



BASELINE STUDY FOR THE SIXTH DIPECHO ACTION PLAN

A DISASTER RESILIENT FUTURE:
Mobilising Communities and Institutions
for Effective Risk Reduction



**Presented to NARRI Consortium
By Bangladesh Disaster Preparedness Centre**

**BASELINE REPORT OF
DISASTER RISK REDUCTION PROGRAM
FUNDED BY ECHO**

**A DISASTER RESILIENT FUTURE:
MOBILISING COMMUNITIES AND INSTITUTIONS
FOR EFFECTIVE RISK REDUCTION**

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Bangladesh sustains significant progresses as a developing economy over the years but such escalating growth, so to speak, is being recurrently intercepted by multitudinous natural and socioeconomic processes. Given this background of recurrent natural calamities in Bangladesh, the European Commission Directorate General for Humanitarian Aid– DG ECHO is providing financial support to DIPECHO projects in Bangladesh. These Six international agencies i.e. Action Aid, Concern Universal, Concern Worldwide, Islamic Relief Worldwide, Oxfam GB and Plan Bangladesh, have agreed to develop coordination forum and collaborative efforts, collectively called DIPECHO Partners in Bangladesh (DPB), and established a consortium named National Alliance for Risk Reduction and Response Initiatives (NARRI). The sixth DIPECHO Action Plan for South Asia in Bangladesh is the first undertaking of the NARRI with the aim to see 'A Disaster Resilient Future: Mobilising Communities and Institutions for Effective Risk Reduction'.

This study intends to identify the baseline reference points to depict the presently existing scenario of the community people in light of all the indicators set forth in DIPECHO- VI Project Action Plan of NARRI Consortium. The baseline study is founded upon both quantitative and qualitative methods. The study conducted multi-stage cluster sampling where clusters were selected at first and secondly, we the households were selected from these clusters. The study was designed to distribute the estimated sample size of 630 households into 21 clusters, while each cluster comprising 30 households (21 X 30= 630 HHs). These 21 clusters were distributed over the DIPECHO- VI project areas covering 10 districts including Dhaka City, Faridpur, Jamalpur, Barguna, Sirajgonj, Sylhet, Gaibandha, Pabna, Khulna and Satkhira Districts of Bangladesh. A set of questionnaires was developed, supported by guidelines and code sheets to collect quantitative data from the selected 21 clusters. Data collection tools in the form of checklists were developed to engage different techniques, i.e. Key Informant Interview (KII), Focus Group Discussion (FGD) and Semi Structured Interview (SSI). The fieldwork commenced on 22 July 2011 and finished by 07 August 2011 except Dhaka city where the study continued with KII with tertiary stakeholders during August 2011.

The study areas were divided into three zones basing on the prominent hazards for the convenience of discussion and comparison. In this way, Faridpur, Jamalpur, Sirajgonj, Gaibandha, Pabna districts were clustered as flood zones. Barguna, Khulna and Satkhira districts were classified as cyclone zones. The earthquake zone included Dhaka City and Sylhet. According to the survey findings, there were significant differences in the knowledge and practice of preparedness and mitigation measures, awareness and responses to warning signals in cyclone, flood-prone and earthquake prone areas. This baseline study conducted FGDs with UDMC members at each of the field sites and reveals that only a few UDMC members have ever heard of the SoD. Those members, who had heard about the SoD, do not have clear understanding of the SoD. The findings of this baseline study also show that disseminating early warning information is identified as key responsibilities that the UDMCs should perform. The FGD sessions explored that RRAPs are almost non-existent in most of the zones. As there were some newly elected Union Parishads in some places they were not aware of RRAP.

Following from the findings of this study, a set of recommendations are presented in this report. Instead of attempting ambitious plans, the suggestions came to strengthen the programme and project activities, reach the project goals and above all fully accomplish the overall programme goal of enhancing the resilience of communities vulnerable to natural hazards in Bangladesh. It is also intended that these recommendations would also serve to attain the specific objective of supporting and complementing strategies that enable local communities and institutions to better prepare for, mitigate and respond adequately to natural disasters by enhancing their capacities to cope and respond, thereby increasing their resilience and reducing vulnerability in Bangladesh.

CHAPTER ONE:

INTRODUCTION

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- 1.3. **PURPOSE AND OBJECTIVES OF THIS BASELINE**

1.1. INTRODUCTION

The present baseline study aims at providing relevant information for objective verification of the future progress of DIPECHO project and interventions. As such, this study concerns assessing the current pre-project situation of the DIPECHO- VI intervention areas by analyzing each indicator set in the project LogFrame. The DIPECHO (which stands for Disaster Preparedness ECHO) projects conventionally aims at improving the capacities of communities at risk to better prepare and protect themselves. The sixth phase of the DIPECHO project would typically emphasize the risk reduction of various communities those are potentially vulnerable to multiple hazards through appropriate strategies such as identifying risks, developing risk reduction plans through analysis of underlying causes of risks and implementing risk reduction initiatives. Major activities to be implemented in addressing the strategies are: training, capacity-building, awareness-raising, establishment or improvement of local early-warning systems and contingency-planning for disaster preparedness. Likewise the previous phases, DIPECHO- VI interventions would promote simple and community-owned preparedness measures with the appropriate local knowledge, practice and response mechanisms enabling the local communities at risk to save their own lives and livelihoods when disaster strikes. However, it is expected that this baseline study would assist decision makers to review the programme design and create an opportunity to improve and fill gaps.

1.2. THE BACKGROUND: SITUATION AND CONTEXT

1.2.1. Framing the Problem: Situation Analysis

Bangladesh sustains significant progresses as a developing economy over the years but such escalating growth, so to speak, is being recurrently intercepted by multitudinous natural and socioeconomic processes. Owing to the other concomitant factors like the deltaic formation history and low-line coastal morphology has turned Bangladesh into the most disaster prone region on earth and is highly susceptible to climate change impacts. The situation becomes increasingly worse due to the multiplying effects of high social vulnerabilities. Inadequate governance, weak institutions, relative deprivation, exploitation and denial of fundamental human rights including highly polarized access to resources through commercial and industrial entities and vested interest groups are defining characteristic of everyday existence in Bangladesh like many other post colonial developing countries. Failure to regulate these violations is also related to poor governance that is also responsible for failure to ensure access of poor communities to common resources. Additionally, a doubling of Bangladesh total population in the last 30 years developed a sharp imbalance in the man-resource (particularly land and water).

Bangladesh is highly vulnerable to flood, cyclone, tornados, drought, salinity, fire, earthquake, landslides, river bank erosion, pest insecticides and some other hazards. People, especially the poor and marginal people suffer most from these hazards due to high degree of base vulnerabilities and over exposure to natural hazards. The deltaic geographic formation of Bangladesh at the confluence of world's largest river systems (Ganges-Brahmaputra-Meghna) has made her as one of the most vulnerable countries to climate change impacts and disasters. Located at the receiving end of this river system, the land territory is being intersected by more than 300 rivers, having a total length of 24,140 kilometres (BBS 2006), flowing towards the Bay of Bengal. Besides, low elevation from the sea-level, high population density, and high levels of poverty are producing multiplied consequences. The country has a history of natural disasters and extreme climatic events claiming thousands of lives and

destroying past development achievements (CCC 2009). As indicated by many earlier research, the magnitude and frequency of different hazards like monsoon floods, riverbank erosion, water logging, salinity intrusion, tidal surge, tropical storms and etc have been significantly intensified in recent decades.

The Bangladesh economy is highly dependent on agriculture and, at large, a major constraint for the sustainable and stable growth of food production in Bangladesh is the fact that natural calamities of different types have made the farmers vulnerable to crop failures and food scarcities accelerating poverty in the country. Given this backdrop, the ability to respond, cope, adapt or recover from the overexposure of natural hazards have emerged as the central question of survival– the core challenge for people in everyday life. People of this country have a long history of coping with such critical fragile conditions, which by virtue is the basic strength of the disaster management of Bangladesh. However, attempts to increase sustainable productivity in rural economy of Bangladesh need to be based on a sound knowledge of coping strategies, responses to risks and decision making behaviour of the rural farm families or households. Reducing the threat of hazards and creating enabling conditions for rural economic growth requires thorough understanding of perceptions, traditional principles and strategies pursued by the community people under different local conditions and scenarios.

1.2.2. The Background DIPECHO Programme

DIPECHO is the main component of ECHO's (European Commission's Humanitarian Aid Department) contribution to the global Disaster Risk Reduction efforts covering different disaster-prone regions of the world. In 1996 ECHO launched a specific programme, DIPECHO (Disaster Preparedness ECHO) dedicated to disaster preparedness. Disaster preparedness also has a central place in the 23 principles for Good Humanitarian Donorship agreed in 2003 in Stockholm by leading humanitarian donors, including ECHO. The importance of disaster preparedness is clearly recognised in ECHO's mandate and in the European Consensus on Humanitarian Aid adopted in 2007. ECHO's humanitarian mandate prescribes a focus on saving lives, providing relief and thus assisting the most vulnerable groups. ECHO therefore prioritizes 'community-based approach' to 'people-oriented' preparedness measures. The DIPECHO programme therefore targets highly vulnerable communities living in some of the most disaster-prone regions of the world.

The DIPECHO programme had been expanded over the years and now covers seven disaster prone regions: the Caribbean, Central America, South America, Central Asia, South Asia, South East Asia and South East Africa and South West Indian Ocean. Since inception of the DIPECHO programme in 1996, ECHO has invested more than €180 million in disaster preparedness. The projects funded by the programme include simple and inexpensive preparatory measures, often implemented by the communities themselves. They have proven extremely effective in limiting damage and saving lives when hazards suddenly strike. DIPECHO-projects will typically emphasize training, capacity-building, awareness-raising, establishment or improvement of local early-warning systems and contingency-planning. There are numerous examples that these simple and community-owned preparedness measures enable communities at risk to save their own lives and livelihoods when disaster strikes. DIPECHO projects are designed as pilot strategies for the respective region. The project impact is multiplied when the strategies are systematically integrated into long-term development projects. The DIPECHO program aims to achieve the principal objective by:

- Targeting the most vulnerable communities and categories of population using bottom-up participatory methods and relevant local materials/resources that can be easily replicated.

- ❑ Fostering appropriate and sustainable preparedness activities that are coordinated with local and national public institutions and that can be easily replicated in other parts of the region and beyond.
- ❑ Focusing in areas exposed to frequent natural hazards and having less coping capacities.

The DIPECHO programme has been designed to demonstrate measures and initiatives at community-level and can serve as components of integrated disaster risk reduction strategies for a municipality, district or even at national level. However, Disaster Risk Reduction is a long-term development effort and ECHO is therefore encouraging other stakeholders that can provide longer-term financing to systematically integrate disaster risk reduction in their strategies. With this objective the Fifth DIPECHO Action Plan for South Asia was launched in 2009 with a principal objective to increase the awareness and the response capacities of local communities to potential and frequent natural disasters and to reduce the effects of these disasters on the most vulnerable. At present European Commission is supporting DIPECHO projects with sponsoring € 8,039,447 in five South Asian countries through nineteen organizations and working for disaster preparedness with the appropriate local knowledge, practice and response mechanisms.

1.2.3. The NARRI Consortia: DIPECHO Partners in Bangladesh

The DIPECHO projects are carried out by European-based aid agencies and UN agencies in close cooperation with local NGOs and authorities. Given the background of recurrent natural calamities in Bangladesh, the European Commission Directorate General for Humanitarian Aid– DG ECHO is providing financial support to DIPECHO projects in Bangladesh. These Six international agencies i.e. Action Aid, Concern Universal, Concern Worldwide, Islamic Relief Worldwide, Oxfam GB and Plan Bangladesh, have agreed to develop coordination forum and collaborative efforts, collectively called DIPECHO Partners in Bangladesh (DPB), and established a consortium named National Alliance for Risk Reduction and Response Initiatives (NARRI). DIPECHO Partners Bangladesh (DPB) have developed terms of reference for setting out the overall framework of coordination to improve the quality and efficiency of implementation of the projects to highest international standards.

NARRI started functioning in September 2010 with the aim to strengthen the disaster preparedness and risk reduction efforts in the country and contribute towards meeting commitments for the Hyogo framework of Action (HFA 2005-2015). NARRI envisages working closely with the Government of Bangladesh at local and national level, relevant ministries, and development partners, international and national organizations.

NARRI has developed its five year strategy based on consultation with multiple stakeholders and which focuses to increase the capacities of vulnerable communities and institutions (schools, hospitals, factories, etc) to withstand the impacts of potential disasters and to mainstream risk reduction initiatives into wider policy, programmes and plans of the country. NARRI's five year strategy promotes development of comprehensive risk reduction programmes and interventions at national and local level, as well as contributing to coordinated actions, shared learning and good practices. NARRI have also developed a joint strategy to effectively operationalise the coordination mechanism; reinforce the linkage between local level DP/DRR interventions and national level advocacy work; strengthen the national advocacy agenda on integration of DP/DRR in national planning; and contribute to the compilation and dissemination of good practices and lessons learnt in DP/DRR.

1.2.4. The Bangladesh Disaster Preparedness Centre (BDPC)

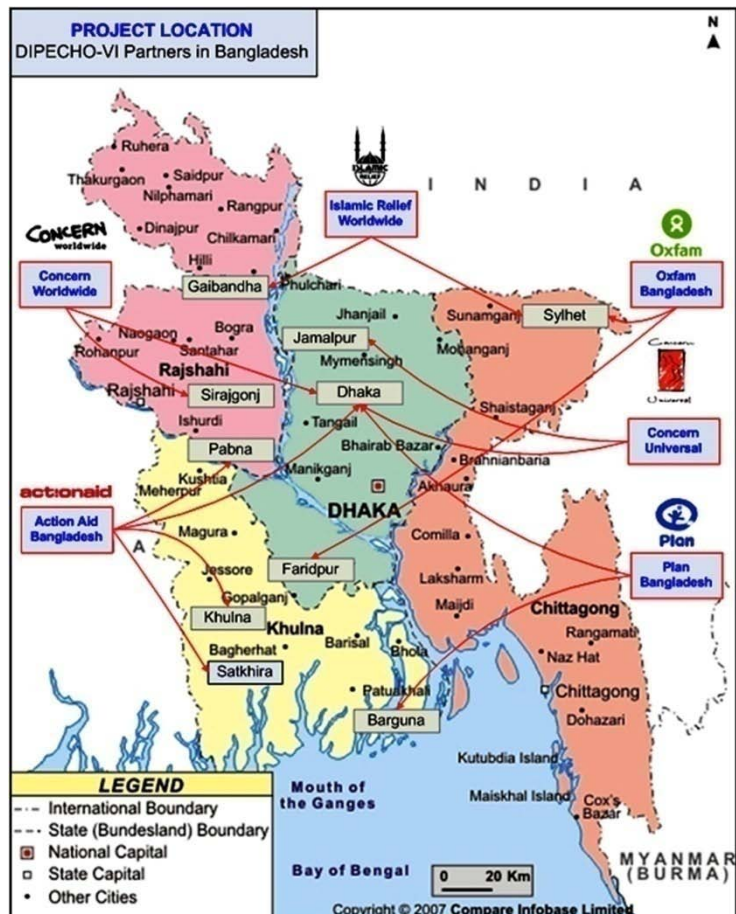
Bangladesh Disaster Preparedness Centre (BDPC) is a professional organization in the field of disaster management. Founded in 1992 and registered as a non- governmental organization, BDPC focuses

only on disaster risk reduction and climate change adaptation through community empowerment, community based adaptation, research, advocacy, lobbying and networking at community, local and national level, capacity development, media materials development for awareness, knowledge and communication, innovation and risk reduction practices, monitoring and evaluation among others. BDPC gained recognition among various stakeholder groups both at national and international level for its pioneering role in the field of DRR in Bangladesh. The mission of BDPC is to reduce the risks of people vulnerable to disasters and enable them to establish their rights to access public resources and other entitlements.

The devastating floods of 1988 and the cyclone of 1991 highlighted the need for a proactive disaster management system, as opposed to a heavy reliance on post-disaster relief. BDPC set out to initiate this change, through developing professionalism among key actors in disaster management, building capacity at the community level and promoting sustainable development of the poorest. Since its inception, Bangladesh Disaster Preparedness Centre has been implementing various innovative projects aimed at disaster risk reduction through sustainable livelihoods. BDPC has developed strong relationships with a wide range of agencies and institutions in the disaster management field. BDPC’s work has included collaborations with government ministries, departments and local institutions; multi and bilateral organizations; and NGOs, both locally and internationally. BDPC has also played a key role in initiating the risk reduction program of the GoB, which promotes disaster risk reduction through a sustainable livelihoods approach. Thus, BDPC is a professional organization in the field of disaster risk reduction. It has in-house capacity of professional expertise from different disciplines of disaster management including capacity building, advocacy and lobbying, awareness raising, training, study, research, communication network development, risk assessment, mock demonstration and information, education and communication material development.

1.2.5. DIPECHO Project Areas: Geographic Coverage and Beneficiaries

NARRI adopts holistic approach and recognizes the importance of communities and institutional strengthening in enabling sustainable disaster resilience in Bangladesh. The project specifically targets strengthening of institutional and local governance structures such as Disaster Management Committees (DMCs), along with Community Based Organizations (CBOs), hospitals, schools and garment factories. The project intends to work directly with 51,140 households or 255,700 persons living in the 10 prioritized most disaster-prone districts of Bangladesh (see map) targeted due to their extreme vulnerability to riverine floods, cyclones with accompanied storms, earthquakes and river erosion, however the



benefits will gradually encompass a larger portion of the total local community. The project design includes special consideration for the highly vulnerable socially excluded and marginalized community members through ensuring their inclusion and mainstreaming in the people centred disaster risk reduction.

The DIPECHO- VI project would cover 10 districts including Dhaka City, Faridpur, Jamalpur, Barguna, Sirajgonj, Sylhet, Gaibandha, Pabna, Khulna and Satkhira Districts of Bangladesh to focus on three major dreadful hazards i.e. riverine flood, cyclone and earthquake.

Earthquake: Bangladesh is divided into three earthquake seismic zones, which are categorised as: severe, moderate and minor risk zones. Dhaka City is located in the moderate zone however the high population density and unplanned urbanisation places makes the city highly vulnerable to a major earthquake. Sylhet City is inside a high risk earthquake zone. Based on a vulnerability assessment to earthquake, Dhaka and Sylhet City Corporation areas were selected for intervention. Earthquake risks in both corporation areas was assessed to be very high with effects including full destruction of housing and facilities, while in low income settlements and slum areas, partial destruction in other areas and loss of life and widespread injury. Fire risk was rated high as well with potential impact including damage to houses, belongings and facilities and loss of lives and widespread injuries.

Table- 1.1: Geographic Coverage, Hazard Focus and DIPECHO Partners in Bangladesh

	Districts	DIPECHO Partners	Hazard Focus
Urban Areas	Dhaka City	AAB, CU, CWW and Plan	Earthquake, Water logging/ Flood and Fire
	Sylhet	IRW and Oxfam	
Rural Areas	Faridpur	Oxfam	Riverine Flood
	Jamalpur	CU	
	Sirajgong	CWW	
	Gaibandha	IRW	
	Pabna	AAB	Cyclone
	Barguna	Plan	
	Khulna	AAB	
	Satkhira	AAB	

Reverine Flood: Bangladesh is highly vulnerable to flood and river erosion. NARRI members assessed vulnerability to riverine floods and river erosions in Char land situated in Padma and Jamuna river basins (central and northern Bangladesh– Faridpur, Sirajganj, Jamalpur, Gaibandha, Pabna). During floods, most of the areas are severely inundated and houses remain under-water. Agriculture, livelihood, household vegetation, livestock and roads are severely damaged and/or destroyed.

Cyclone: Field assessments took place in three districts of Bangladesh vulnerable to cyclone; Khulna, Satkhira and Barguna. The assessment found these districts to be highly vulnerable to cyclone and storm surge. Cyclone and storm surge damages include inundation or destruction of homesteads, destruction of livelihoods (hatcheries) and livestock, contamination of drinking water, outbreaks of water borne diseases such as diarrhoea and cholera as well as the loss of life.

1.2.6. The Sixth DIPECHO Action Plan: Project Design, Objective and Outcome

Sixth DIPECHO Action Plan for South Asia in Bangladesh is the first undertaking of the NARRI with the aim to see ‘A Disaster Resilient Future: Mobilising Communities and Institutions for Effective Risk Reduction’. It endeavors to support and complement strategies that enable local communities and institutions to better prepare for, mitigate and respond adequately to natural disasters. This shall be

achieved through enhancing their capacities to adapt and respond to disasters, thereby, increasing their resilience and reducing vulnerability.

