relief and recovery comprise the humanitarian assistance portion with preparedness linking both types of efforts. Thus, the disaster risk management cycle consists of four phases: Prevention/Mitigation and Preparedness in the pre-disaster stage, and Response as well as Rehabilitation/Reconstruction in post-disaster stage. The two stages to disaster risk management: pre-disaster and post-disaster phases are illustrated in DRM Cycle in detail below.

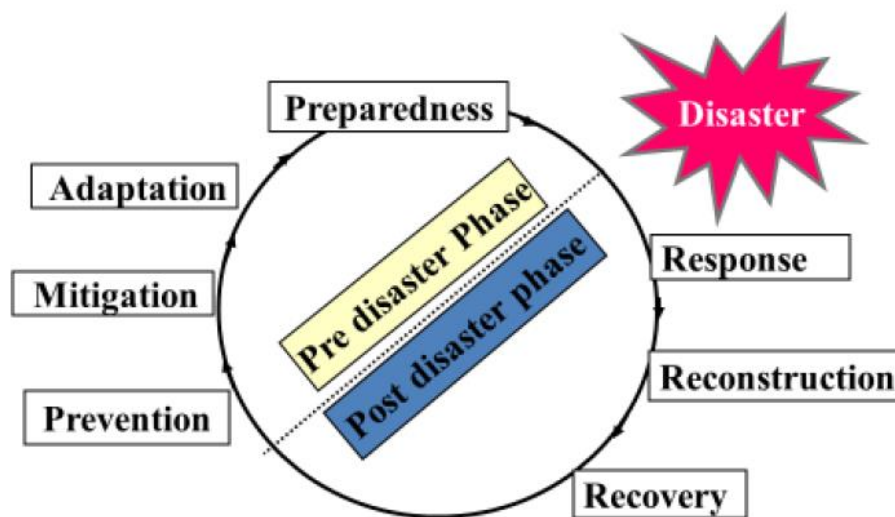


Figure 1. Disaster risk management cycle

Pre-disaster phase: It covers Risk Identification, Prevention, Mitigation, Adaptation and Preparedness measures undertaken to reduce the disaster risks associated with potential hazards to prevent or minimize the adverse impact on human and property losses caused by a disaster. The intention of **preparedness** is to prevent or minimize the losses and damage in case of a disaster. Preparedness denotes the post disaster phase of disaster risk management cycle.

Post disaster phase: It covers Response, Recovery and Reconstruction actions taken in response to a disaster with a purpose to achieve early recovery and rehabilitation of affected people and communities. The **Response** includes the search and rescue; fulfilling basic humanitarian needs of the

affected communities and other humanitarian actions. Recovery starts after the immediate threat to human life has subsided. The immediate goal of the recovery is to bring the affected area back to some degree of normalcy and to a situation which should be better than before the disaster, following "Build Back Better" principle of humanitarian assistance.

As per the government structure on Disaster Management Act, the national disaster relief structure is like this:

Disaster risk reduction & management organogram

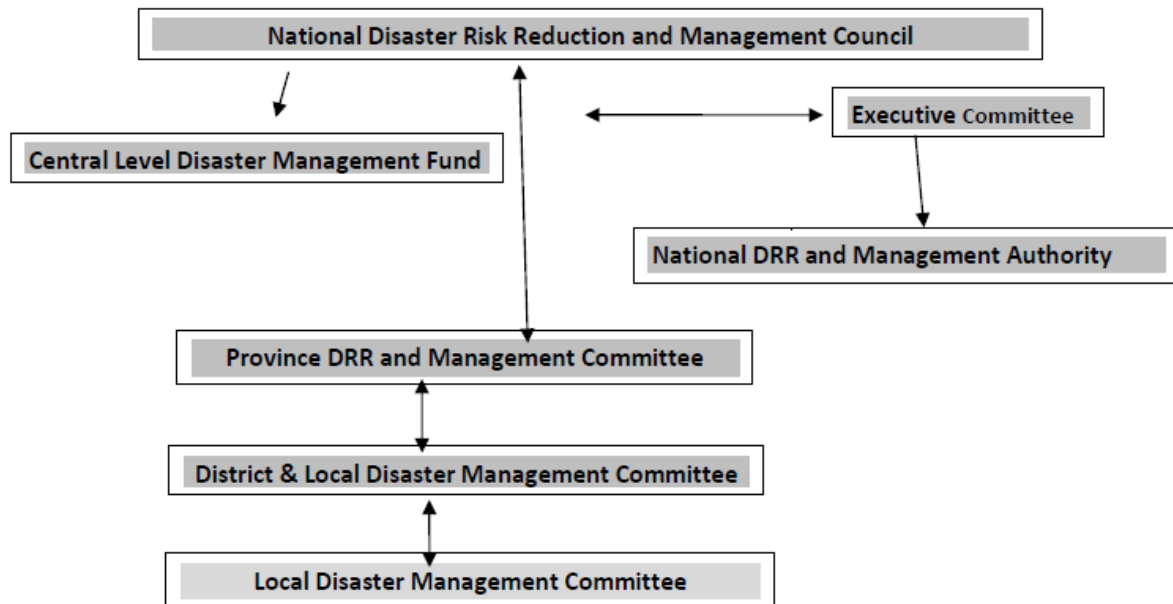


Figure 2. New structure of disaster risk management committee

Methodology of study

Study area

Dolakha, often known as Dolkha or Dholkha, a part of Province No. 3, is one of the seventy-seven districts of Nepal. The district, with Charikot as its district headquarters, covers an area of 2,191 km² and has a population of 204,229 in 2001 and 186,557 in 2011. It is a district with a strong religious affiliation and popular amongst most Nepalese for the temple of Bhimeshawor. Dolakha has the districts of Solukhumbu and Ramechhap to the east, Ramechhap and Sindhupalchok to the south, Sindhupalchok to the west and Tibet to the north.

Dolakha's lowest elevation point is Sital at 723 m, whereas Mt. Gauri Shankar is the area's highest peak at 7134 m above sea level. The easy accessibility from Kathmandu by road makes it a natural choice for trekkers who would rather avoid the unpredictable nature of flights to Lukla or Jomsom. The variety of length of these treks also allows a traveller with only limited time to experience true and untouched Nepal. The 2nd earthquake of 6.8 rector on 12th May, 2015 it's epicentre in Sunkhani Village Development Committee of Dolakha district.

Bigu Rural Municipality is located in the northern belt of Dolakha district with covering area of Alampu, Bigu, Bulung, Chilankha, Khopachangu, Laduk and Oranga (Previous Village Development)^{ix}. The total Population of 18595 out of them 9,632 females and 8960 male population.

The research is conducted in Alampu. Alampu is located within Bigu Rural Municipality adjoining with Tibet in northern, Chilankha and Lamabagar in east and Bigu in south part. As per census 2011, total population is 1,803 and 685 HHs. Alampu is highly prone area for natural and made-made disasters i.e. landslides, fire, cold wave, heavy rainfall, earthquake etc. Every year 5-10 people were killed with natural disasters. The houses were constructed through stone mud mortar with stone plate roofing.

Table 3. Demographics of dolakha and alampu

	Dolakha	Alampu	Additional Details
Demographics			
Total Population	43,198	685	Census 2011
Total Population	2,04,229	1,803	Census 2011
Female	1,04,266	939	Census 2011
Male	99,963	864	Census 2011
Expected Family Member	4.73	2.63	Census 2011
Population Increasing Rate	1.65	1.65	Census 2011
Hill Janajati & Dalit	88 %	93%	Census 2011
Per Capita Income	\$922	\$1894	National Per Capita Income: \$1160
Adult Literacy Rate	63 %	79.68	Census 2011
Popn Under Poverty Line	26 %	7.60%	Nat. - 23.48%
Persons with Disability	3%	1.10%	Nat.-1.94%

Source: Census 2011.