The principal objective of the DIPECHO project is to enhance the resilience of communities vulnerable to Natural Hazards in Bangladesh. The specific objective is to support and complement strategies that enable local communities and institutions to better prepare for, mitigate and respond adequately to natural disasters by enhancing their capacities to cope and respond, thereby increasing their resilience and reducing vulnerability in Bangladesh. The identified four key result areas and associated intervention in DIPECHO VI project design to achieve the results are given below:

Table- 1.2: Intended Result Areas and Associated Interventions

Result Areas	Major Interventions
<p>Result 1: Effective implementation of DRR policy and legal framework (national to local) in Bangladesh</p>	<ul style="list-style-type: none"> □ Community mobilization and awareness raising on disaster risk reduction involving CBOs, DMCs and religious leaders □ Facilitate formation and/or capacity building of DMCs, SMCs and CBOs as per Standing Orders on Disaster Management (SoD) in Bangladesh □ Provide technical and hand holding support to DMCs and help them to function effectively □ Orientation about linkages of disaster risk reduction with development including mainstreaming in Annual Development Plans (ADPs)
<p>Result 2: Targeted communities and institutions have increased capacity to assess and mitigate disaster risks in Bangladesh</p>	<ul style="list-style-type: none"> □ Capacity building of DMCs, SMCs and CBOs on risk assessment and facilitation of risk assessment both in rural and urban areas (in line with CRA guideline developed under CDMP) □ Small Scale mitigation identified under Risk Reduction action plans (RRAP's)– Flood shelter, school / market-raising, and elevation of tube-well, approach road and cluster houses etc. □ Facilitation of community/ local institutions led advocacy for RRAP implementation □ School safety audit and safety planning □ Awareness campaign with school children through orientation sessions, risk reduction themed competitions etc.
<p>Result 3: Increased preparedness for effective emergency response in targeted communities and institutions in Bangladesh.</p>	<ul style="list-style-type: none"> □ Awareness-raising of communities (households) and target institutions on basic disaster preparedness measures □ Capacity-building of local governance structures and targeted institutions for emergency response including <ul style="list-style-type: none"> ○ Contingency planning in targeted union and Upazila as per Ministry of Food and Disaster Management (MoFDM) guidelines ○ Training of targeted DMCs at Upazila and Union level on post disaster damage and need assessment as per MoFDM guideline □ Establishment of community-based early warning dissemination systems for flood and cyclone and link them with Flood Management Information System (FMIS) of GoB □ Skill building of community volunteers on Early Warning, Search and Rescue (S&R), First aid, Water, sanitation and hygiene (WASH) with the provision of emergency response equipments.
<p>Result 4: Increased knowledge sharing enables a greater impact in risk reduction and strengthens a culture of safety in Bangladesh</p>	<ul style="list-style-type: none"> □ Documentation and dissemination of good practices and lessons learnt □ Engagement with media for wider dissemination □ Mass awareness-raising on DRR through DRR fair, folk shows, Gambhira, mock drills, using media etc.

Table- 1.3: Intended Result Areas and Expected Outcomes

Result Areas	Outcome Indicators
<p>Result 1: Effective implementation of DRR policy and legal framework (national to local) in Bangladesh</p>	<ol style="list-style-type: none"> 1. 75% of trained community and DMC members have knowledge of at least five core responsibilities before and after disaster as per SoD 2. 15% increase of socially excluded people regularly participating in DMCs and CBOs 3. 80% of target Union and Upazila RRAPs are accepted by GoB (incorporated by CDMP in national database) 4. 25% of Union and Upazila level Annual Development Plan (ADP) that have RRAP actions included 5. Three targeted ministries (Health, Education and Local Government Rural Development (LGRD) are complimented and supported with tools and techniques to mainstream DRR into their development programs 6. NARRI DIPECHO program is complementing and integrated into six current development programs
<p>Result 2: Targeted communities and institutions have increased capacity to assess and mitigate disaster risks in Bangladesh</p>	<ol style="list-style-type: none"> 1. 25% of activities identified in RRAP have been executed by local government bodies and CBOs. 2. 50% of executed activities in RRAP address the specific needs of socially excluded groups 3. 75% of targeted institutions have developed and implemented safety plans 4. 60 proposals (based on RRAP) submitted by UDMCs/ CBOs for LDRRF 5. 60% of target CBOs are able to lead inclusive risk assessments 6. 35% of targeted households and 70 % targeted institutions are putting their knowledge into practice for mitigation based on their RRAP 7. 60% of proposed small scale mitigation measures constructed with accessibility features
<p>Result 3: Increased preparedness for effective emergency response in targeted communities and institutions in Bangladesh.</p>	<ol style="list-style-type: none"> 1. 50% increase of targeted households who are putting their knowledge into practice for at least 3 preparedness measures 2. 50% of UDMCs and 100% NARRI consortia partners have demonstrated ability to conduct post disaster needs assessment 3. 50% of targeted institutions and 100% NARRI consortia partners with tested contingency plans 4. 50% of targeted institutions and NARRI consortia partners are equipped with necessary emergency response equipments and assistive devices 5. 50% of community group members able to carry out relevant inclusive response tasks according to minimum standards in a coordinated manner 6. 75% of community members are aware of the early warning messages and undertaking the prescribed behaviour in the event of a disaster 7. 75% of CBOs and schools have disaster management funds in place (cash or in kind)
<p>Result 4: Increased knowledge sharing enables a greater impact in risk reduction and strengthens a culture of safety in Bangladesh</p>	<ol style="list-style-type: none"> 1. Quarterly systematic documentation of lessons learned among NARRI consortia partners 2. Quarterly dissemination of all relevant documentation 3. 40 print and electronic media stories on DRR gain coverage 4. 100% increase in website traffic 5. 51 mass awareness campaigns/ events conducted 6. 50% increase in awareness levels of target communities on disaster preparedness, mitigation and response 7. 100% standardisation of IEC and training materials among NARRI partners 8. 100% of identified good practices are replicated by NARRI consortia partners

1.3. PURPOSE AND OBJECTIVES OF THIS BASELINE

The purpose of this baseline survey is to identify the benchmarks against each approved indicator. This study intends to identify the baseline reference points to depict the presently existing scenario of the community people in light of all the indicators set forth in DIPECHO- VI Project Action Plan of NARRI Consortium.

The objective of this study is to assess the situation at the beginning of the programme with regards to DIPECHO VI working area, technical partners and all the stakeholders including the possible community under the light of the abovementioned DIPECHO- VI objectives. The specific objectives of the assessment are as follows:

- △ Assess the present working area and its characteristics (Demography, Occupation, Communication and Transportation, Education, Health and WASH etc);
- △ Identify the present status of the stakeholder and community in terms of their rights & entitlements, their knowledge and capacity to prepare for and respond to any types of disasters; and
- △ Identify the DRR initiatives of different stakeholders in working area in terms of policies, practices and actions and mechanism of coordination between GO-NGO-CSO.

CHAPTER TWO:

OVERVIEW OF THE RESEARCH DESIGN

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2.1. THE STUDY DESIGN

This chapter explores the different tools, techniques and analytical approaches that were adopted to conduct this baseline study at various scales. This research is founded upon both quantitative and qualitative data collection methods, where most of the sources selection was done randomly from the target population. This study has been systematically conducted comprising activities categorized under several steps as shown in the following figure 2.1 in details.

The significant steps are discussed here to provide a clear overview on the validity, reliability and representativeness of the data, and the corresponding analytical processes would be followed.

2.2. STEP ONE: PROBLEM FRAMING AND SCOPING

2.2.1. Desk Review of Secondary Information

The baseline study commenced with the study of the secondary document review. In order to get insight into the problem field as well as understanding of the study areas of this study, an attempt was made to review the available secondary sources of information. This included an assessment of the study areas by natural or physical, socioeconomic and demographic characteristics. The information areas and types we reviewed, in this research, are summarized in the following:

- All project documents on or related to the DIPECHO programme in Bangladesh.
- BDHS 2007 report to review the demographic & population information (e.g. age, sex, ethnicity, housing structures and etc)
- Broad range of household social and economic issues in study areas (e.g. climate data, geographic location, water source, sanitation, sources of income, consumption patterns, poverty levels, use of services)
- Health and disability status, well-being, economic status, living environment, work, quality of life, life satisfaction, community and social support systems.
- Disaster policy issues including international and national policy documents related to disaster management, risk reduction and climate change adaptation.



2.2.2. Survey Design and Sample Selection

The research used cluster sampling method in order to select the respondents for interviewing and discussion. This helped us to gather necessary data for evaluation with minimum cost and time.

This study used structured questionnaire (SQ) as a quantitative tool for collecting data.

The target population are widely distributed geographically and occurred in natural, geographic and social clusters such as disability, sex, beneficiaries and relations types. Based on the DIPECHO lists of working areas, the target population was divided into non-overlapping geographic groups of clusters i.e. primary and secondary sampling units (cross cutting categories). The population of the selected clusters was again divided into non-overlapping homogeneous groups of different strata i.e. primary and secondary sampling strata (different key actors/players like local government leaders, local administration, GO, NGOs and local civil society representatives), and tertiary sampling stratum (different national level key actors/players like GO and NGO officials, academician and civil society representatives). Respondents were selected following probability sampling techniques from primary sampling stratum or observation unit, while from secondary and tertiary sampling strata key informants were selected based on proportional weighing factors of different DIPECHO project components.

2.2.3. Sample Size Estimation

The sample size was estimated to ensure the representation of all the indicators set forth in the DIPECHO project design. The selection of an appropriate sample size covering all the indicators is a complex one encountering diverse parameters. So, the sample size was selected considering a parameter that is one of the rarest events. Assuming that, if the sample size is determined in relation to the rare event then the representation of other parameters would automatically be ensured. Here the proportion of people who are aware of the early warning messages and undertaking the prescribed behaviour in the event of a disaster is taken as the parameter of interest.

The sample size had been estimated with the help of the statistical formula (WHO, 1991; Cochran, 1977) for test of a hypothesis of equality of two proportions. This formula is elaborated below:

$$n = \frac{p(1-p)}{(p_1 - p_2)^2} \times (z_\alpha + z_\beta)^2 (deft.)$$

Where

$p = (p_1 + p_2)/2,$

p_1 = proportions to be estimated for the indicator of interest in baseline,

p_2 = proportions to be estimated for the indicator of interest in endline,

z_α = standard normal value with 5% level of significance = 1.96,

z_β = standard normal value with 80% power = 1.28,

$p_1 - p_2$ = Admissible error difference between the estimates from baseline and endline and

deft = design effect for cluster sampling. =1.2

As the required proportion is 0.75, the required number of community people for a particular district is 236.196 or around 236. Thus for all of the 10 districts the required number of people will be 10 X 236 = 2360. Again as every 4.56 people constitute a household, we will require (2360/4.56) = 517.54 or 558 households.

According to statistical formula, around 30 cases are considered as bare minimum for statistical data analysis (Champion 1970: 89). However many researchers regard 50 as the minimum size to be considered. According to Fisher et al. (1991), sample size could also be found by considering different categories. If awareness is considered and the minimum percentage of people with awareness is allowed to be 5%, then the minimum sample size would be (Islam, M. Nurul).

$$n = \frac{\text{Minimum number of sample size}}{\text{Minimum percentage of a parameter}} = \frac{30}{0.05} = 600$$

Again this formula is used in the case of random sampling and in the case of more complex designs like cluster sampling, design effect needs to be considered (Islam, M. Nurul). So the formula would be

$$n = \frac{\text{Minimum number of sample size}}{\text{Minimum percentage of a parameter}} \times \text{Design effect} \quad \text{Where the design effect is} = 1.2$$

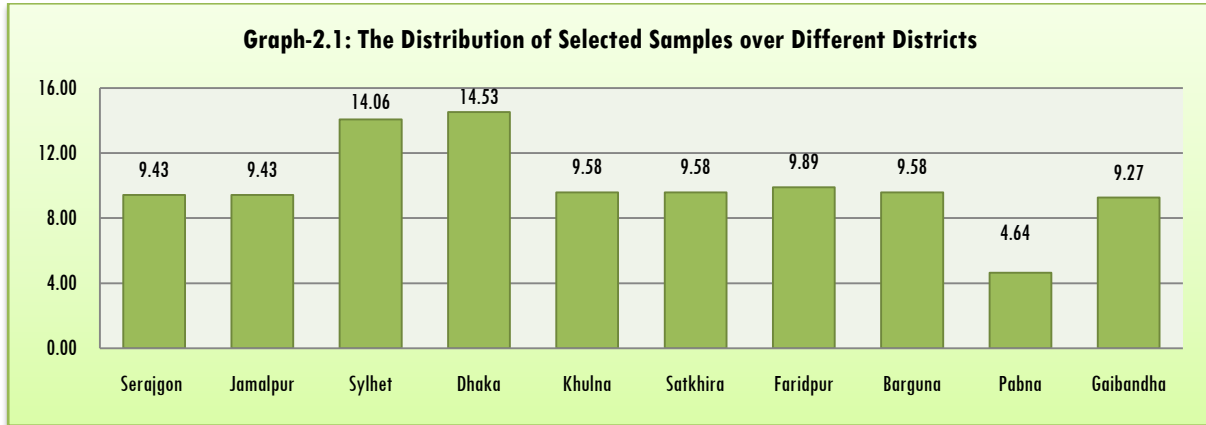
Following this formula, the required sample size would be $n = 600 \times 1.2 = 720$ households. Again, when there are categorical data and if we allow 5% error margin with a p-value of 2.58, then the minimum number of sample size would be 623 (Bartlett, James E. et al., 2001).

Considering all the techniques above, and in consultation with DIPECHO partners, we have selected a sample size of minimum 630 households. This sample size would compliment two of our stated formulas and would also enable us to select the samples in the stipulated time period.

2.2.4. Sample Design and Selection Process

The study conducted multi-stage cluster sampling where clusters were selected at first and secondly, we the households were selected from these clusters. A formula of 21 X 30 method was used through 21 clusters (number of clusters was varied in each district according to the proportional weighting of DIPECHO project components and hazard portfolio), among each of which 30 households were selected for interviewing. The probability proportionate sampling was employed to allow different weights of different districts in relation to project interventions.

The study was designed to distribute the sample size of 630 households into 21 clusters, while each cluster comprising 30 households (21 X 30= 630 HHs). Since the respondent households were selected with an interval of 4 households, sampling segments were identified having at least 30 X 5 = 120 households. The total number of households in each primary sampling unit i.e. cluster were divided by 120 to identify the sampling segments, to ensure the representation of the DIPECHO intervention areas. From each cluster, the segment was selected randomly and households were selected following 4HHs interval from within the segment.



2.2.6. Developing and Pretesting Tools and Techniques

The research made use of both qualitative and quantitative techniques. All the required tools and techniques were developed based on analyzing the secondary information collected at the earlier stage of the research. Several long meetings with DIPECHO officials were crucial to set and finalize the relevant tools and process.

A set of questionnaires was developed, supported by guidelines and code sheets to collect quantitative data from the selected 21 clusters. Three detailed questionnaires were finalized for household survey. Three draft sets of questionnaires addressing all the three major hazards, i.e. earthquake, cyclone and riverine flood, have been developed and shared with DIPECHO management team for their comments. After having incorporated their comments, the questionnaires were pre-tested by the Consultants, supervisors and field enumerators. The pretesting was done on 17 July 2011 simultaneously at Morelgonj of Bagherhat District, Belkuchi of Sirajgonj and Old Town of Dhaka city. All sorts justified feedbacks from DIPECHO, field enumerators and supervisors were incorporated to develop appropriate and user-friendly sets of questionnaire.

The qualitative methods were followed for the purpose of validation and reliability of the field data collection and reinforcing quantitative data. Therefore, data collection tools in the form of checklists were developed to engage different techniques, i.e. Key Informant Interview (hereafter KII), Focus Group Discussion (hereafter FGD) and Semi Structured Interview (hereafter SSI). The developed tools and techniques had been grounded in the study area for pre-testing and finalizations. The research team conducted conduct group discussion, KIIs and in-depth interviews to receive the response of the respondents. Finally, two meetings with officials DIPECHO were conducted to finalize all the tools and techniques developed for this research.

2.3. STEP TWO: THE FIELDWORK AND DATA COLLECTION

2.3.1. The Fieldwork

The fieldwork commenced on 22 July 2011 and finished by 07 August 2011 except Dhaka city where the study continued with KII with tertiary stakeholders.

2.3.1.1. Field Enumerator and Supervisor Recruitment

At the beginning phase of the fieldwork, the research team recruited and trained the field enumerators. The consultant team had selected a team of ten field enumerators and five supervisors to

conduct and coordinate the field data collection process. We sought applications mostly from the senior level university student applicants. In a rigorous selection process, those were selected as field enumerators who have general knowledge on the relevant issues, locality and who performed well in interview and role plays. All the Field Supervisors have extensive experience of similar jobs before.

2.3.1.2. Training of Field Enumerators

An intensive training session of three days (July, 19 – 21) at Sirajgonj had been conducted to orient the Field Enumerators with the questionnaire. At the outset, the DIPECHO officials gave an overview of the project. After having initial orientation, the Field Enumerators were taken to the field and asked to conduct several interviews using the questionnaire for flood prone region. Their filled-in questionnaires were thoroughly reviewed and discussed by the supervisors and consultants. They were guided with proper instructions and possible solutions to the problems they faced. On the other hand, feedbacks that come from the enumerators have also been taken seriously and incorporated in the questionnaire for flood prone region.

2.3.2. Data Collection from Primary Sources

Household Interview: A Total number of 647 households were selected for structured interview using the three sets of questionnaires.



Key Informant Interviews (KII): A total number of 7 Key Informant Interviews were conducted from each district except Dhaka and Sylhet City Corporations comprising total 56 KIIs. The KII respondents were selected purposively from among different secondary and tertiary stakeholders. For each District, the respondents to KII were:

- | | |
|------------------------------------|--|
| (1) UDMC member | (5) President or Secretary of Community Based Organization |
| (2) Secretary of Union Parishad | (6) Upazilla Education Officer |
| (3) Upazilla (TNO/PIO) | (7) DRRO/ Deputy Commissioner |
| (4) Office of Upazilla DPHE Office | |

Focus Group Discussions (FGD): A total number of 40 Focused Group Discussions were conducted with different stakeholders from all the 10 Districts. For each District, the FGDs were conducted with:



- | | |
|----------------------------|--|
| (1) Social excluded groups | (3) Union Parishad |
| (2) UDMC | (4) Community Based Organization/Child Forum |

Besides sample survey, in Dhaka and Sylhet, several FGDs and KIIs were conducted with different primary stakeholders.

TOOLS	WORKING PARTNERS	TOTAL NUMBER	STAKEHOLDER	LOCATION
SYHLET				
Survey	IR	60	Community People	Sylhet
	OXFAM	30	Community People	Sylhet

Focus Group Discussion (FGD)	OXFAM	2	Socially Excluded People	Brahman Shashon, Bontolapara
	IR	1	Socially Excluded People	Chara Dighir Paar
Key Informant Interview (KII)		7	DRRO, CC Councilor, Medical Officer, Education Officer, Agricultural Officer, 2 Headmasters	Sylhet
DHAKA				
Survey	Concern Universal	30	Community People	Mirpur
	Concern Worldwide	30	Community People	Mirpur
	Action Aid	30	Community People	Nimtoli And Hajaribagh
Focus Group Discussion (FGD)	Plan Bangladesh	1	Mothers in the Sweeper Colony	Dhalpur
	Action Aid	2	Community People	Hajarbiagh, Nimtoli
	Concern universal	1	SMC	Dhaka
Key Informant Interview (KII)		5	4 Headmasters & CC Councilor	Dhaka
SIGNIFICANT KEY STAKEHOLDERS				
Key Informant Interview (KII)		13	Ministry of Food and Disaster Management (MoFDM), Disaster Management Bureau (DMB), FFWC, IFRRCC, CPP, Handicap, Help Age International, BGMEA, PSTC, DGHS, Fire Service Department, Center for Medical Education and CDMP	Dhaka

2.4. STEP THREE: ANALYSIS AND SCREENING

2.4.1. Data Processing and Analysis

The quantitative data were analyzed through graphic simulations and statistical analysis. Data entry was done through MS ACCESS software. The quantitative data were processed through SPSS program. Tools of data entry and analysis as well as the dummy tables were prepared on the basis of indicators required. Once the tools and tables are prepared, those were shared with DIPECHO management. However, the culminating activities of qualitative inquiry are analysis, interpretation and presentation of findings. The challenging task of the research team thus were to extract the sense from the massive data reducing them to sizable forms, identifying their significance and constructing a frame work for communicating the essence of the messages they contain.

2.4.2. Analysis of Observations

In analyzing observations, six options were followed and they are: (1) *Chronology*: the chronological description of observations, over time to represent the study from the beginning to end; (2) *Key events*: by presenting the data with critical incidents or major events in order of importance; (3) *Various settings*: by describing various places, sites, settings or locations before doing cross-setting pattern analysis; (4) *People*: by the case studies of people or group; (5) *Process*: by organizing the data to describe important processes (e.g. decision makings communication, segregation etc.); and (6) *Issues*: the observations were arranged together to illuminate key issues, such as how do the participants change their behaviour, group formation etc.

2.5. STEP FOUR: APPRAISAL & ASSESSMENT

2.5.1. Quality Control Measures

The research team emphasizes the need of achieving and maintaining the highest level of quality possible throughout the performance of the research. All collected, accepted and analyzed data in this project had to undergo specific quality control assessment. All data were critically assessed during and after the collection process to ensure the quality of the data. These assessments include independent performance audits, data processing audits, as well as external review of the tools and templates to be used to collect the data.

All data reporting had extensively been reviewed to identify all problematic and missing data points. At large, the data accepted for processing had to pass through extensive screening process for quality assurance based on interpretive and diagnostic analysis on the following criteria, e.g. (1) Precision, (2) Accuracy, (3) Representativeness, (4) Completeness and (5) Comparability.

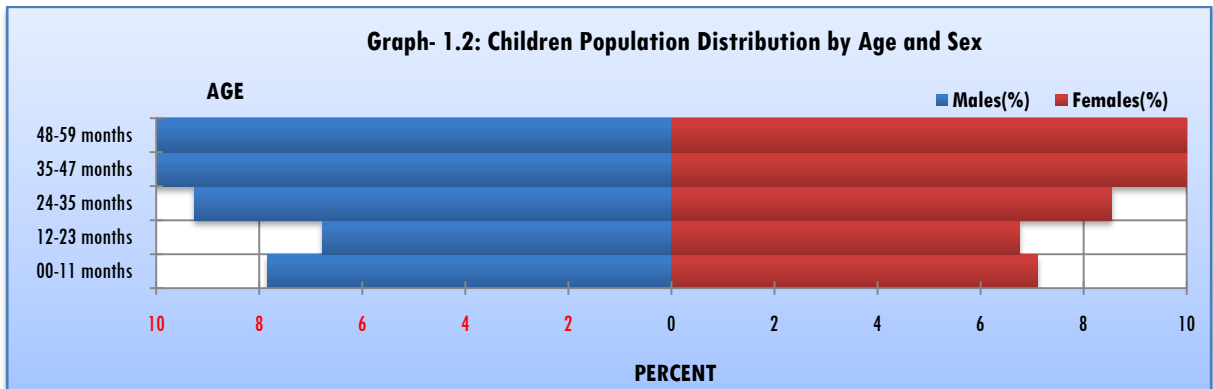
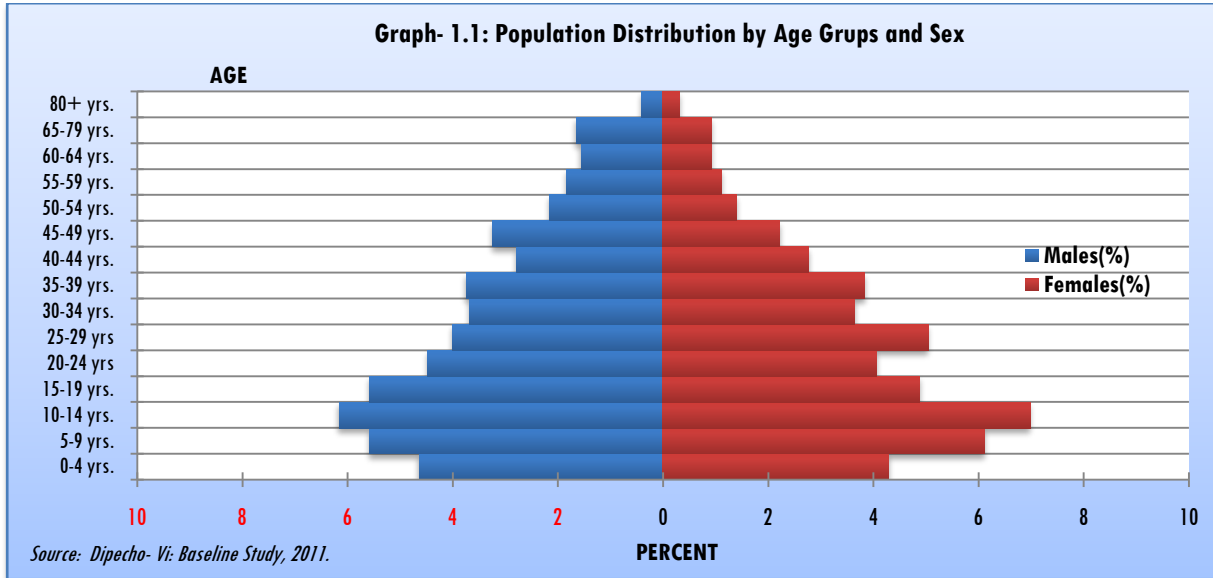
2.6. STEP FIVE AND SIX: REPORT PREPARATION, CONFIRMATION AND FINALIZATION

The draft report had been shared with NAARI Consortium members. After incorporating of the Initial feedbacks, the draft report was presented and shared in a workshop participated by research team members, NAARI consortium members and delegates from DIPECHO personnel. The gap analysis was done through a detailed discussion during the workshop sessions. The draft report was submitted to the Consortium for reviewing.

CHAPTER THREE:
DEMOGRAPHIC AND
SOCIO ECONOMIC
PROFILE

3.1. POPULATION COMPOSITION AND DEMOGRAPHY

This section gives an overview of the composition of the study population (including three areas flood, cyclone and earthquake) in terms of age and sex. The total population of the surveyed households is 3152. Total number of males of all ages is 1623, and the number of females of all age categories is 1529.



The survey enumerated the age of children (> 5 years) in terms of months and 5 years' interval has been taken for the rest of the population. The average age for males is 27.0 years, whereas for the females the age is 24.4 years. The overall sex ratio, the number of females per male, is 94.2 (see annexe one: table- 3.1).

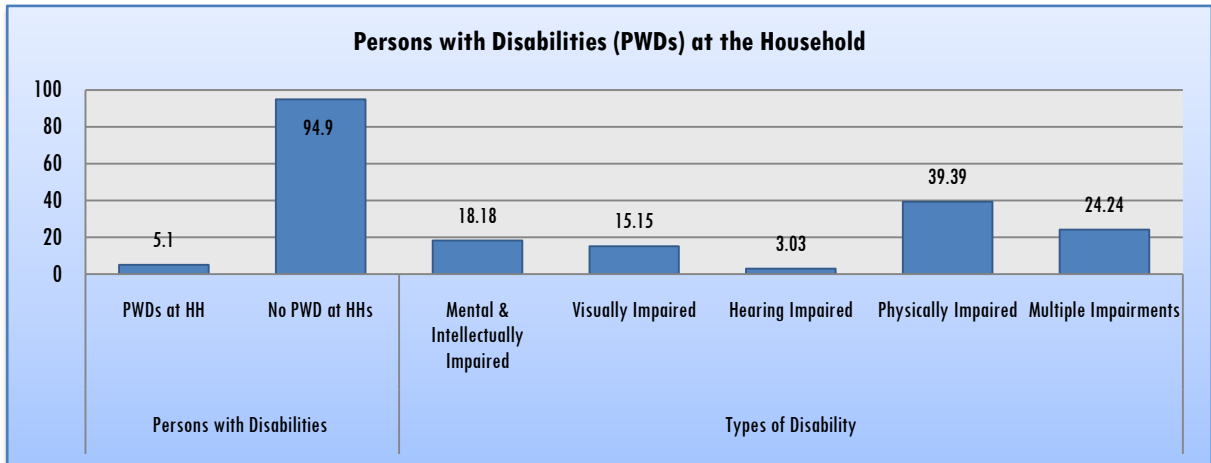
The zone segregated data represent more or less the same picture. In the flood prone areas, the total population was 1387 including 741 males and 646 females. The average age in this zone is 25.6 years for males an 22.9 years for female. Male per female ratio is 87.2 in the flood prone areas (see annexe one: table- 3.2).

The average age (26.5) is little higher in cyclone prone areas. Out of the total 829 people, there were 429 males and 447 females. Average age for both males (27.6) and females (25.4) seem to be

higher in comparison to the flood prone zones. Male-female ratio also appears to be higher as the sex ratio in cyclone prone areas is 104.2 (see annexe one: table- 3.3).

Total population in earthquake zone is 889 constituting 453 males and 436 females. However, the average age is the highest in the earthquake zones, which is 27.0 years including 28.5 years for males and 25.4 years for females. The average sex ratio is 96.2 (see annexe one: table- 3.4).

Persons with Disabilities (PWDs) at the Household

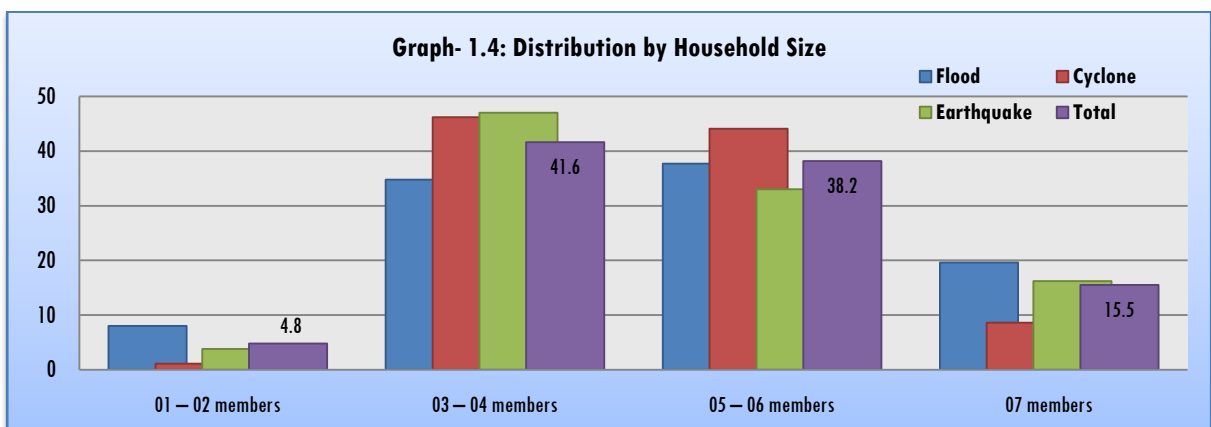


There were PWD member(s) in 5 percent of the total surveyed households. Out of this total PWD population, 39.39 percent were physically impaired, while 24.24 percent had multiple impairments.

3.2. HOUSEHOLD SIZE AND COMPOSITION

This section deals with the information related to household composition. The survey findings showed that the households having 03-04 members represent the highest percentage of 41.6%. In 2007 BDHS, there were 41.8 percent of the rural households belonging to this category. In the survey areas, the proportion of households having 05-06 members is 38.2 percent which is higher than the BDHS proportion of 33.2 percent. Even the proportion of larger households having seven members and above is almost similar to the national scenario.

3.2.1. HOUSEHOLD SIZE



In the flood prone zones, the household size is relatively smaller. Households having 05-06 members contain 37.7 percent of the total population, while 03-04 membered households represented 34.8 percent. But the proportion of larger households containing seven members and above is also higher (19.6 percent) in the flood prone areas.

In the cyclone prone areas, the proportion of medium or 03-04 membered households is quite higher than the flood-prone areas. Households of this size contain 46.2 percent while the 05-06 membered households constitute 44.1 percent. Interestingly, larger households having 07 members or more contain half of the proportion as found in flood prone areas. There were around 8.6 percent households having 7 members and above.

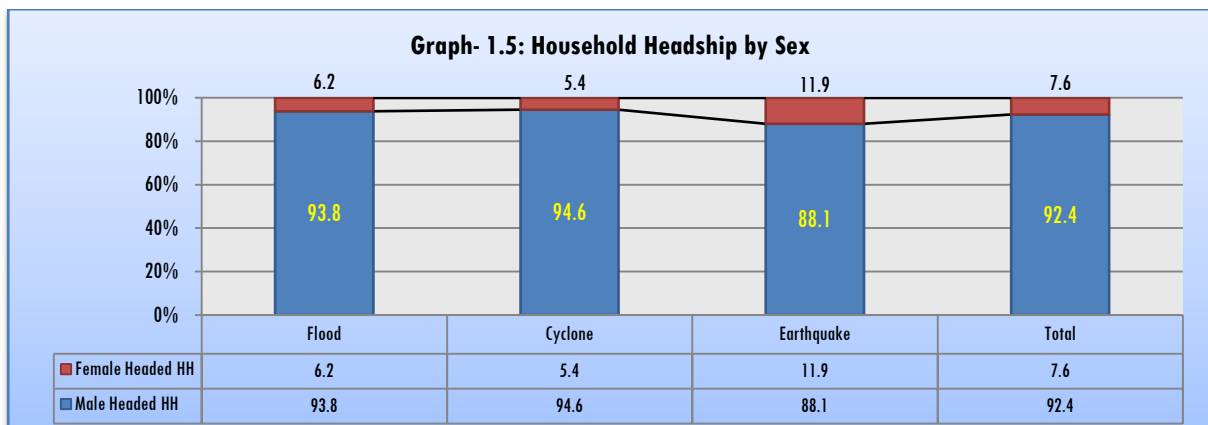
In the earthquake zone, there were the highest 47.0 percent responses for 03-04 members' households, whereas households containing 05-06 members represent 33.0 percent and larger households of 7 members and above had 16.2 percent responses.

The average household size in Bangladesh as presented in BDHS 2007 is 4.7. This finding is rightly supported by the survey data having most responses for 03-04 and 05-06 members' households (see annexe one: table- 3.6]. The figures also show a gradual decline of household size in rural areas as it is also supported by BDHS (BDHS 2007: 49).

3.2.2. HOUSEHOLD HEADSHIP

In this section, educational attainments and occupational status of the household members as well as of the household heads have been discussed. Educational attainments certainly influence a person's level of awareness, practice and behaviour and exposure to media, entitlements, resilience and other aspects of social development.

3.2.2.1. MALE AND FEMALE HEADED HOUSEHOLD

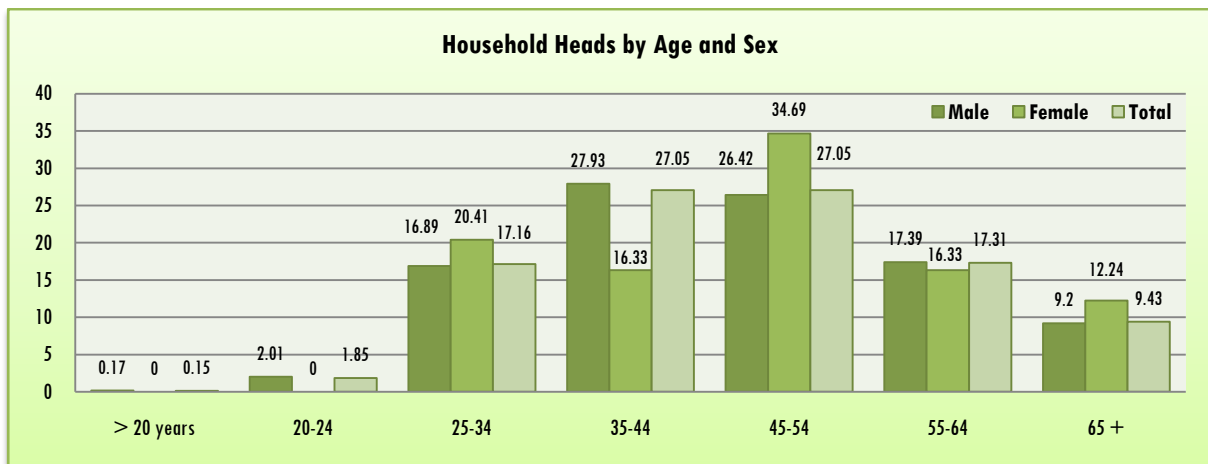


A total 92.40 percent of the surveyed households are headed by males whereas 7.6 percent of the households were headed by females. In the flood-prone areas, 93.8 percent households were male-headed and 6.3 percent households were female-headed. The percentage of female-headed households is lesser in the cyclone-prone zones that contain 4.9 percent of the total households. However, the proportion of the female-headed households in the survey area is much higher in the earthquake zones comprising 11.9 percent. A major reason for the higher presence of female headed

households in the earthquake zone is that most of these households are in urban areas, where male (who supposedly should have been the head) may reside abroad or outside the town. In such cases, women became the household head (see annexe one: table- 3.7).

3.2.2.2. HOUSEHOLD HEAD’S AGE AND SEX

In the flood-prone areas, average age of the household heads is 46.7 years for including 46.5 years for males and 50.7 years for females. Most of the male HH heads in this area belonged to the age group of 35-44 years containing 24.71 percent. A proportion of 23.55 percent male household heads belonged to the age groups of 45-54 years and 23.94 percent household heads (male) were of the 55-64 years’ age category.

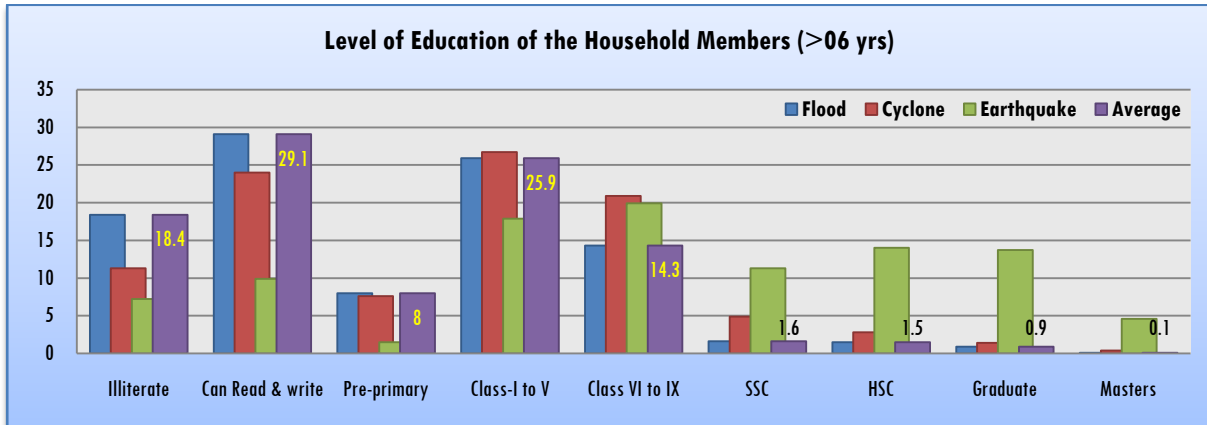


Female household heads are relatively older. There were similar proportion of females household heads belonged to the age groups of 45-54 years and 55-64 years having 35.29 percent each. (see annexe one: table- 3.8).

The average age of household heads in the cyclone-prone areas is lower in comparison to the average age in flood-prone areas. In cyclone-prone areas, the average age is 44.2 years, with 44.3 years age for males and 43.4 years for females. Most of the male household heads in this area belonged to the age groups of 35-44 years and 45-54 years with 34.09 percent and 28.04 responses. Most of the female household heads of cyclone-prone areas belonged to the age groups of 25-34 years (40 percent) and 45-54 years (30 percent) (see annexe one: table- 3.9)

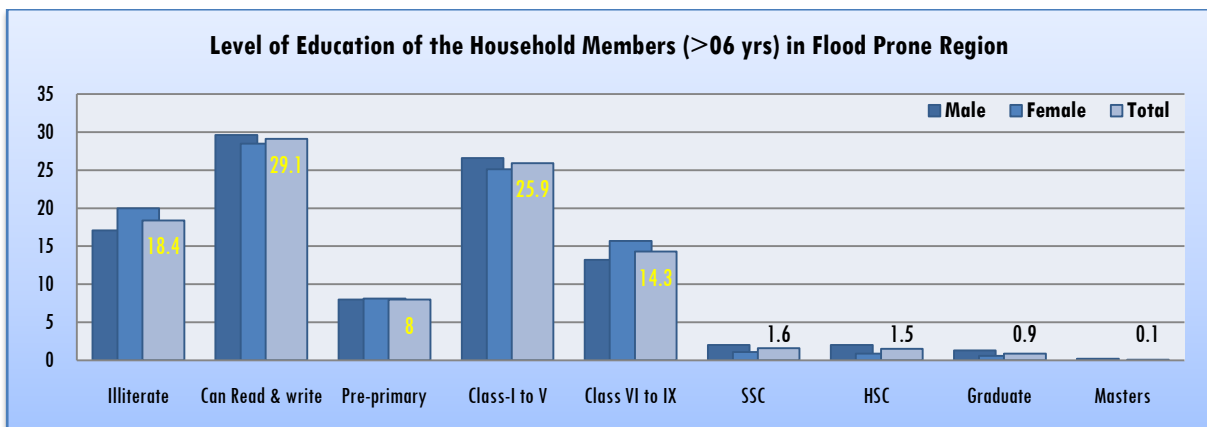
In earthquake areas, 28.83 percent male HH heads were of the age group 45-54 years, whereas 26.38 percent HH heads were of 35-44 years of age. Among the female HH heads, there were similar proportions (22.73 percent) for both 25-34 years and 35-44 years. However, 36.36 percent of female households were 45-54 years of age. The average of the respondents in this area is 44.6 years having 44.6 years for men and 44.4 years for women (see annexe one: table-3.10).

3.2.3. LEVEL OF EDUCATION OF THE STUDY POPULATION



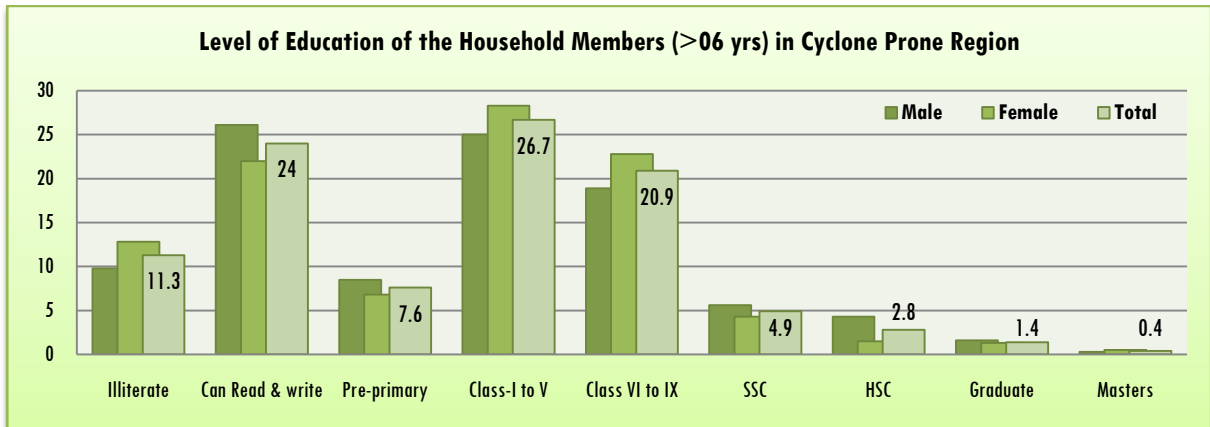
Level of education is an important indicator to evaluate the potential of socio-economic development and level of awareness. This section gives an overview of the educational status of the household members and household heads of all three zones. Data on education have been collected on the household members above six years of age.

As the survey findings reveal, 13.2 percent of the total population (above six years of age) is illiterate which includes 11.5 percent males and 15.0 percent females. Around 22.1 percent of the respondents have the literacy¹ which means they can read and write only. In this category, there were 23.1 percent males and 21.1 percent females. The highest proportion, i.e.23.8 percent of the respondents either studied or have been studying in primary schools. There were 24.3 percent female respondents and 23.4 percent males in this category. The proportion of respondents who either attended or have been attending secondary school is 17.8 percent. As it is the case in the category of primary school, the percentage of female in this category is higher (18.7 percent) than the males (17.0 percent). However, the number of females decreases in the higher levels (see annexe one: table3.12). The zone segregated data showed more or less the similar percentages with slight differences.