Dolakha District

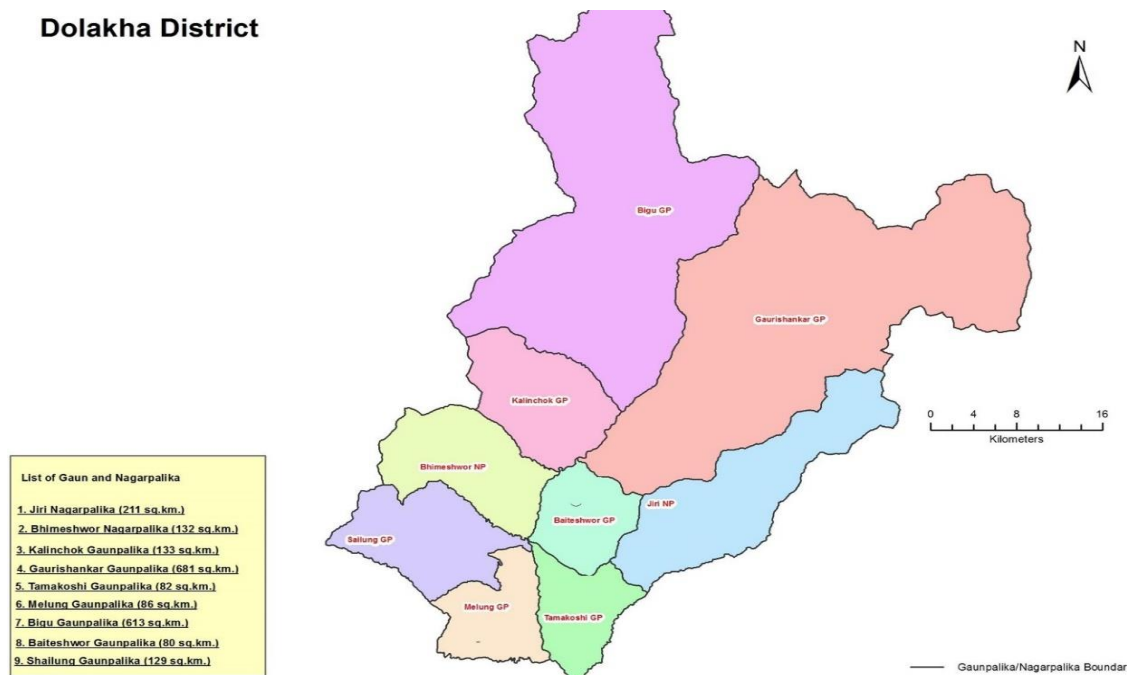


Figure 3. Map of the study area – bigu municipality

Source: MoHA 2018

Disasters occurrences damage the individual house, cattle, grains, family member etc. The community faces this problem almost every year and has to cope with the impact of the disaster within their immediate family groups. This means rebuilding their livelihood and house on their own. The mega earthquake of 2015 damaged all the houses within community, in 2016, Landslides damaged more than 20 houses and in 2017, fire damaged 5 houses. The disaster pattern is incessant and continual with the community managing the disaster impacts on its own.

Study population

The study is conducted on targeted population in Alampu and covered the population as mention below:

Sex	HHs Visit	FGD	Stakeholder
Female	10	15	1
Male	25	20	3

Study duration

Table 4. Time frame of research

Month	February				March				April				May	
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Week														
Activities														
Finalization Of Guide														
Submission for Approval														
Finalization of Research Topic														
Research Proposal														
Submission of Research Proposal														
Questionnaire Field testing														
Data Collection														
Data Analysis														
Report Writing														
Submission of Report														

Sampling method

Based on the nature of the study and the time frame, 95% confidence level has been considered with 5% confidence interval and P values as 10%. The formula below was used for calculation of the sample size.

$$\text{Sample Size (SS)} = \frac{Z^2 p(1-p)}{c^2}$$

Here,

Z = 95% confidence level

p = percentage picking a choice, expressed as decimal (15% used)

c = 5% confidence interval

Correction for Finite Population

$$\text{new SS} = \frac{SS}{1 + \frac{SS-1}{\text{pop}}}$$

Pop = population

Sample size

The methodology for identifying the sample and determining the sample size for the household survey was agreed with the Guide to undertake the research assessment in Alampu. The sample size was calculated (confidence level 95%, confidence interval 5% with P value assumed at 10%) from the total households. The total sample size has been calculated to be 35 households.

Study tools

The research is consisted of the activities given below and supplemented by analysis of literature review, household survey and other secondary sources. The key activities undertaken is the household survey, Key Informant Interview with the stakeholders of Alampu.

- Field level consultations
- Community visits
- Interviews Stakeholders
- Household Survey
- Sharing workshop
- **Collection of Data**
- **Community Visits**

Communities were visited in the Alampu during the field assessment. Focus Group Discussions, Key Informant Interviews and observation of the DRR physical infrastructures were carried out. The consultations through the group discussions and interviews were focused on community support during disasters to manage disaster response and to review the patterns of disaster occurrences and utilised checklists prepared before the visit during the community consultations. Informal conversations were held with community members during the household visits. In addition to this, during the quantitative survey additional key informant interviews and household visits were also conducted.