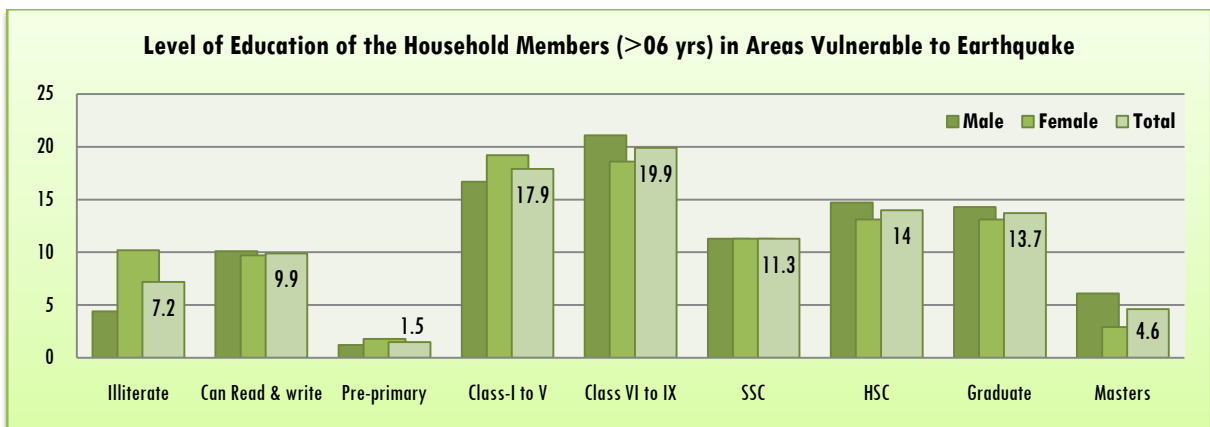


¹ The Bangladesh Bureau of Statistics (BBS) considers a person as literate if s/he can “read and write a letter in any language.” On the basis of this criterion, literacy rate in Bangladesh was accepted to be 25.8% in 1974, immediately after promulgation of Compulsory Primary Education Act, 1974. The number of male adult literates was 37.2% and that of females was 13.2%. The rate increased to 35.3 percent in 1991, with 47.6 million illiterate adults. It rose to 47.5 percent in 2001 (BBS, 2003) and national literacy rate had increased to 51.9% in 2005 (BBS, HIES 2005, 2007). However, the big gap here is that, the rate is based on household declaration, rather than direct assessment of literacy.

As it is found in the flood prone areas, 18.4 percent of the respondents were illiterate. There was highest (29.1 percent) percentage of respondents in the category of having literacy. In this category, there were 29.6 percent males and 28.5 percent females who can read and write only. Around 25.9 percent of the respondents attended primary school having almost parallel proportions of males (26.6 percent) and females (25.1 percent). There were only 14.3 percent of the respondents who attended secondary school. Interestingly, proportion of females in this category is higher (15.7 percent) than the males (13.2 percent). However, proportions of the respondents who completed SSC or higher level of study is quite low (see annexe one: table- 3.13).



The picture of education is not very different in cyclone prone zones. In this zone, there were altogether 11.3 percent respondents, who were illiterate, whereas only 24 percent respondents were literate having the knowledge of reading and writing. Altogether 26.7 percent respondents attended primary schools while 20.9 percent respondents attended secondary schools. In both the categories proportions of females are higher (28.3 percent in primary and 22.8 percent in secondary) than the males (25.0 and 18.9 percents respectively). While only 4.8 percent of the respondents completed SSC, only 2.8 percent of the respondents were found to have completed HSC. Again, like in flood zones, proportion of females lessens in the higher levels (see annexe one: table- 3.14).

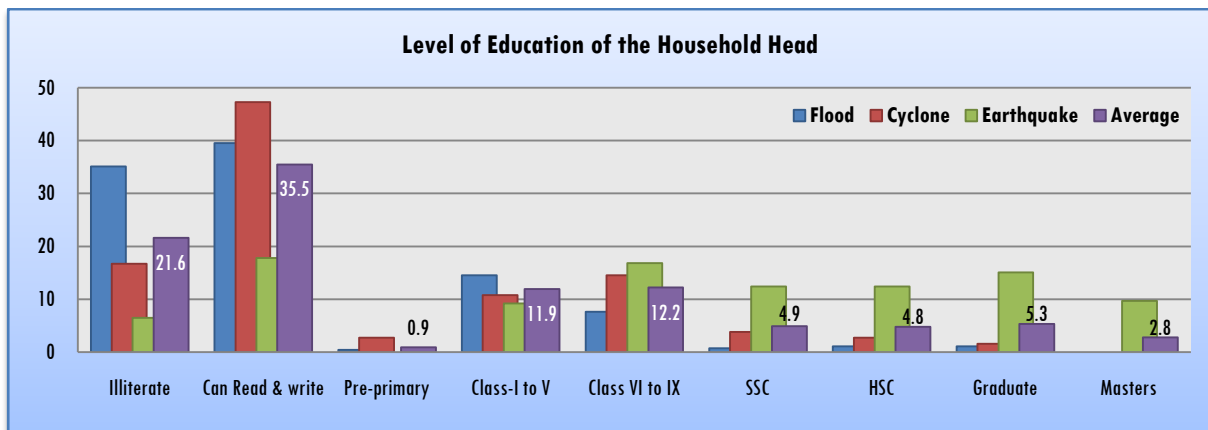


Educational status in the earthquake zone shows somehow a different picture. Unlike flood and cyclone zones, the proportion of illiterate is quite low. It is also important to note that unlike the other two zones, proportions of respondents are quite regularly distributed in primary, secondary and higher levels. As most of the respondents in this zone are from urban areas, facilities and reception of education is higher. In addition, many of the families are quite well off so that they can afford to support educational expenses of the family members.

In this relation, there were highest 13.7 percent (compared to other two zones) respondents who completed graduation and 4.6 percent completed masters. In addition to the 17.9 percent of the respondents who attended primary schools, there were 19.9 percent respondents to have attended secondary schools. Even in the categories of SSC and HSC graduates percentages (11.3 and 14.0) are quite proportionate (see annexe one: table- 3.15).

Both in the preliminary and higher levels of education, unlike the other two zones, percentages of females are quite proportionate to the percentages of males, although in some cases, percentage of women is lower.

LEVEL OF EDUCATION OF THE HOUSEHOLD HEADS



As the general data on all three zones showed, there were 21.6 percent household heads who were illiterate, of whom there were 36.7 percent females and 20.4 percent males. Altogether 35.5 percent of the household heads including 36.6 percent males and 22.4 percent females were literate having the knowledge of reading and writing. Although altogether 11.9 percent of the household heads attended primary schools, the percentage is higher for the females in this category representing 14.3 percent. Reversely, the percentage of female household heads (6.1percent) was almost half of the males of this category (12.7 percent). As in the earthquake zones, there were good representation of females in higher level of education, the overall representation of females in higher levels got higher which does not represent the reality of flood and cyclone zones (see annexe one: table 3.16).

In the flood prone zones, the highest proportion of HH heads (39.5 percent) were able to read and write only, whereas only 17.6 percent of the female household heads could read and write only. Although there were 35.1 percent HH heads were illiterate, the proportion of female HH heads is much higher (58.8 percent) in the illiterate category. On the other hand, proportion of the females is almost is double in the category of primary school attendants where females consist of 23.5 percent and males represent 13.9 percent. In other categories, representation of the total population is much lower, let alone the females (see annexe one: table-3.17).

The picture is somehow different in cyclone-prone zones where out of total 47.3 percent literate only HH heads, 50 percent were females. There were total 16.7 percent illiterate HH heads which included 50 percent females but 14.8 percent males. Although there were 10.8 percent of the HH heads attended primary schools, 14.5 percent attended secondary schools, it is remarkable for this zone that there is no female representation in any category other than illiterate and 'read and write' categories (see annexe one: table- 3.18).

As it is said earlier, proportion of female HH heads in earthquake zones who had attended primary, secondary and higher level educations are quite higher in comparison to other zones. There were same percentages of female respondents in illiterate, literate, primary, secondary, SSC and HSC categories having 13.6 percent of females in each group. Although there were 9.1 percents of female HH heads who had completed graduation in comparison to the 16.0 percent of male graduate HH heads, the same proportion of female (9.1) HH heads were found to have completed masters in comparison to the 9.8 percent of males (see annexe one: table- 3.19).

As it is the case for household members in this zone, the proportion of population is quite evenly distributed in different categories in this region. As such, there were 17.8 percent of the HH heads were literate, whereas 16.8 percent attended high school, 12.4 percent completed SSC, 12.4 percent completed HSC, 15.1 were graduates and 9.7 percent completed masters degree.

3.2.4. OCCUPATIONAL STATUS

Information on occupation has been collected on individual household members. It, therefore, must be noted that a number of people have secondary occupation (s). As it is found in the study, a person may adopt more than one occupation depending on his or her need, time, skill, available options and season. A person who cultivates own or tenured land may occasionally work as a labourer or rickshaw puller to supplement his income. A student can be a part-time labourer too. Even a government employee might have income from agricultural land. Therefore, data have been collected on both primary and secondary professions. However, income-generating activities or studentships are not applicable for children under six years of age who represent 10.1 percent of the population. This is also true for some disable people who represent 0.7 percent.

Occupational Status of HH Members

On an average, total 13.2 percent of the population is involved with agriculture. Agriculture refers to a number or forms of activities. A person can be involved in more than one forms of agricultural activity at the same time. The evaluation considered both farming in own and/or tenured land as well as working as wage labour in other's farm as agriculture. The survey reveals that 4.5 percent of the respondents were doing agriculture in own land, whereas 3.1 percent of the respondents do agriculture in tenured land and 5.6 percent of the respondents work as agricultural labourers. However, the proportion of women seems to be lower in these categories. Rather, the highest proportion of women belongs to the category of housewife representing 39.5 percent of the total female population.

Among other professions, there were 4.6 percent skilled labourers, while the motor vehicle drivers occupy 2.8 percent. In addition to the 1.7 percent government and non-government official jobs and 0.1 percent service oriented professional (like doctors, engineers lawyers etc.), there were many other professions which vary from region to region (see annexe one: table- 3.20).

Compared to the flood-prone zones, proportions of doing agriculture in own or tenured land is lesser in the cyclone-prone areas. These two categories include only 1 percent of the total population. The percentage of agricultural labourers is 7.8, whereas skilled labourers represent 3.0 percent of the total population. Non-motor and motor vehicle drivers contain 2.6 percent and 0.5 percent of the population.

Due to their ecological specificity, a proportion of 4.7 percent of the population was found to be engaged in fishing, while other 1.5 percent were engaged in fishing business. Nevertheless, the highest percentage of population was student (30.1 percent). The housewives represent 20.3 percent of the total population and 39.8 percent of the total female population. It might be noted that there were 5.1 percent retired or old aged people along with 1.7 percent disabled and 10.0 percent under six children population.[See Annexe One: Table- 3.22).

In the earthquake zones, total 5.8 percent of the respondents were engaged in agriculture in own land, whereas 6.6 percent do it in tenured land. There were 8.0 percent skilled labourers along with 4.5 percent non-motor vehicle drivers and 2.5 percent motor vehicle drivers. However, the largest portion of the population of the earthquake zone was found to be engaged in fishing business. (see annexe one: table- 3.23)

As it is the case in other two zones, 16.3 percent were students while 29.1 percent of the females represent total 14.3 percent of the population's occupation as housewives in this zone (ibid).

Occupational Status of HH Heads

A household's economic condition depends mostly on the household head's occupation and income. Income earning activities of other household members remain mostly secondary or supportive for the household. However, as the survey data show, a major portion of the household heads are involved in agriculture, be it cultivation in own land and/or tenured land or wage labour for other's farm.

A total of 40.6 percent of the HH heads were involved in some forms of agriculture. According to the survey findings, 13.6 of the HH heads, most of whom (14.5 percent) were males, have agriculture in their own land as their major occupation, whereas other 8.8 percent of the HH heads used to do agriculture in tenured land. At the same time 18.2 percent of the HH heads were agricultural labourers. There were similar proportions of skilled labourers and non-motor vehicle drivers having 9.7 percent and 9.6 percent responses in that order. Around 5.7 percent of the HH heads adopted fishermen, while 4.0 percent were engaged in fishing business. Petty business seems to be the occupation for 3.9 percent household heads while same proportion (3.9 percent) of household heads were engaged in government or non-government job sectors.

It is interesting enough to find that 32.7 percent of the female household heads were also engaged in fishing business. However, there remains area specific variation of occupations. The senior most member of the family may remain the head of the household although s/he does not have any income-earning activity presently. In this connection, there were 4.2 percent of the household HH heads who were retired or old aged (see annexe one: table- 3.24).

The majority of the household heads in the flood-prone zones ranked agriculture as their major occupation. There were in total 56.1 percent responses for agriculture including farming in own land or in tenured land as well as agricultural labourers. Agriculture in own land was the major occupation for 21.0 percent of the HH heads, while agriculture in tenured land was identified as the occupation for 10.5 percent of the HH heads. A total of 7.6 percent HH heads were engaged in government or non-government job sectors. Some 6.2 percent of the HH heads were non-motor vehicle drivers while 4.0 percent were skilled labourers.

Among the female household heads of the flood-prone area, 35.3 percent were housewives, with a proportion of 11.8 percent government and non-government job holders. Although in total 6.5 percent of the HH heads were old aged or retired persons, the female representation is much higher in this

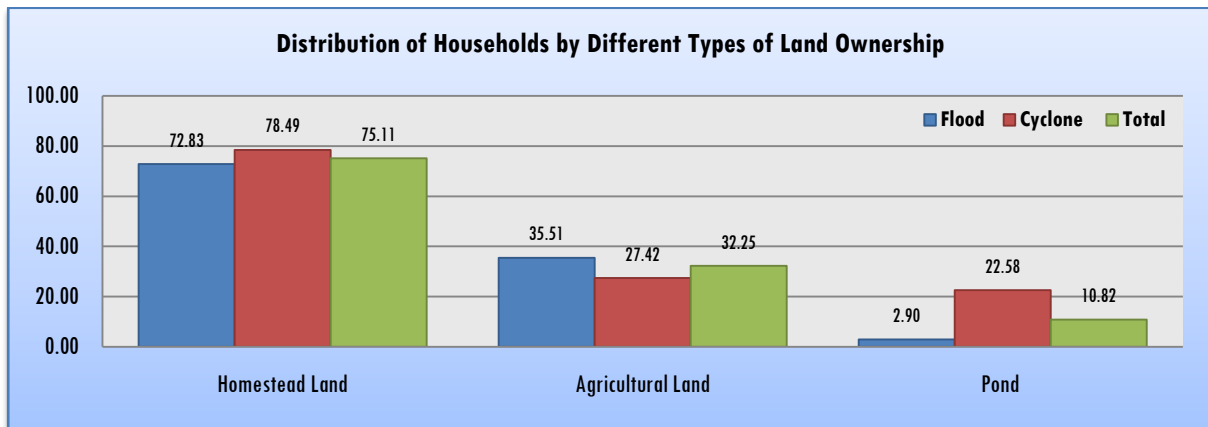
category. There were 17.6 percent female household heads who were either retired or old aged (see annexe one: table- 3.25).

In the cyclone prone areas, agricultural labour appears to be the major occupation as 24.2 percent of the HH heads had this occupation. In contrast to the flood prone zone, proportion of adopting agriculture as occupation is very low. In its place, fishing became the second most accepted profession as 15.6 percent of the HH heads were engaged in fishing and 3.2 percent were engaged in fishing business. Understandably, due to the geographic location, fishing has become a major mode of subsistence for many households. There were 9.1 percent responses for skilled labour and 8.6 percent for non-motor vehicle drivers. There also exist a proportion of 7.0 percent HH heads who were petty businessmen including 10 percent female HH heads.

A sum of 20.0 percent of the female HH heads in the cyclone area were housewives while 4.8 percent were retire or old aged persons (see annexe one: table- 3.26).

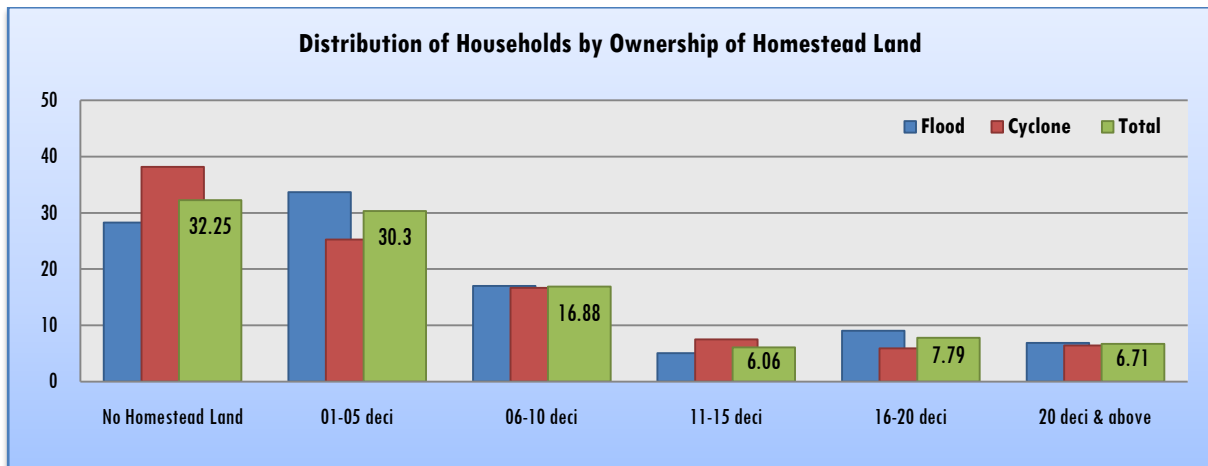
In the earthquake zones, agriculture in own land and agriculture in tenured received similar responses as each category received 13.5 percent responses. However, for majority of the household heads, skilled labour is the major occupation as it received 18.9 percent responses. Driving non-motor vehicles became second major occupation as it received 15.7 percent responses, while there were 9.2 percent responses for motor vehicle driver. Fishing business is also another accepted occupation, especially in Sylhet, having 8.6 percent responses (see annexe one: table- 3.27).

3.2.5. OWNERSHIP OF LAND

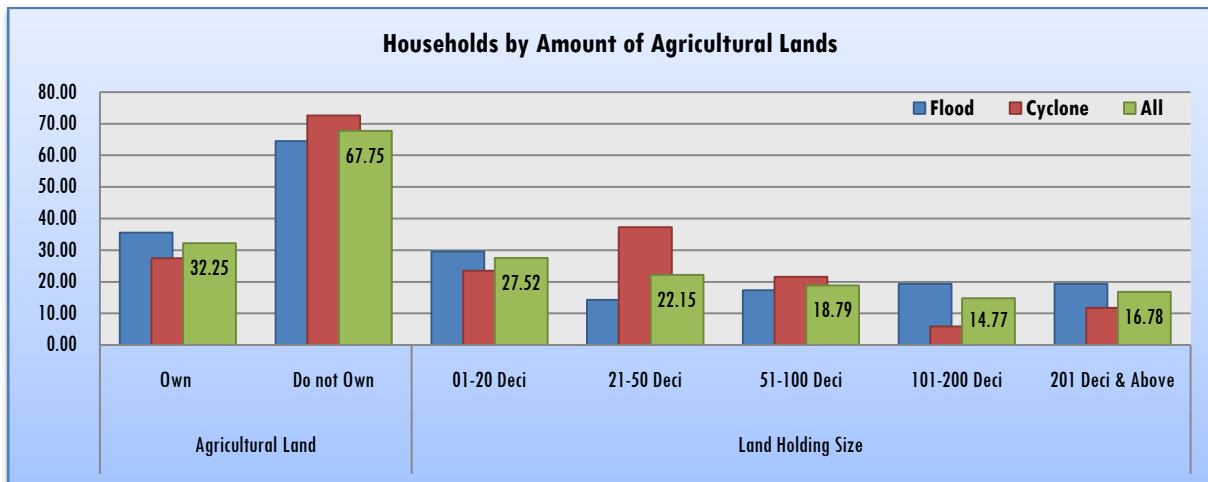


Most of the households in the survey area are situated on small plots. As such, 30.30 percent of the households had homestead land that amount 01-05 decimals of land area. In the flood prone areas there were 33.70 percent households along with a proportion of 25.27 percent households in cyclone-prone zone having this amount of land. A land area of 06-10 decimals for homestead was owned by 16.88 percent households that included 17.03 percent households in flood-prone areas and 16.67 percent in cyclone-prone zones. Some 7.79 percent of the total households had 16-20 decimals of homestead lands. The proportion of households, who owned homestead lands of 20 decimals and above, is around 6.7 percent (see annexe one: table- 3.28 and 3.29).

3.2.5.1. Ownership of Homestead Land

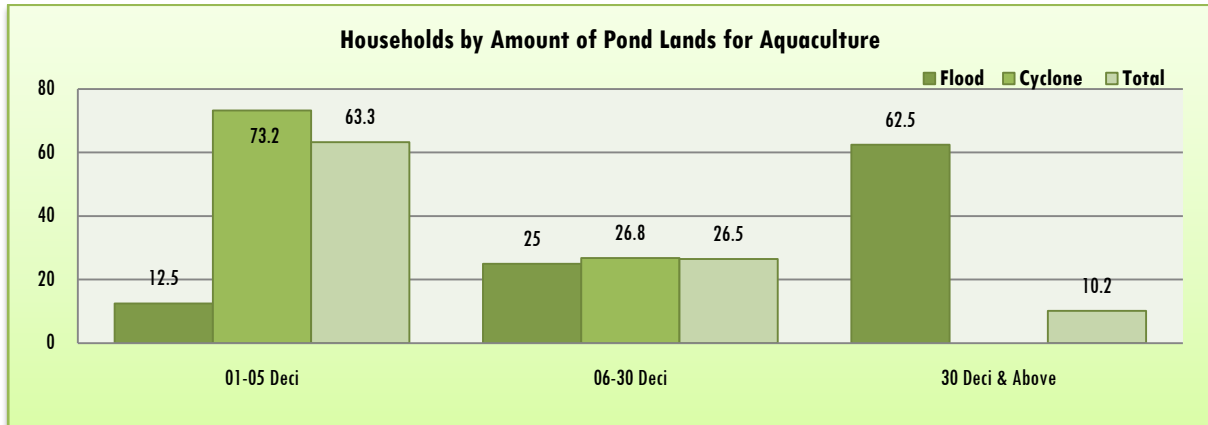


3.2.5.2. Agricultural Land



A total of only 32.75 percent of the households had own agricultural land. In flood areas there were 35.51 percent households and in cyclone areas there were 27.42 percent households having own land for agriculture. Around 27.52 percent of the households had upto 20 decimals of agricultural landm while other 22.15 percent had land amounting 21-50 decimal. In flood prone areas around 17 percent households had 50-100 decimals, while some 19.39 percent had 101-200 decimals and other 19.39 had 200 and above decimals of land. In cyclone areas, these categories constitute 21.57, 5.88 and 11.76 percent (annexe one, table 3.30)

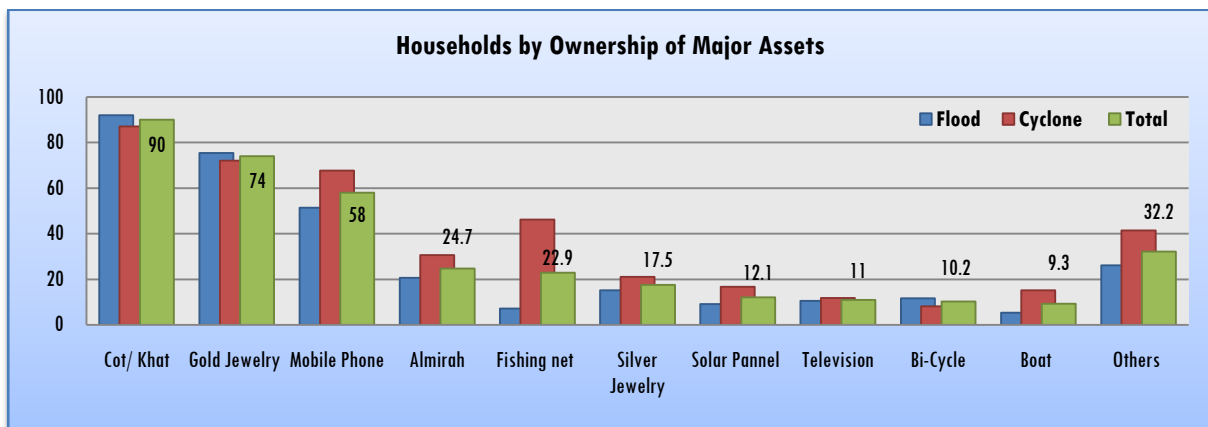
3.2.5.3. Ownership of Pond Lands for Aquaculture



As it is mentioned earlier, ponds are not too common in flood prone zones .There were only 2.9 percent of the households in the flood prone zones who had ponds. However, out of this small proportion of households, there were 62.5 percent households whose ponds were really big as those acquire 30 decimals and above amount of land area.

On the other hand, 22.0 percent of the households in cyclone prone areas had ponds. Most of the ponds of this zone are small in size. A proportion of 73.2 percent of the households own ponds which are of 01-05 decimals in size, whereas 19.5 percent of the households own ponds of the size of 06-30 decimals (see annexe one: table- 3.31).

3.2.6. OWNERSHIP OF MAJOR ASSETS



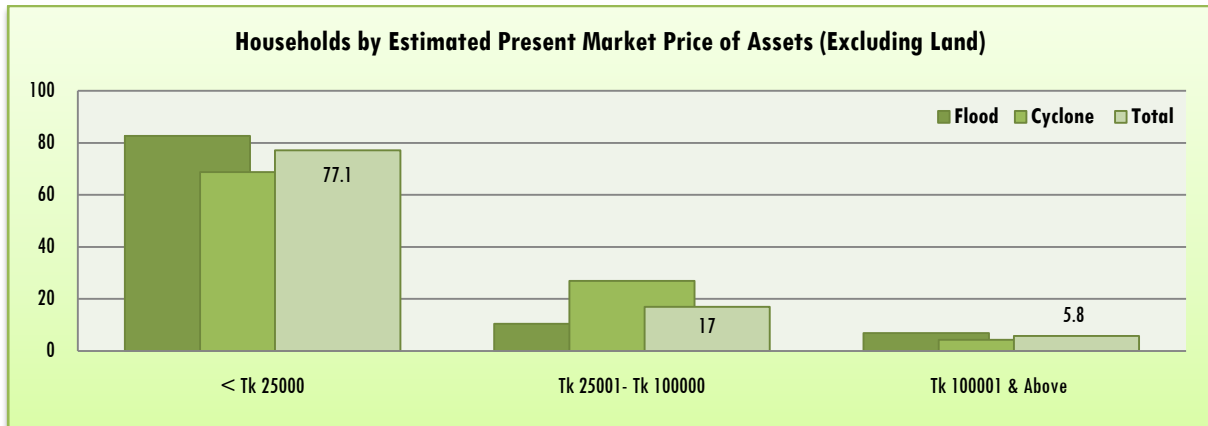
Notes on Others: Radio, electric fan, rickshaw/ van, sewing machine, other equipments of cultivation, cassette/ CD/ VCD player, power tiller, irrigation equipments, motor cycle and etc.

The survey collected information on household ownership of selected assets. This can be used along with other indicators to generate a wealth status indicator of the surveyed households.

As the survey data reveal, 90 percent of the HHs own cot and 24.7 percent of the households own almirah as durable goods. Gold jewellery is another form of durable goods owned by 74.0 percent households. Radio and television are not that common yet, as only 11 percent of the households own television whereas only 8.7 percent of the households had radio. Interestingly, use of mobile phones

has become more common as 58 percent of the households were found to have mobile phones. Among other goods there were fishing nets, bi-cycle, boat and solar panel (see annexe one: table- 3.32).

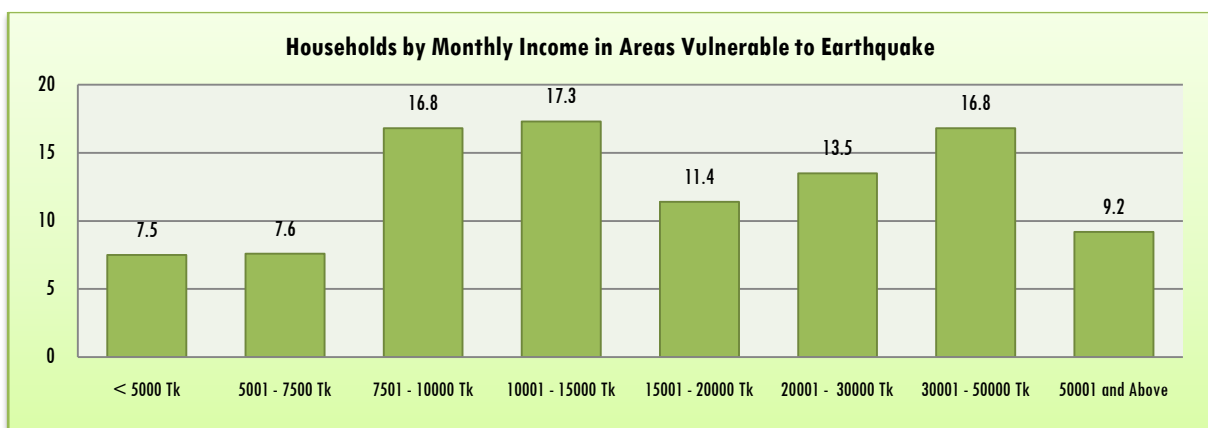
Market Price of Assets



Market price of assets owned by a household indicates a household’s possession of wealth. Therefore, the survey attempted to estimate a summation of the market price of the durable goods owned by the HHs.

According to the survey data, entire assets of 77.1 percent of the HHs cost only 25000 or even less. In flood-prone areas there were 82.6 percent of such households, while in cyclone areas these households contain 68.8 percent. Only 9.3 percent of the households, including 5.8 percent from flood prone areas and 14.5 percent from cyclone prone areas, had assets that had the total market price of Tk 25001-50000. Altogether only 5.8 percent of the households had assets that cost Tk 100000 and above (see annexe one: table- 3.33).

3.2.7. INCOME IN AREAS VULNERABLE TO EARTHQUAKE



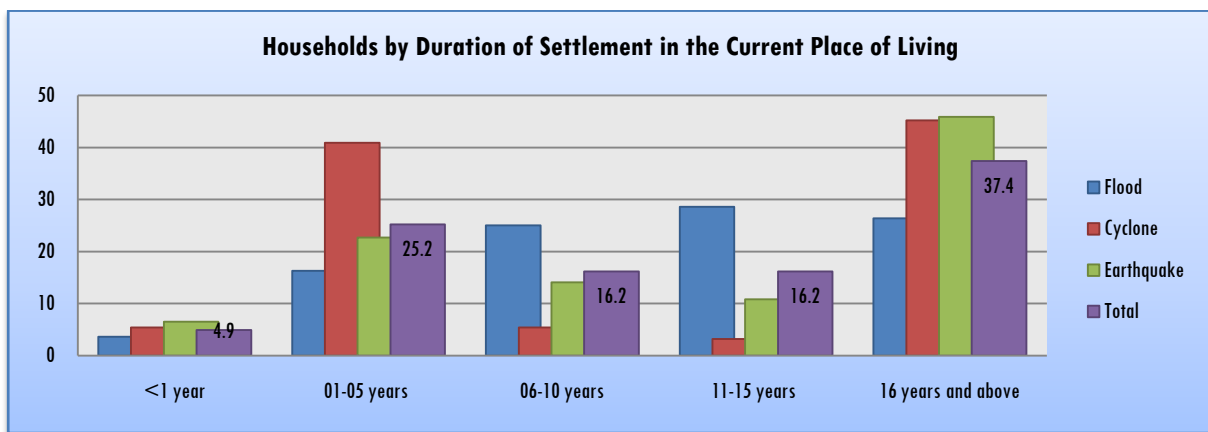
As good proportion of population in earthquake zones live in urban areas, the estimation of land areas and assets may not be that appropriate for most of the population. Instead, the survey estimated the monthly income of the households to have an idea of their economic condition.

As the population in earthquake zone was quite diverse in terms of their education, job and other socio-economic conditions, we see a proportionate distribution of households in different income groups.

There are 17.3 percent of the households who have the income of Tk 10001-15000 per month. This proportion is followed by 16.8 percent of the households who earn monthly Tk 7501-10,000. There are also similar 16.8 percent of households who have the monthly income of Tk .30001 -50000. In addition to this, there are 11.4 percent households having the income of 150001-20000, while 9.2 percent households' income is as high as Tk 50000 and above. It is also important to take a note that, 1.6 percent families earn less than Tk 2000 per month (see annexe one: table- 3.34).

3.3. LIVING CONDITIONS AND SETTLEMENT PATTERNS

3.3.1. DURATION OF SETTLEMENT IN THE CURRENT PLACE OF LIVING



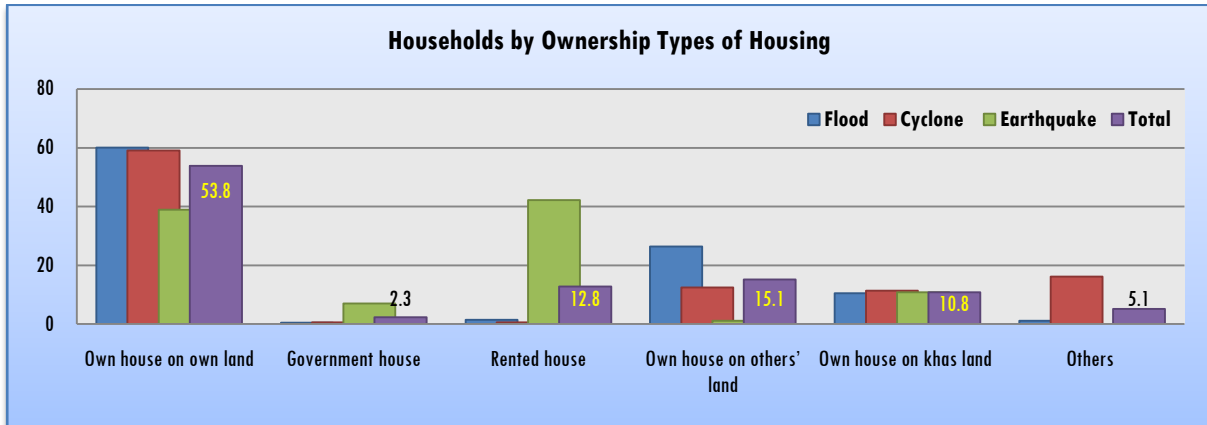
Duration of stay in a certain place reflects a household’s stability and potential for vulnerability. People’s settlement depends on a number of factors that include environment, disaster affects on the place of stay, economic condition and mobility of the household members.

As the survey data show, 28.6 percent of the households in the flood prone areas have been living in their current place for last 11 to 15 years, followed by 26.4 percent households who have been dwelling in their present residence for 16 years and above. As the 25 percent of the households’ have been living in their current place for last 06-10 years, whereas for 3.6 percent households, the duration of stay in the current place is of less than one year.

In the cyclone zones, 40.9 percent of the households have been living in their current place for last 01-05 years while some other 45.2 percent were more settled as they have been living in their current place for last 16 years and more.

In the earthquake zone, 45.9 percent of the people are found to have been living in their present residence for last 16 years and more, while 10.8 percent of the HHs had residence in the current place for last 11-15 years. As the present living place of 22.7 percent of the HHs is 01-05 years old, 14.1 percent households have been living in current place for 6-10 years (see annexe one: table- 3.35).

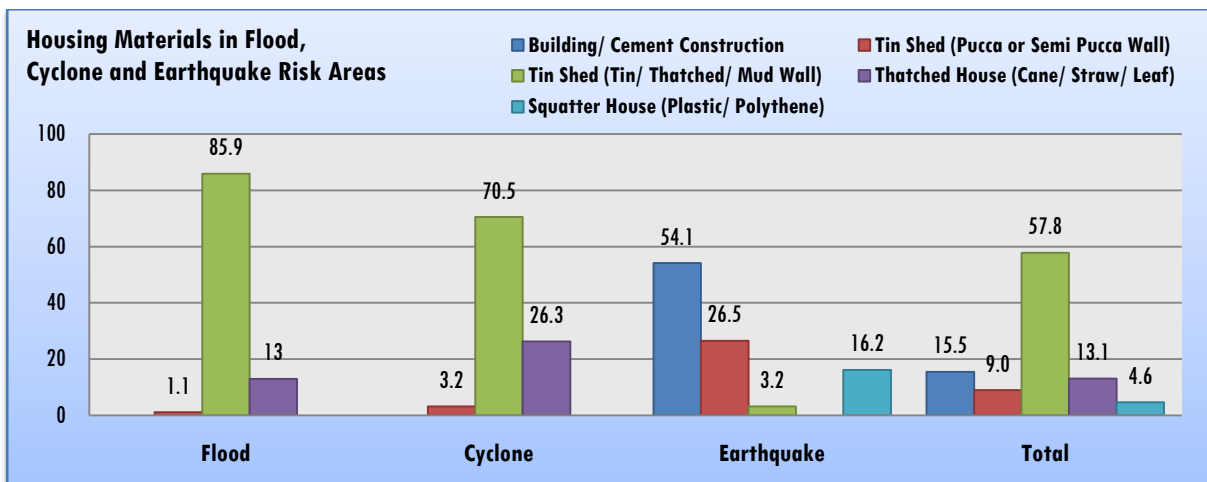
3.3.2. OWNERSHIP TYPES OF HOUSING



Most of the rural households, that is, the households in flood and cyclone prone zones, live in their own households built on own land. Around 60.1 percent of the households in the flood-prone areas and 59.1 percent of the households in the cyclone prone zone live in their own households on own land. In the earthquake zones, 38.9 percent of the households live in their own households on own land.

A total of 26.4 percent of the households in flood prone areas and 12.4 percent in the cyclone prone areas live in own house but built on others land. Living on government land, khas land is also found in the survey areas. A proportion of 10.5 percent HHs in flood-prone areas, 11.3 percent in cyclone zones and 10.8 percent in earthquake zones were found to live on their own houses built on khas land. Although living in rented houses is not at all common in rural areas, it is a common practice in urban areas. As such, the survey data reveal that there were 42.2 percent households in earthquake zones who have been living in rented houses (see annexe one: table- 3.36).

3.3.3. TYPES OF HOUSING MATERIALS

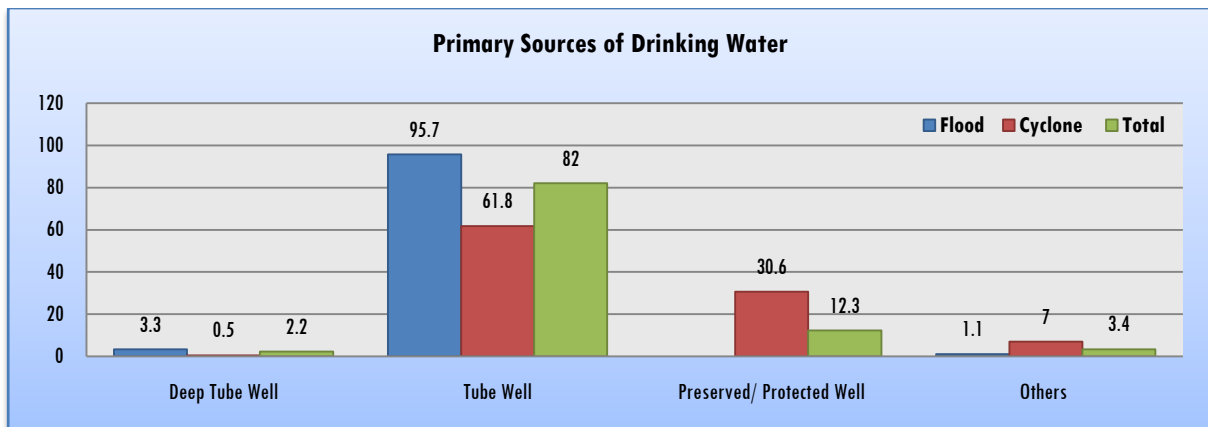


Different materials can be used in building a single housing construction in rural areas. While people normally use tin or straw in roof, mud or bamboo can be used in building walls. Certainly use of materials in house construction indicates financial capability of a household and their level of vulnerability to disaster.

If a house’s wall is made up of tin or CI sheets it can be assumed that roof is also made of the same materials. As the highest proportion of households, that contains 85.9 percent households in flood zones, 70.5 percent households in cyclone zone and 3.2 percent in earthquake zone have houses which are tin sheds. Houses made up of thatched roof and thatched wall were lived by 13.1 percent of the total households in three zones. Only 15.5 percent of the houses were made of concrete wall and tin roof, whereas there was no full concrete (brick-built) house in the survey households in flood and cyclone zones (annexe one, table 3.38).

Houses in earthquake zones are different from the houses in rural areas. Most of the houses contain urban features depending on the households’ socio-economic condition. However, on an average 43.8 percent households of the earthquake zones were living multi-storeyed buildings or apartments. A total 26.5 percent of the houses were made up of tin roof supported by concrete wall. A considerable proportion of 16.2 percent households live in squatter houses. Some 3.2 percent households live in the buildings which are more than 21 years old, whereas 4.9 percent of the houses live in r11-20 year old buildings (annexe one table 3.39).

3.4. PRIMARY SOURCES OF DRINKING WATER

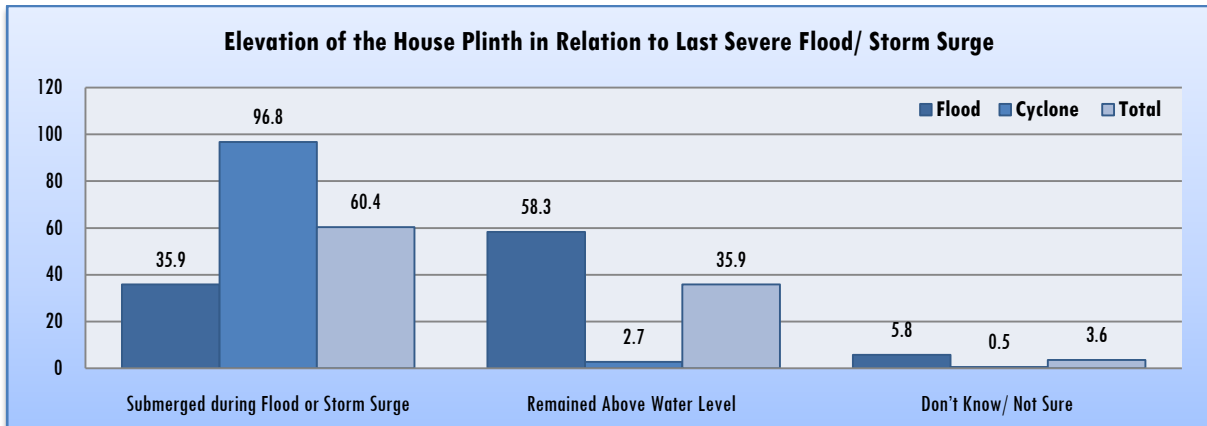


Situation of water and sanitation in a specific area reflects the vulnerability of the households during disaster. In rural settings of flood and cyclone zones, people usually drink water from tubewell or deep tubewell. Even those households who do not own tube well of their own try to collect water from a nearby tubewell. As such a single tubewell may be shared by many households. In those cases, same tubewell was reported several times by different households. However, around 95.7 percent of the people of flood zones drink water from tubewell, while other 3.3 percent drink water from deep tubewells.