Household survey

A quantitative household survey was conducted through android applications. This survey will quantify HHs responses in terms of their perception on DRR occurrence and management. This will be useful to comprehend the effectiveness and appropriateness of the disaster management.

Data analysis

The data analysis of research is collected through digital data collection tool package and analysis is carried out in statistical package - SPSS using the regression and correlation methods.

Mobile application: I used digital data gathering (DDG) system to collect the required data from the field. This resulted in minimizing the errors, save substantial time and improve reliability of data. Questionnaires were developed on the KOBO application which is a free online portal. Surveys was designed and made available to download as an android application.

Results

Hazard mapping

As per field assessment and PRA, the hazard identified and rank the top 10 hazards of Alampu VDC. The first ranked hazard is earthquake which may occurred once and have highest impact in community rather than other.

Hazard cause and impact

As per field assessment, the understanding of community for different disaster and their impact shared by community. Mostly the hazard cause is Natural and some of hazard were occurred by man-made. The impact of hazard somehow interrelated with each other.

Table 5. Hazard mapping

Hazard	Earthquake	Fire	Landslide	Lighting	Wind	Dryness	Hailstorm	Wild Animal	Flood	Snowfall	Epidemic
Earthquake	x										
Fire	x	x									
Landslide	x	x									
Lighting	x	x									
Wind	x	x	x								
Dryness	x	x	x	x							
Hillstone	x	x	x	x	x						
Wild Animal	x	x	x	x	x						
Flood	x	x	x	x	x	x	x				
Snowfall	x	x	x	x	x	x	x	x			
Epidemic	x	x	x	x	x	x	x	x	x		
Number	10	9	8	7	6	5	4	3	2	1	0
Rank	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh

Table 6. Hazard cause and impact

S.No.	Hazard	Cause	Impact
1	Earthquake	<ul style="list-style-type: none"> Geological cause Natural Hazard Lack of awareness 	<ul style="list-style-type: none"> Casualties and injury Damage of Houses and Community Infrastructure Landslide Drying of Water Resources
2	Fire	<ul style="list-style-type: none"> Lighting Lack of awareness Wind and dryness management of fire 	<ul style="list-style-type: none"> Lack of drinking water Damage forest and house Epidemic
3	Landslide	<ul style="list-style-type: none"> Earthquake Deforestation Heavy Rain Lack of awareness Unplanned construction of road 	<ul style="list-style-type: none"> Casualties and injury Loss of Livestock and assets Impact on Natural resource Damage in agriculture land Damage in school and psychosocial effect to students
4	Lighting	<ul style="list-style-type: none"> Natural hazard 	<ul style="list-style-type: none"> Casualties and injury Loss of Livestock and assets Fire
5	Wind	<ul style="list-style-type: none"> Natural Hazard 	<ul style="list-style-type: none"> Casualties and injury Loss of Livestock Fire Damage house
6	Dryness	<ul style="list-style-type: none"> Earthquake Deforestation Natural hazard 	<ul style="list-style-type: none"> Damage in harvest Epidemic Lack of drinking water
7	Hail	<ul style="list-style-type: none"> Natural hazard 	<ul style="list-style-type: none"> Damage of harvest Impact on Livestock
8	Wild Animal	<ul style="list-style-type: none"> Deforestation Hunting of animal 	<ul style="list-style-type: none"> damage the harvest Human casualties livestock casualties
9	Flood	<ul style="list-style-type: none"> Heavy Rain Settlement near basin of river Unplanned construction of road congested land 	<ul style="list-style-type: none"> Casualties and injury loss of assets and house agriculture land damage deforestation Natural resources damage
10	Snowfall	<ul style="list-style-type: none"> Natural cause 	<ul style="list-style-type: none"> loss of harvest impact on livestock
11	Epidemic	<ul style="list-style-type: none"> Environment sanitation Lack of Sanitation Natural Hazard 	<ul style="list-style-type: none"> Casualties Diseases Spreading

Possible preventive measures

As per assessment, the community identified the possible measures for hazards and that were self-manage by community rather than looking resources from other stakeholders.