Due to high prevalence of arsenic contamination, use of tubewell as source of drinking water is relatively low in cyclone zones. As such, there were around 61.8 percent households who drink tubewell water. Alternatively they collect water from preserved or protected well which stands for 30.6 percent households in the cyclone zones (see annexe one: table- 3.41). For some of the households uncovered well (2.7 percent) and harvested rainwater (3.8 percent) are the sources of drinking water.

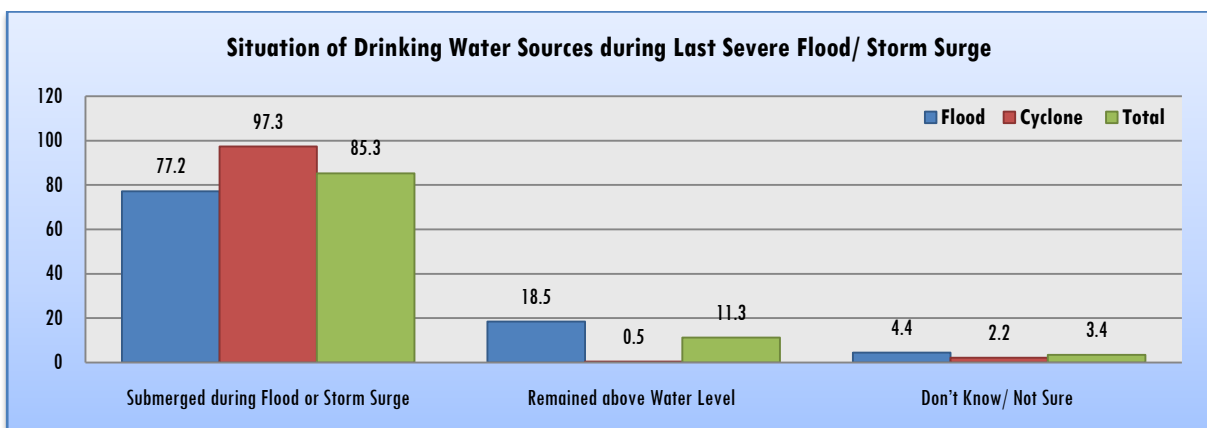
3.5. SITUATION OF HOUSEHOLD DURING LAST SEVERE FLOOD/ STORM SURGE

3.5.1. ELEVATION LEVEL OF THE HOUSE PLINTH



The level of elevation and situation of plinth of the houses during last flood or storm surge reflects the vulnerable situation of the household in disaster situation. As the survey data show, 35.9 percent of the houses in the flood zones were submerged during last flood. This percentage is as high as 96.8 per percent in cyclone zones where almost all the houses were submerged during last storm surge. In the flood zones, 58.3 percent of the houses’ plinth remained above the water level, whereas in cyclone zones, the proportion is only 2.7 percent. A total of 2.9 percent of the households could not say about this as they had not lived in the current place during the last flood (table3.40).

3.5.2. SITUATION OF DRINKING WATER SOURCES

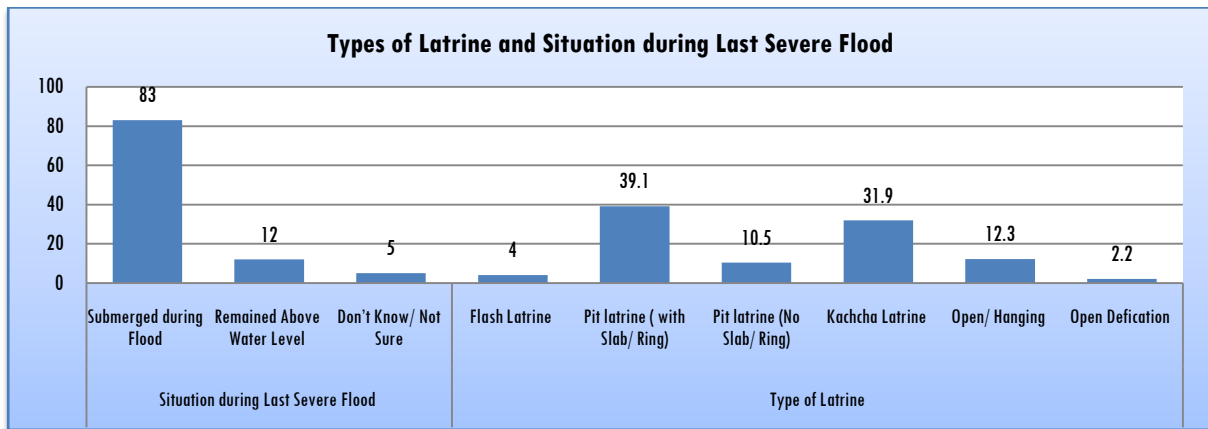


However, if the water sources get affected by disaster that creates scarcity of drinking water affecting the overall health situation. As the data show, the water sources of 97.3 percent of the households in cyclone zone were submerged during last storm surge. In the flood zones, 77.2 percent of the water sources were affected by being inundated during last flood, whereas only 18.5 percent of the water sources remained above water level. In cyclone areas, the proportion of water sources that remained intact during last storm surge was only 0.5 percent (see annexe one: table- 3.42).

3.5.3. TYPES AND SITUATION OF LATRINE

According to the survey findings, 39.1 percent of the households in the flood prone zones use pit latrines with slab/ring, while other 31.9 percent households use *kachcha* latrines. While a proportion of 12.3 percent households use open or hanging latrines, 2.2 percent households do not have any latrines at all, rather they defecate in open places (see annexe one: table- 3.43).

Whatever the type of latrine is, it is reported by the respondents that 83.0 percent of the latrines got inundated in last flood, whereas only 12.0 percent of the latrines remained above the water level (see annexe one: table- 3.44).

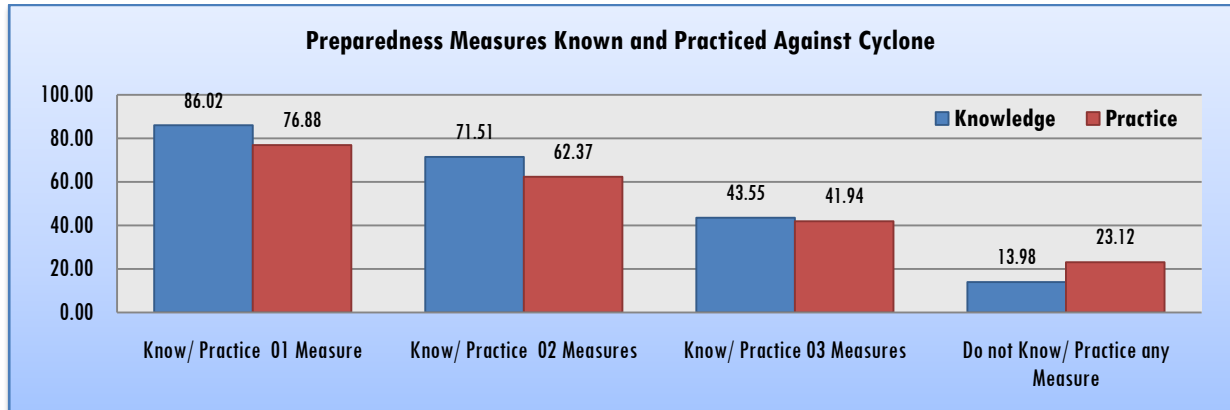


CHAPTER FOUR: FINDINGS AND OBSERVATIONS

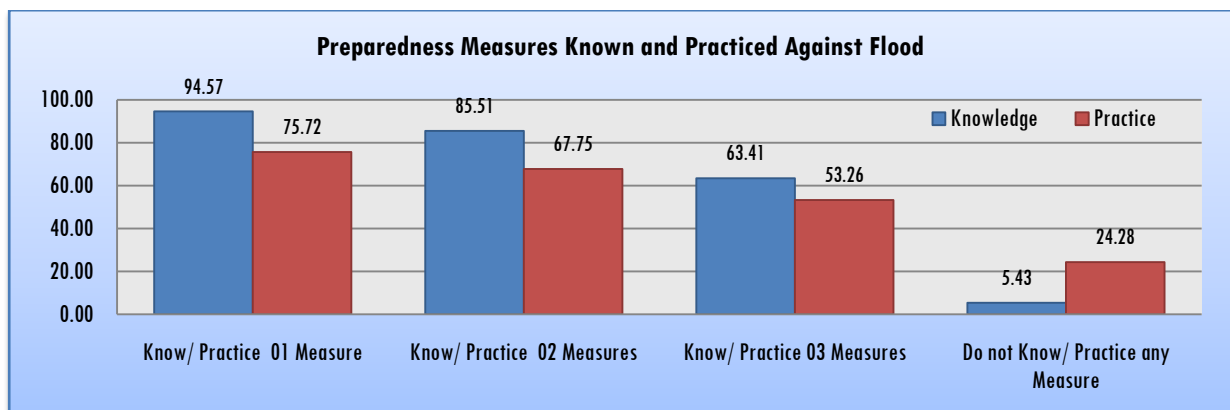


4.1. DISASTER PREPAREDNESS AND RESPONSE

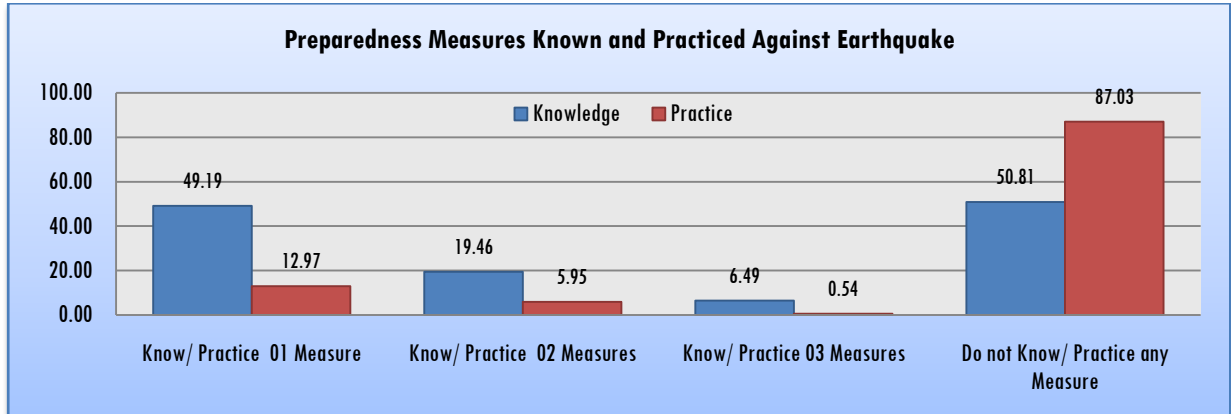
4.1.1. PREPAREDNESS MEASURES AGAINST FLOOD, CYCLONE AND EARTHQUAKE



One of the major objectives of the survey is to understand the level of knowledge and practice of preparedness for flood and cyclone. According to the survey findings, there were significant differences in the responses in these two zones. There could be many reasons for the discrepancies between awareness and practice which were not explored by the survey. However, one explanation could be set for explanation is that people do execute a number of actions which is motivated either through their tradition and/or need. Whenever they were asked about ‘what should be done’ they often refer to the knowledge or information they receive from external sources (like trainings or posters).



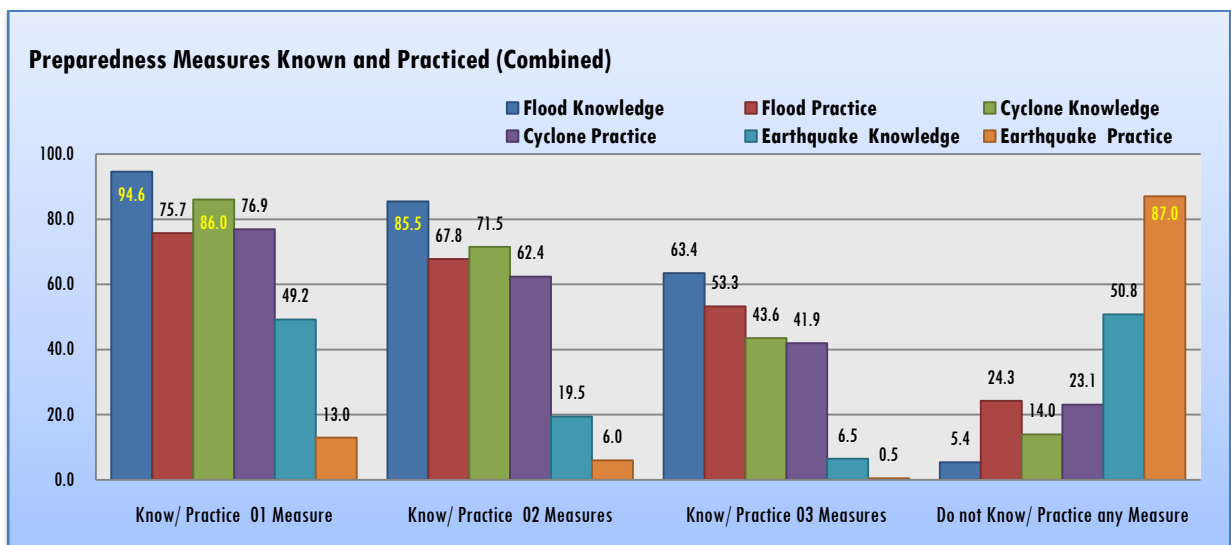
In the cyclone prone zones, 43.55 percent respondents have the knowledge of 3 measures and 71.5 percent of respondents knew 2 measures and 86.02 percent respondents have the knowledge of 1 measure. In practice, 41.94 percent respondents executed 3 measures, while other 62.37 percent implemented 2 measures and 76.88 percent adopted 1 measure (for details please see annexe one, table 4.1 and 4.2).

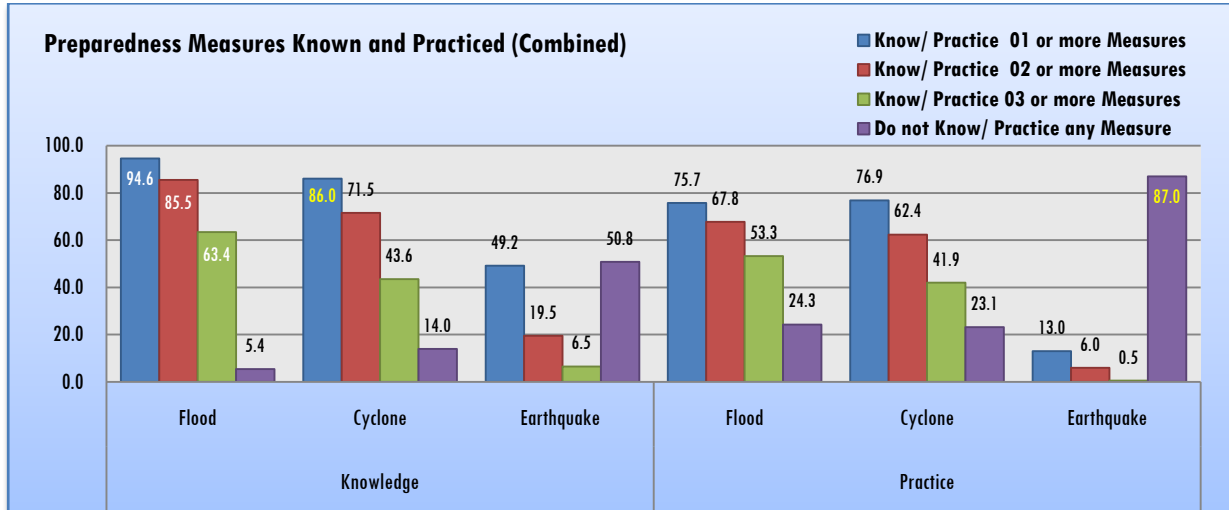


All over again, as estimated by the survey, 63.41 percent of the respondents in the flood zones have the knowledge of 3 preparedness measures while other 85.51 percent of the respondents knew 2 and 94.57 percent knew 1 measures of preparedness respectively. Around 53.26 percent of the respondents practice 3 measures, while other 67.75 percent carry out only 2 measures and 75.72 percent practice only 1 measure in practice. (ibid).

Level of knowledge on preparedness measures against earthquake is still very low, as 50.81 percent of the respondents did not know anything about the preparedness measure (annexe one, table 4.3). As it is said above, the level of knowledge is very poor in this zone. Among those few respondents who know about preparedness measures, a total of 49.19 percent of the respondents could mention only 01 measure, while 12.97 percent have practiced 1 measure. Around 19 percent of the respondent’s have knowledge of two measures while only 5.95 percent respondents practice those. Only 6.5 percent of the respondents have the knowledge of 03-04 measures, whereas the practice level of 3-4 measures is less than one percent. (for details please see annexe one, table 4.3 and 4.4).

However, the combined scenario has been represented in the following graphs.

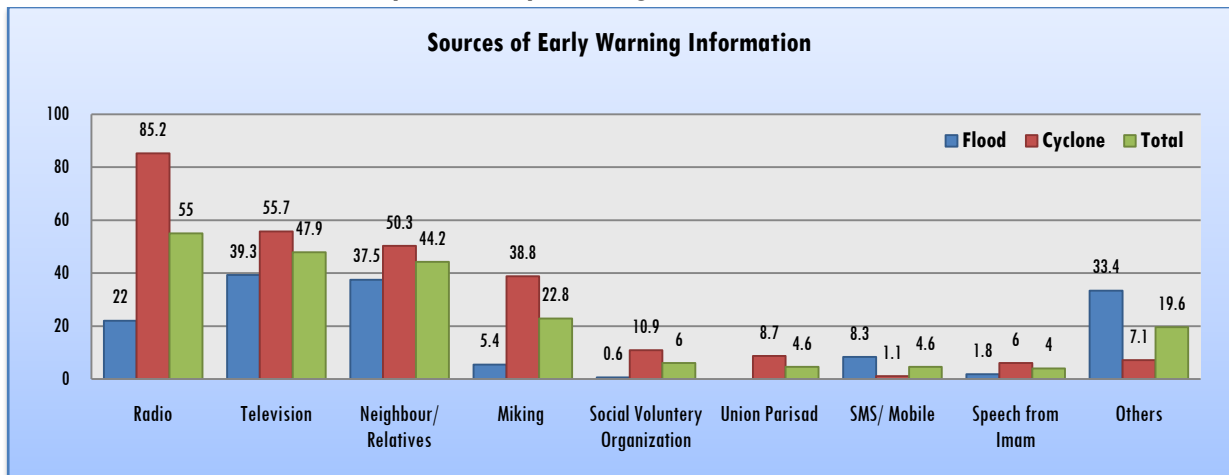




4.1.2. EARLY WARNING AND RESPONSE

A person can receive information from a number of sources. In closely–connected social setting of rural Bangladesh, news and information are orally circulated among relatives and neighbours. As the survey findings show, 37.5 percent of the respondents in the flood zones and 50.3 percent respondents in the cyclone zones reported that they receive early warning information from their relatives or neighbours. However, radio has become a major source of information especially in the cyclone prone areas. In the cyclone zone, 85.2 percent of the respondents identified radio as their major source of early warning information, while it is a source of information for 22 percent of the respondents in the flood zones. Televisions also play a major role in circulating early warning information as 39.3 percent respondents in the flood zones, and 55.7 percent respondents in the cyclone zones mentioned television as the source of early warning messages. In cyclone prone areas, 38.8 percent of the respondents reported that they come to know about the early warning information through miking in their locality (annexe one, table 4.5).

4.1.2.1. Sources of Flood and Cyclone Early Warning Information

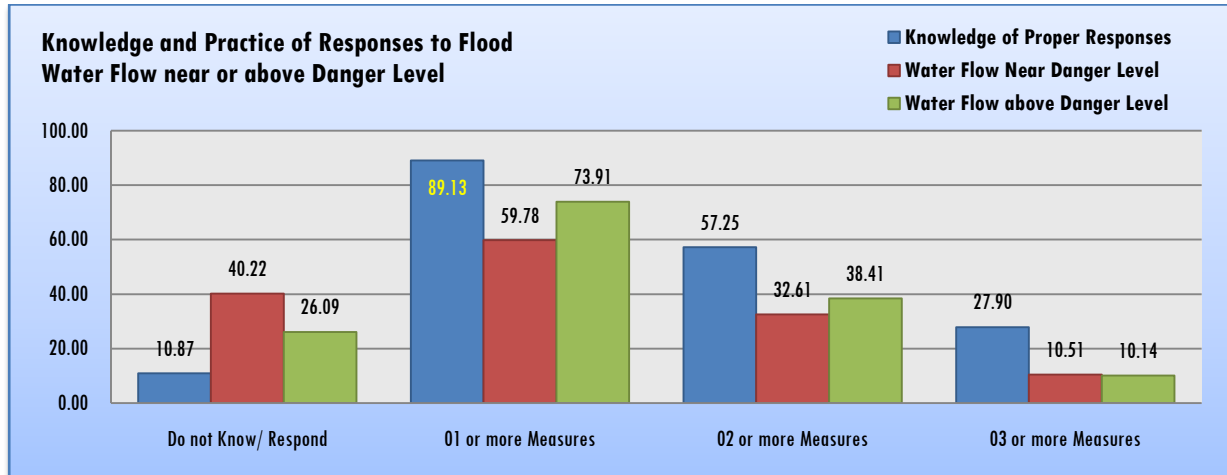


4.1.2.2. Awareness and Practice of Responses to Different Hazards

It is important to explore the responses people make after having warning signals. This reflects their capacity and practice of mitigation measures as well as coping mechanisms.

Awareness and Responses to Water Flow near and above Danger Level

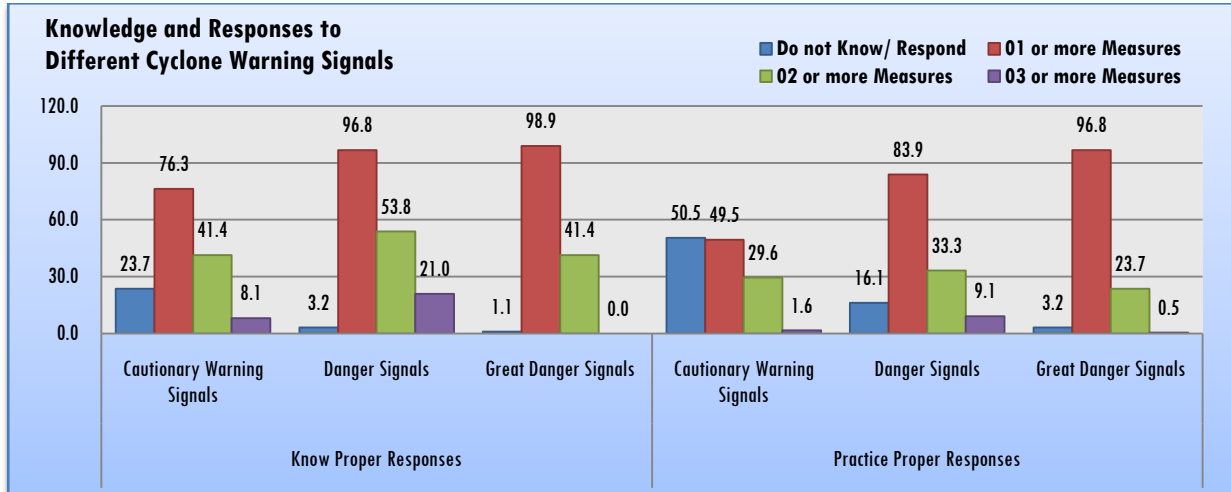
In the flood prone zones, increase in water level, especially when it approaches danger level, can be considered as warning. Again, there is lesser gap between knowledge and practice when water level flows nearby or rises above the danger level. (for details please see annexe one, table 4.7 and 4.8).



Only 27.9 percent of the respondents were found who knew at least three measures that should be taken in responses to water flow near or above danger level. Interestingly, only 10.51 percent of the informed respondents implement their knowledge when water flows near danger level whereas only 10.14 percent respondents practice these knowledge when water flows above danger level. No more than 57.25 percent of the respondents have knowledge of two measures but only 32.61 percent realize the knowledge while water flows near danger level and other 38.41percent go for execution of the measures when water level flows above the danger level. On an average, the highest 89.13 percent respondents know at least one measure but only 59.78 percent respondents practice it when they come to know the warning that water flows near danger level, and for 73.91 percent respondents' start implementing knowledge only after the water level flows above the danger level. It is also important to note that 10.87 percent respondents do not have any knowledge on their responsibilities during warning phase, while a proportion of 40.22 percent respondents do not adopt any measure while the water flows near the danger level and around 26 percent respondents do not adopt any precautionary measure even if the water flows above the danger level. (for details please see annexe one, table 4.7 and 4.8)

Awareness and Responses to Different Cyclone Warning Signals

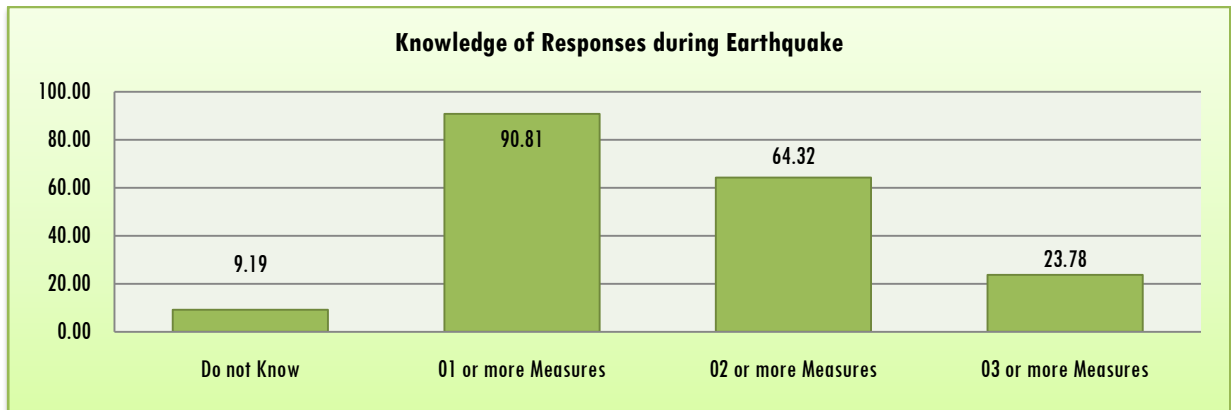
Although it is interesting to find out that a large number of the respondents in the cyclone zones respond quite casually to the warning signals (annexe one, table 4.6).



However, there is lesser gap between knowledge and practice when they get danger signals of various magnitudes. For instance, in case of cautionary warning signals, only 8.1 percent respondents knew at least 3 measure to be adopted whereas even less than two that is 1.6 percent respondents adopt 3 measures while they get cautionary danger signal. . Similarly, 76.3 percent respondents knew about at least responsibility in this phase while only 49.5 percent respondents adopt at least one measure at this phase (for details please see annexe one, table 4.6 and 4.9).

The level of knowledge of responsibilities in case of receiving danger signals is little higher. Here again, 96.8 percent respondents knew at least one responsibility whereas 83.9 percent adopt at least one measure at this phase. In the same phase, 53.8 percent respondents knew 2 measures to be taken, but in practice 33.3 percent respondents practice two measures. Only 21 percent knew three measures at this level while only 9.1 percent put three measures into operation.(ibid)

If the respondents get the great danger signal, they are expected to be more pro-active. However, 98.9 percent of the respondents reported that they knew at least one measure to be adopted, while 96.8 percent respondents do practice at least one measure in this phase. Around 41 percent respondents knew at least two measures while only 23.7 percent respondents really put those into action. (ibid)

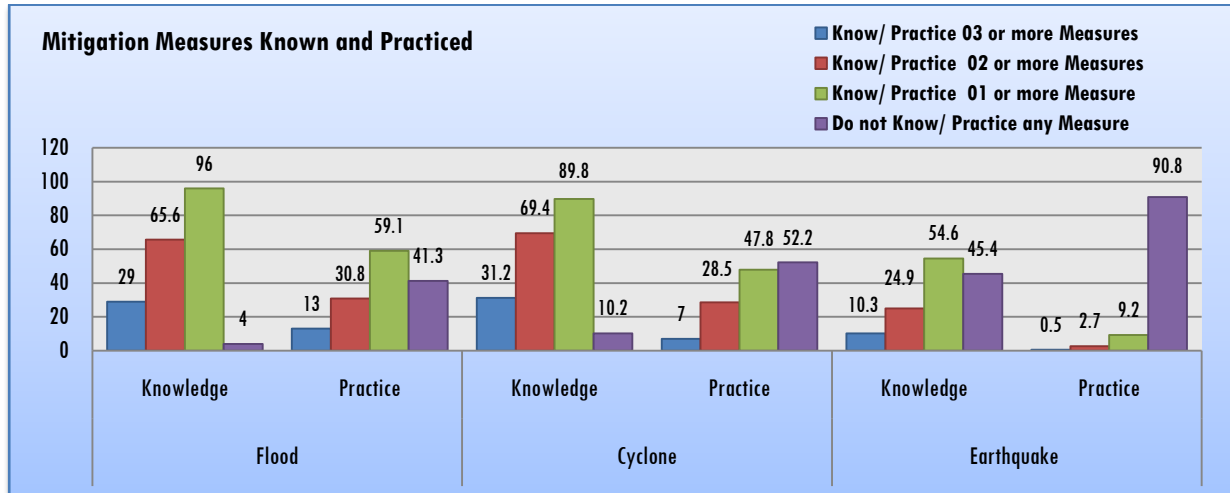


In earthquake zone, around 9 percent of the respondents do not have any knowledge of their responsibility during the earthquake. A proportion of 90.81 percent respondents know at least one measure while 64.32 percent respondents do have the knowledge of at least two measures. Not more than 24 percent respondents have knowledge of three measures to be adopted during earthquake.

4.2. RISK ASSESSMENT AND MITIGATION

4.2.1. MITIGATION MEASURES AGAINST FLOOD, CYCLONE AND EARTHQUAKE

The survey also tried to identify the level of knowledge and practice of mitigation measures in the survey areas. The survey data reveal that people’s knowledge of mitigation measures surround their household and they initiate to adopt as much as mitigation measures possible that would protect their household.

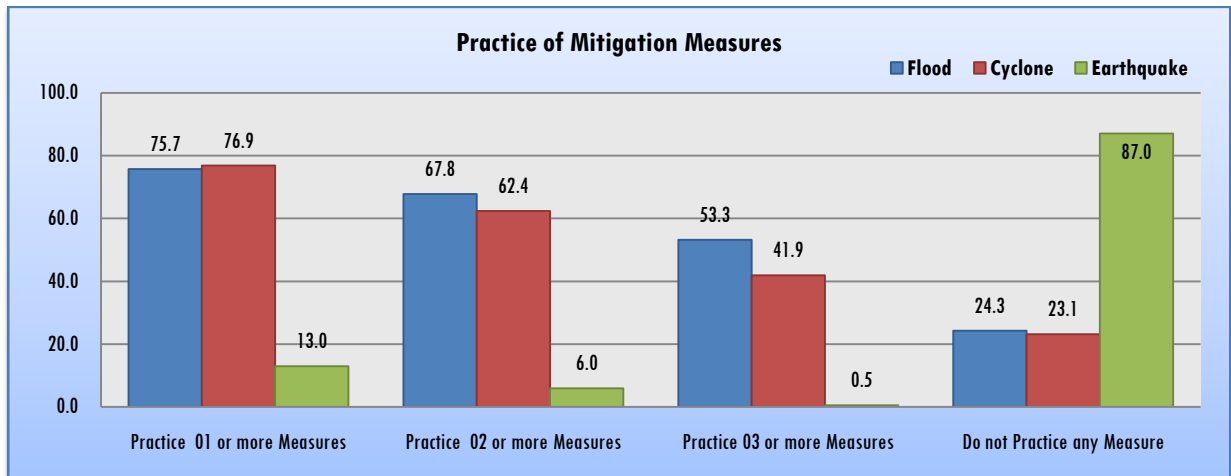
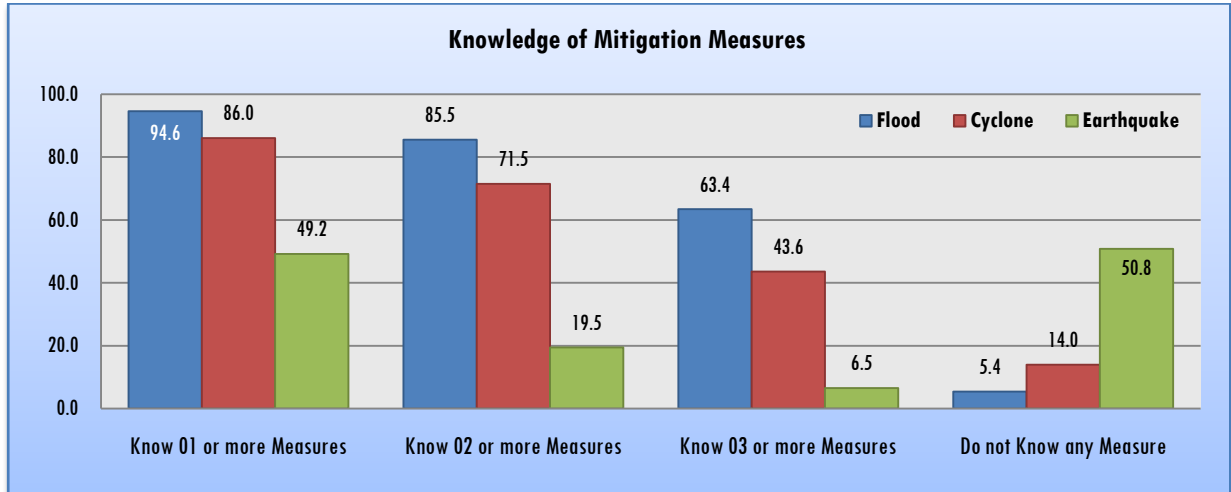


As it is the finding of the survey, along with the 96 percent respondents’ knowledge of at least one mitigation measure, 65.6 percent of the respondents in the flood zones could mention 2 mitigating measures, while only 29 percent stated 3-4 measures. In the level of practice, around 59 percent of the respondents have adopted 1 measure, while 30.8 percent respondents carried out at least 2 measures and only 13 percent respondents mentioned 3-4 measures they had adopted. It is also noteworthy that 4 percent of the respondents do not have any knowledge of mitigation measures while 41.3 percent respondents do not execute any mitigation measure. (for details please see annexe one, table 4.11, 4.11.1 and 4.12)

In cyclone zones, 89.8 percent respondents know 1-2 measures, whereas 69.4 percent respondents have knowledge of measures and other 31.2 percent of the respondents could identify 3-4 measures for mitigation. Again, around 10 percent respondents do not have any knowledge of mitigation measures. In the level of implementation, 47.8 percent respondents were found to have adopted 1 measure, while 28.5 percent respondents adopted 2 measures and only 7 percent respondents adopted 3-4 measures (annexe one, table 4.11.1). It is also important to note that 10.2 percent respondents could not mention any measure and a significant proportion of 52.2 percent respondents do not adopt any mitigation measure.

Again regarding the mitigation measures against earthquake, the response is very low. A total of 45.4 percent of the respondents do not have any knowledge of mitigation measures. (for details please see annexe one, table 4.13) Other 54.6 percent were found to have the knowledge of 1-2 measures. Around 25 percent respondents have the knowledge of two mitigation measures whereas only 10.3 percent knew about three mitigation measures. In practice level, 90 percent of the households have not adopted any mitigation measure. Around 9 percent of the households were found to have adopted 1-2 measures, while 2.7 percent adopted 2-3 measures (for details please see annexe one, table 4.14).

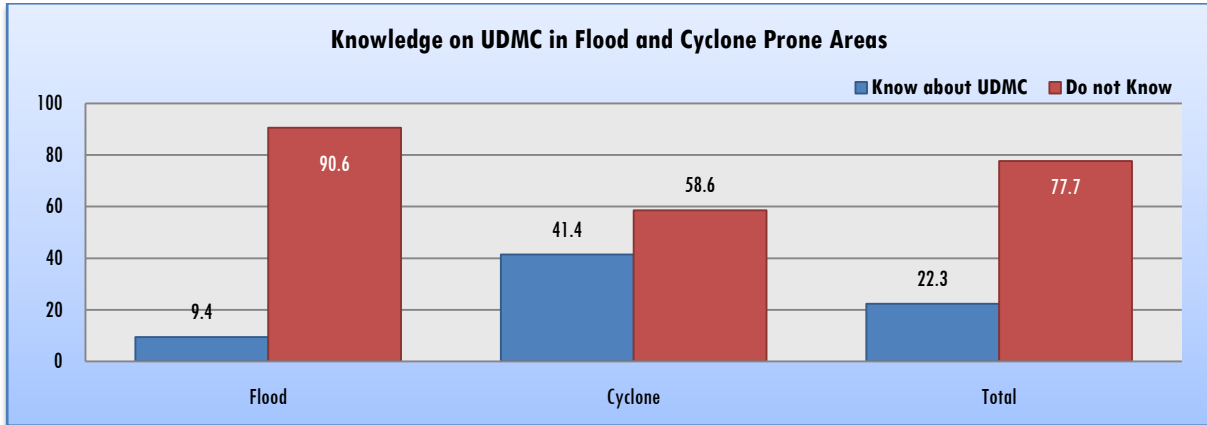
The combined picture of knowledge and practice of mitigation measures in three zones are represented in the following graphs.



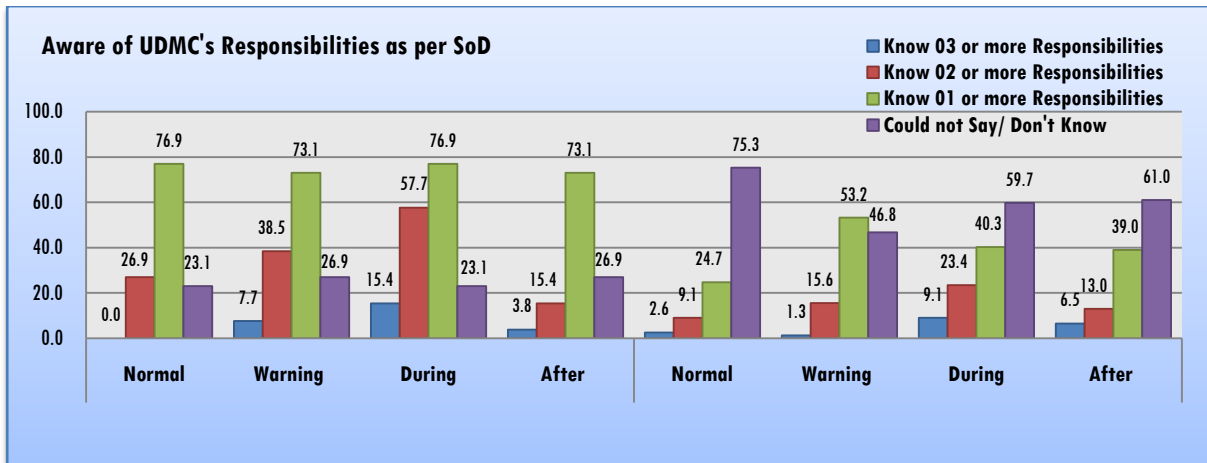
4.3. LOCAL INSTITUTIONS: PRACTICE AND PRIORITIES

4.3.1. KNOWLEDGE ON UDMC IN FLOOD AND CYCLONE PRONE AREAS

Ideally there should be effective Union Disaster Management Committee (UDMC) in each union involving community people; but in reality, only 22.3 percent of the HHs have the knowledge of the existence of UDMCs. The situation is worse in flood zones where only 9.4 percent people know about the UDMCs. In cyclone zones, the situation is slightly better where 41.4 percent people knew about the existence of UDMCs (annexe one, table 4.17).



However, having the knowledge on the existence of UDMCs does not mean to have the exact knowledge of their activities. As the survey findings show, 31.2 percent of the respondents don't know about the activities of UDMC, although they have the knowledge of the existence of that committee.

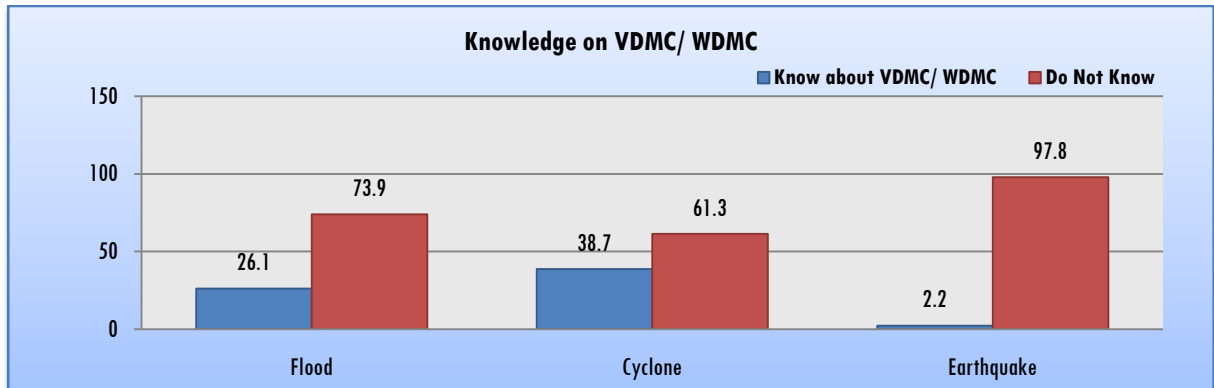


Regarding the performance of UDMC during normal time, only 73.1 percent of the informed respondents (only among those who know about UDMC) in flood zones mentioned that making people aware on risk reduction is the responsibility of the UDMCs, while the same activity got 42.3 percent responses in cyclone area. At the same time, there lies a big gap in knowledge and experience of UDMC activities. As such, although 73.1 percent respondents in flood zones mentioned making people aware is an activity of UDMCs, only 24.7 percent people have observed UDMCs to execute this activity, whereas in cyclone zone this has been observed by only 16.9 percent of the respondents. Among other activities, the respondents mentioned 'taking measures to reduce risk', 'making contingency plan' and 'arrange regular training and workshops' etc. However, in each category proportion of experience of activities is almost half of the proportion of experience. It is the case in both flood and cyclone zones (annexe one, table 4.18).

Even regarding the performance of UDMCs during warning phase, around 32.5 percent of the respondents don't know what the exactly the task of UDMC is. Although 73.1 percent of the informed respondents (only among those who know about UDMC) mentioned that 'circulating early warning' is the task of UDMCs, only 48.1 percent had observed the UDMCs to carry out this task. In contrast, in the cyclone zones, 30.8 percent of the respondents mentioned the same task for UDMC while it has been observed by 32.5 percent of the respondents. At the same time, while 23.1 percent of the respondents in the flood zones and 19.2 percent respondents in cyclone zone pointed out that 'removing women, children, old aged and disable people' as task; only 3.9 and 2.6 percent of the respondents (only

among those who know about UDMC) in that order had observed the UDMCs to execute those tasks (annexe one, table 4.18).