Table 7. Preventive measures

S.No.	Hazard	Possible Measures
1	Earthquake	Construction of damage houses of Earthquake 2015
		Safe house construction guideline
		Earthquake awareness
		Trained on Search and rescue
		Trained person on First Aid
		Go bag in each house
2	Fire	Place the match box and other petroleum product far from children
		Safety measures to be taken during kitchen
		Fire boundary in forest
		Public awareness
3	Landslide	Geological study on crack hills
		Forestation
		Protect landslide prone area with gabion wire
		Provide the way of rain water
4	Lighting	Public awareness
		Management of electrical circuits and wiring in house
		Earthing in house
5	Wind	Construction of damage houses of Earthquake 2015
		Temporary shelter needs to be change in permanent shelter
		Near School and house prevent tree
		During wind stay in safe place
		During wind switch off electric line
6	Dryness	Tree plantation
		Protection of Natural resources
7	Hail	Safe location identified
		Identification of seeds which is appropriate to climate and weather
8	Wild Animal	Boundary in forest
		Control of wild animal
9	Flood	Flood prone area protect with gabion wire
		Public awareness
		Tree plantation
10	Snowfall	Identification of safe location
		Identification of seeds which is appropriate to climate and weather
11	Epidemic	Environmental sanitation
		Waste management
		Management of communicable disease outbreak

Hazard timeline

As per assessment, most of the disaster were occurred frequently in community and impact the human and physical infrastructure both as well as stakeholders identified that response immediately to the hazard.

Table 8. Hazard Timeline

Hazard	Date	Damage and Impact			Helping Stakeholder
		Human		Physical	
		Death	Injured		
Earthquake	1935	Yes	Yes	Damaged all houses and community building	Community itself manage the disaster Provide first aid through herbs available in their own community Collection of emergency fund and support to the affected houses Contribution of community to construct house and recovery their loss through hazard
Earthquake	1971	Yes	Yes	Damaged all houses and community building	
Landslide	1985	No	No		
Flood	1985	1	No	Damaged houses, loss of livestock and water resources	
Fire	1986	No	No	damage houses, livestock shed and forest	
Fire	1989	No	No	damage houses, livestock shed and forest	
Dryness	1992	No	No	loss of harvest	
Landslide	1998	No	No		
Fire	1998	No	No	damage houses, livestock shed and forest	
Epidemic	1996	Yes	No	Dysentery before 1996 in every year	
Fire	2008	No	No	damage houses, livestock shed and forest	
Lighting	2014	2	No		
Earthquake	2015	4	9	Damaged all houses and community building	
Fire	2015	No	No	damage houses, livestock shed and forest	
Wind	Regular	No	No	Damaged roofing of houses and community building	
Landslide	Regular	No	No		
Hailstorm	Regular	No	No	loss of harvest	
Lighting	Regular	Yes	No		
Wild Animal	Regular	No	No	loss of harvest and human injury	
Earthquake	Regular	No	No	trimer	

Discussion

Based on the research, the new federal structure for GoN for managing disaster establish in 2017 in Nepal.

Disaster risk reduction & management organogram

As per new structure introduce by GoN, the member for each committee are follows:

- **Disaster risk reduction and management council member**

1. Prime Minister - Chairperson
2. GoN Concern Ministers - Member
3. Central Constitution Assembly Political parties - Member
4. Province Chief Minister - Member
5. National Planning Commission Vice-Chairperson - Member
6. GoN Secretary - Member
7. Nepal Army - Member
8. Ministry Secretary - Member
9. DRR Expert (3 person out of them 1 female) - Member
10. Executive Officer - Member Secretary

Note: The council duration is 5 years after formation and Overall responsible for DRR & Management

- **Executive committee member**

1. MOHA - Chairperson
2. Minister of MoFALD, MOUD, MoH - Member
3. Secretary of Concern Ministry - Member
4. Secretary of Prime Minister Office - Member
5. Nepal Army - Member
6. Nepal Police, Arm Police Force, CBI - Member
7. Executive Director of Nepal Rastiya Bank - Member
8. Chairperson of Nepal Telecom Cooperation - Member
9. Member Secretary of SWC - Member
10. Chairperson of Chamber of Commerce Nepal - Member

11. Chairperson of NRCS - Member
12. Chairperson of Nepal Industry & Cottage - Member
13. Executive Officer - Secretary member

- **National DRR and Management Authority: Under MOHA**

- **Province DRR and Management Committee: Chaired by Province Chief Minister and Member will be concern ministry**

- **District & Local Disaster Management Committee**

1. District Administration Office - Chairperson
2. District Coordination Committee - Member
3. Urban & Rural Municipality Chairperson and Vice-Chairperson - Member
4. District level Health Office - Member
5. GoN, Security Force (Army, APF, Police) - Member
6. District level Infrastructure & Social Development Office Chief - Member
7. National level Political Parties Member - Member
8. NRCS - Member
9. Nepal Journalist Association - Member
10. Chamber of Industry and Cottage, District Chapter - Member
11. CDO Appointed Officer - Member secretary

- **Local Disaster Management Committee: Chaired by Rural/Urban Municipality Chairperson or Executive Officer**

- **Central Level Disaster Management Fund**

1. GoN, Emergency Fund
2. Donated, GIK from Individual, Donor, Organization
3. Foreign Aid, Loan etc
4. Other Resource

These are the selected members for committees to manage disaster from grassroot level to national level. The GoN introduce the level of emergency through occurrence of disasters.

Figure 7. Level of emergency

Likelihood					
5 Almost certain					
4 Likely					
3 Possible					
2 Unlikely					
1 Rare					
Impact	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic

High-risk condition with highest priority for prevention, mitigation and contingency planning (immediate action)

Moderate to high-risk condition with risk addressed by prevention, mitigation and contingency planning (prompt action)

Risk condition sufficiently high to give consideration for further prevention, mitigation and contingency planning (planned action)

Low-risk condition with additional prevention, mitigation contingency planning (advisory in nature)

Conclusions

Based on the findings, the research concluded that community need to more focus on preparedness because after earthquake 2015 they got opportunity for making hazard prevented private, community and school buildings. The community have right time for preparedness of hazard for future. The norms,

values and policies of the government were followed during formulating and implementing the preparedness action plan. The research supported DMC to develop the LDRMP action plan and shared with ward for endorse in rural municipality. The LDRMP cover overall preparedness actions and hazard wise actions plan which need to implement by Alampu DMC (which is attached as Annexure).

The research findings show hazards frequency, time frame of occurrence, impact, calendar of disaster and season, local resources available in community and preparedness actions. The research is supported Alampu DMC to develop their capacity on DRR.

Salient recommendations on the problems studied

The recommendation of research focuses on preparedness of disaster to decrease the impact. The recommendations for preparedness are as follows,

- It is seeming that most of the hazards were occurred frequently in community and DMC committee need to safe locations.
- The DMC should focus on action plan of preparedness which is agreed in LDRMP for preparedness.
- Disaster related materials have to be produced and disseminated with visual-digital images.
- Potential pocket areas have to be promoted with intensive support, organic production, branding and market linkage.
- The coordination with the government and stakeholders to provide support on preparedness actions.
- HHs level preparedness plan need to be introduce for HHs level preparedness
- In providing trainings, visual documents using could be more effective to make them visualize and then realize for change.
- Under constructed private, community and schools should be constructed through guideline of hazard preparedness introduce by GoN.
- Public awareness i.e. holding board, poster, radio message and Notice board need to install for awareness of different hazards
- Deployment of 1 focal person for DRR from ward office to make day to day communication with NEOC
- Community level management committee need to be formed and build capacity of them for preparedness
- DMC need to update the safety and first aid kits for better preparedness and maintenance of safety equipment.

Summary of the project report

The research is conducted in Bigu Rural Municipality Ward Number 6 of Alampu and mainly focus on the DRR preparedness, response and recovery actions. After the research outcome were:

- Ranking of Hazards of community and identified the top 10 hazards which impacted the community
- Hazards causes and their impact within community and their possible management by community themselves
- The calendar of different hazards occurrence and timeframe as well as the seasonal calendar of 30 years ago and now.
- The resource mapping shows the local resources available within community and the status of resources were identified.
- Mapping of local and district headquarter stakeholders in diagram for coordination during responses.
- The vulnerability mapping shows that communities who are vulnerable with hazards and how they need to preparedness
- The LDRMP introduce in DMC with detail action plan of each hazards for future and endorse through RM meeting for budget allocation.

The research conducted with discussion with different stakeholders in local level, Ward Leader, HP, Police Office and district level with NRA, DCC, DEO as well as community individuals through HHs visit.

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^{vii} http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume112006/No3Sept06/tpc31_516086.html

^{viii} <http://www.ifrc.org/en/what-we-do/disaster-management/>

^{ix} <https://www.citypopulation.de/php/nepal-mun-admin.php?adm2id=2203>