4.3.3. KNOWLEDGE ON VDMC/ WDMC

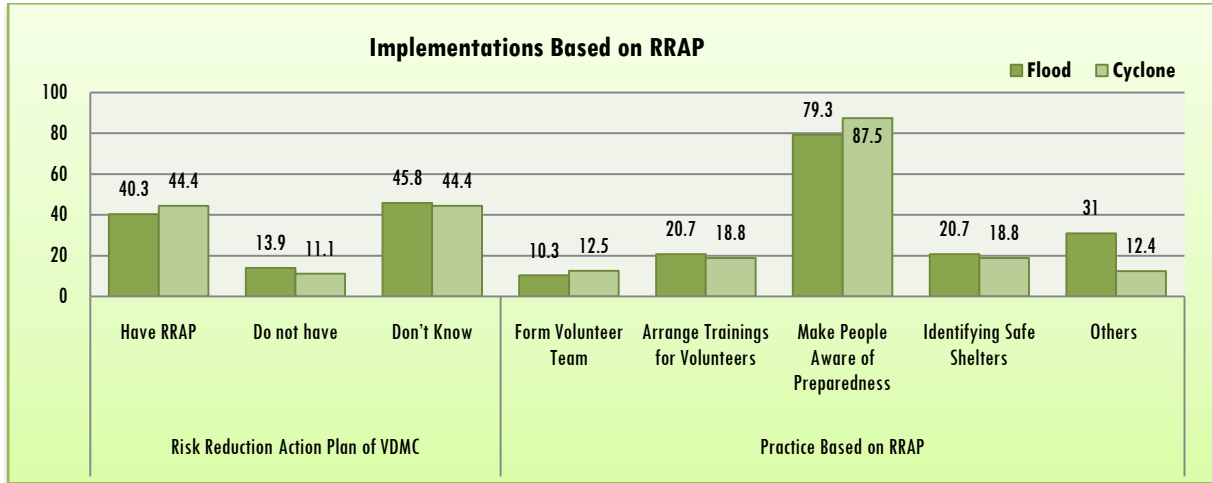


As the table shows, 73.9 percent respondents in the flood zone, 61.3 percent respondents of the cyclone zone and 97.8 percent respondents of the earthquake zone do not have any knowledge of the existence of VDMC/WDMC. Only 26.1 percent respondents in the flood zone were informed about VDMC, whereas the percentage is slightly higher in cyclone zones having 38.7 percent respondents. A smaller section of 2.2 percent respondents in the earthquake zones are aware of the existence of VDMC/WDMC. These findings suggest that the people at local level are not yet properly informed about, let alone connected with these committees.

4.3.4. MITIGATION PRACTICE BY VDMC AND WDMC BASED ON RRAP

Since only a few of the respondents in all zones had knowledge of the existence of WDMC, without any exception, knowledge on Risk Reduction Action Plan (RRAP) is also very low among the respondents. A total of 40.3 percent respondents in the flood zone, and 44.4 percent respondents in cyclone zones had the knowledge of any such plan like RRAP(annexe one, table 4.16).

However, out of these responses, 79.3 percent respondents in earthquake zones and 87.5 percent respondents in cyclone zones mentioned that their awareness building activities according to the RRAP, while other 20.7 percent in flood zones and 18.8 percent respondents in cyclone zones mentioned arranging training for volunteers as the activity either performed or will be performed according to RRAP. Only 20.7 percent respondents in flood zones and 18.8 percent respondents in cyclone zones mentioned identifying safe shelters as another mitigation measure as taken or will be taken (annexe one, table 4.16).



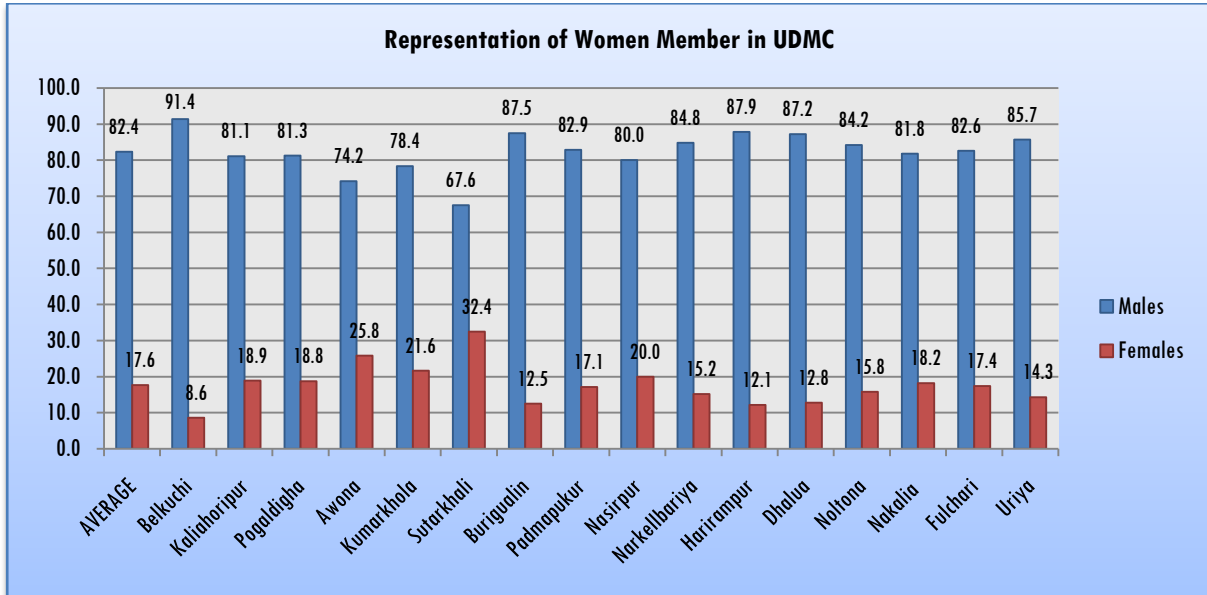
4.3.6. PARTICIPATION OF EXCLUDED GROUPS IN LOCAL LEVEL INSTITUTIONS

The FGD sessions with UDMC members reveals that most of the committee members in both flood and cyclone zones do not have any idea about the inclusion and participation of socially excluded group in the UDMC. Only a few FGD participants in the flood zones stated that sometimes women, disable and old age people participate in the meeting and express their opinion. The percentage is higher in cyclone zone, where around 40 percent FGD participants said that there were participation of women and other socially excluded people in the committee. However, by ‘participation’ people often meant presence, not active participation. Although in some cases it is said that women do participate and express their opinion, it was not said if the opinions are considered at all. When the members were asked, they said ‘yes, if it is justified and valid, we do accept the opinion’. In response to an additional question if they could cite an example of such accepted opinion by women or any other socially excluded member, the members could not cite any.

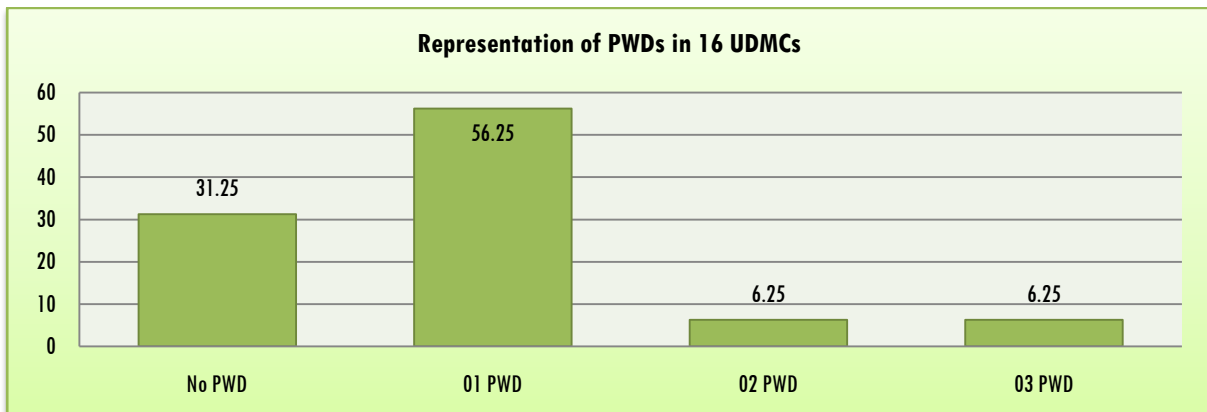
Besides, it appears that by ‘socially excluded’ the committee members often referred to ‘women’ and sometimes to ‘old age people’. Considering disable, children and other socially excluded groups like religious minorities as members of the UDMC is still not prevailing.

4.3.6.1. WOMEN MEMBERS IN UDMC COMMITTEES

As per SoD there should be a certain representation and active participation of socially excluded groups in the UDMCs and WDMCs. These socially excluded groups include women, and/or person with disability, old aged people and children. The survey conducted a FGD session with each of the Union Disaster Management Committee in selected sixteen unions under eight districts. The distribution of UDMC committee members by sex is represented below:



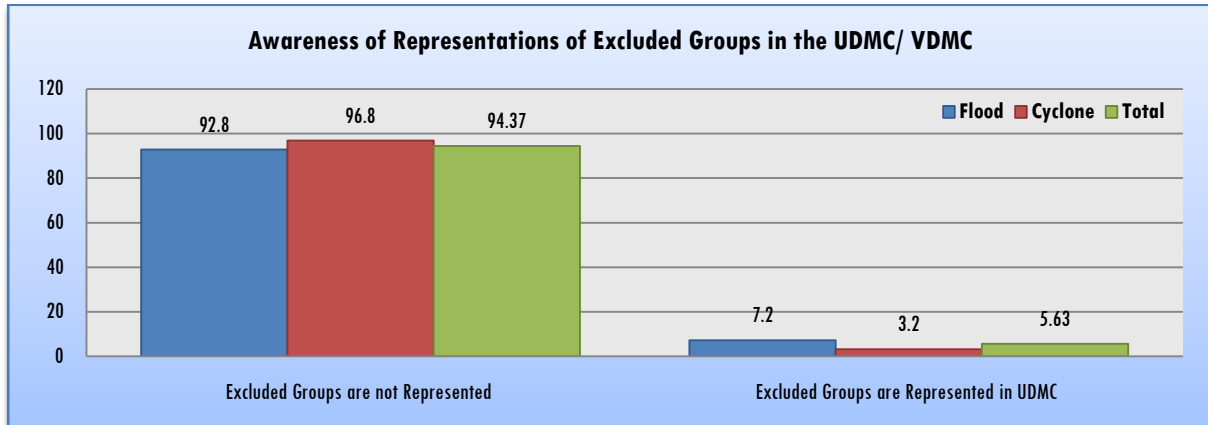
4.3.6.2. PWD MEMBERS IN UDMCS



The households were asked questions if any of their members is a member of UDMC or VDMC, and if there is, more questions were asked on his or her participation. As reported by the respondents, there were 7.2 percent households in the flood zones having a member who is a member of UDMC representing socially excluded groups. Similarly there were 3.2 percent households in the cyclone zones and none in the earthquake zone (annexe one, table 4.20).

If a household was found to have a HH member who is a member of UDMC, the households were asked more questions on meetings and participation in the meetings. As there is no finding on the representation of socially excluded groups in the survey areas of the earthquake zone, there was no response regarding the meetings as well.

4.3.6.3. REPRESENTATIONS OF EXCLUDED GROUPS IN THE UDMC AND VDMC



Only 7.2 percent households in flood zones reported to have a household member who is a representative in the UDMC/VDMC. The percentage is even lower in cyclone zone where only 3.2 households had UDMC/VDMC member. And none of the households in earthquake zone had any member representative in any of these committees.(annexe one, table 4.20).

4.3.6.4. PARTICIPATION² IN UDMC MEETINGS

According to the 75.0 percent respondents in the flood zones, a regular meeting of the UDMC is held on a monthly basis, whereas 15 percent of the respondents could not say about the frequency of meetings. In cyclone zones, 33.33 percent of the respondents could not say about the frequency of the meetings, whereas 16.7 percent respondents reported that there a monthly meeting is held and other 16.7 percent said that the meeting is held quarterly (annexe one, table 4.23).

A proportion of 15 percent of the respondents in the flood zones said that during disaster warning phase, meetings are held on the basis of need. A proportion of 10 percent respondents reported that during warning, meetings are held once a week and other 5 percent reported that it can be held as frequent as even three times a week. However, 15.0 percent of the respondents did not know when the meeting is usually held during the warning period.

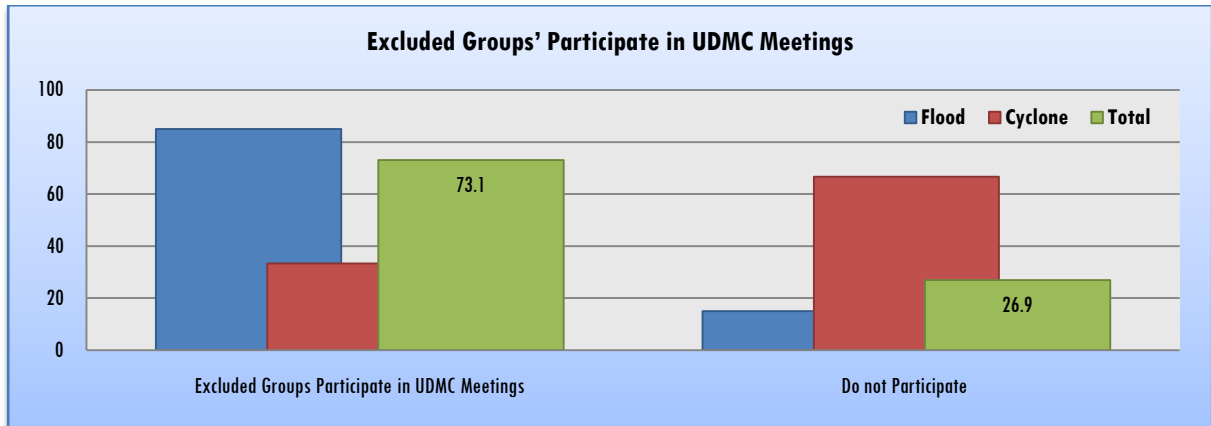
In the cyclone zones, 50 percent of the respondents said that during the warning, meetings are held on the basis of need, while 16.7 percent of the respondents did not know about the frequencies of meetings during warning period(annexe one, table 4.21).

Approximately 15.0 percent of the respondents in the flood zones and 33.3 percent respondents in the cyclone zone could not say how frequently the UDMC meetings are held during disaster. A section of 15 percent of the respondents in flood zones and 16.7 percent in the cyclone zones reported that UDMC meetings are held on the basis of need during disaster(annexe one, table 4.23).

Almost similar responses came up for meetings after disaster. A total of 30 percent of the respondents in the flood zones and 16.7 percent in the cyclone zones reported that post-disaster meetings are held on the basis of need, while other 15.0 percent in flood zones and 33.3 percent in the cyclone zone could not say exactly when the meetings were held(annexe one, table 4.23).

² To measure the level of participation, a set of questions were asked to know if the respondents attend the meetings regularly, express any comments on suggestions and whether their opinions are considered.

Out of the total respondent households whose member is a UDMC member, 85 percent of the HHs in flood zone and 33.3 percent HHs in the cyclone zones stated that their HH member (who is a member of UDMC) participates in the UDMC meetings(annexe one, table 4.23).



In the flood zones, 82.4 percent of the UDMC members (from socially excluded group) were reported to participate in the monthly meetings regularly in normal times, whereas in cyclone zones, more quarterly participation in normal times is found as reported by 50 percent of the respondents(annexe one, table 4.23).

Regarding participation during disaster, 29.4 percent respondents reported to attend the meetings on the basis of need while there was no response in the cyclone zones. In a similar way, 50 percent of the respondents in the cyclone zone reported that the UDMC members (from socially excluded group) never meet in the post-disaster period. However, 29.4 percent of the respondents said that the in the post-disaster period, members participate in the meetings on the basis of need (annexe one, table 4.23).

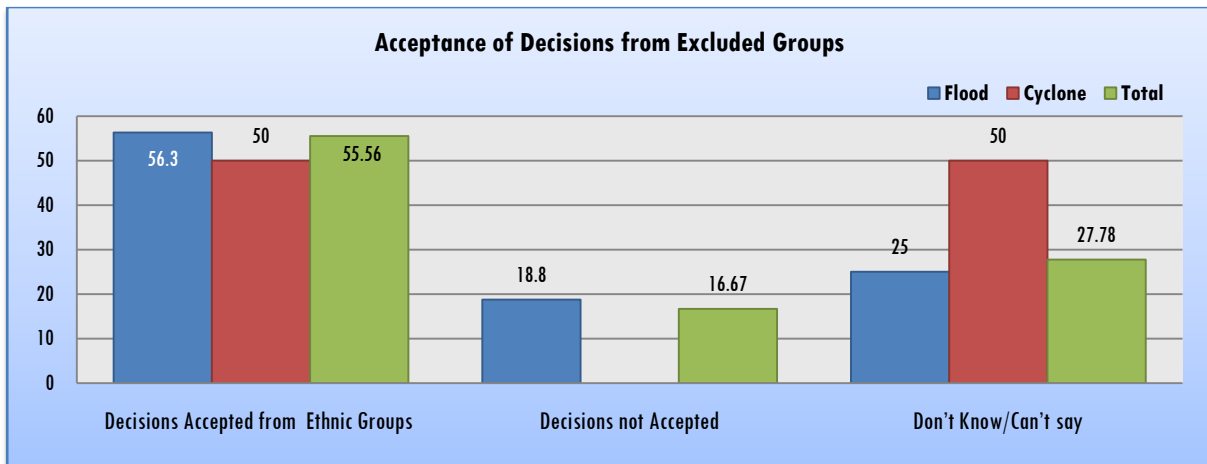
4.3.6.5. PARTICIPATION³ OF EXCLUDED GROUPS IN DECISION-MAKING

Nature of participation of the socially excluded group members has also been examined by the survey. To measure the level of participation, a set of questions were asked to know if the respondents attend the meetings regularly, express any comments on suggestions and whether their opinions are considered.

A section of 58.8 percent of the respondents in the flood zones said that such UDMC members sometimes participate in the decision making process of the UDMC, while other 35.3 percent said that they always participate in the decision making process. However, a total of 5.9 of the members never participate in the decision making process (annexe one, table 4.25).

In the cyclone area, 100 percent of the members were reported to have irregular participation in the decision making process. As the socially excluded members regularly or occasionally participate in the in the decision-making process, the question came up regarding the acceptance of their opinion. A total of 56.3 percent of the respondents in flood zones said that their opinion are taken seriously , whereas other 18.8 percent reported that their opinions are not usually accepted. In the cyclone zone, 50 percent of the members reported that their opinions are usually accepted, while for other 50 percent the response is unknown (annexe one, table 4.26).

³ To measure the level of participation, a set of questions were asked to know if the respondents attend the meetings regularly, express any comments on suggestions and whether their opinions are considered.



4.3.7. KNOWLEDGE OF RESPONSIBILITIES BASED ON SOD

This baseline study conducted FGDs with UDMC members at each of the field sites and conducted several KIs with key primary stakeholders. The major findings are briefly discussed here.

It is important to note that the study was conducted after a few weeks of the local government election. As such, in many areas, the newly elected UP members, many of whom are de facto members of the UDMC had not taken oath. As such, responses of the UDMC members may not reveal the actual level of knowledge and practices.

However, in comparison to the UDMC members of flood zones, only fewer UDMC members in cyclone zones have ever heard of the SoD. Those members, who had heard about the SoD do not have clear conception of the SoD. In flood zones, as many as, 70 percent of the FGD participants had the understanding that the SoD is the ‘permanent order by GoB for which meetings are conducted with UDMC members at Upazilla and district levels’. Only 10 percent of the FGD participants said that ‘these are the rules for disaster management’.

Some of the key informants like DRRO had clear understanding of SoD whereas the Education officer does not have any idea at all. The Medical Officer has knowledge on SoD. The Agricultural Officer, on the other hand, does not know about SoD but have the knowledge of the responsibilities which are quite aligned with SoD.

As many of the respondents are not familiar with SoD, knowledge on major responsibilities of the UDMC seems inadequate too. It is also important to note that along with the members of some newly formed UDMCs, a number of members are not at all aware of the responsibilities as per SoD. The percentages of the less informed people are higher in flood zone than the cyclone zone. It seems that the UDMC members in cyclone zones are more informed and do have better conceptions on the responsibilities of the committee than their counterparts in the flood zones.

Responsibilities during Warning Phase: In a similar way, a large proportion of the UDMC members are not at all aware of the measures that should be taken in the warning phase. Only a proportion of 30 percent of the UDMC members in flood zones mentioned that warning dissemination is the only responsibility to be performed in warning phase. On the other hand, committee members in the cyclone zones recognized more responsibilities in warning phase. In cyclone zones, 50 percent of the FGD participants identified that dissemination of warning and security messages as well as organization of rescue teams should be the major tasks of the committees in warning phase. About 33 percent of the UDMC members in the same zone, also pointed out that encouraging and providing

support to people to shift to cyclone shelters should also be performed by the committees once the warnings are received.

While talking about measures that should be taken in warning phase, during FGDs, community people mostly emphasized on becoming careful by which they meant a range of precautionary activities. Both in flood and cyclone zone, people put stress on becoming careful after getting warning. Similarly, identifying safe shelters and making others aware have also been notified by the community people. In flood zones, people put much emphasis on watching water levels too. In both zones, especially in flood zone, people also mentioned that restructuring and strengthening the house could also be another responsibility. However, in both zones, activities like informing everyone of the area, identifying safe shelters and repairing roads are also identified as UDMC's responsibility too. Some of the FGD participants said, *'We do it informally, out of our need. But the Union Parishad/UDMC can do these in a more organized way. That will be more effective.'*

Responsibilities during Disaster: Without exception, there were very few committee members in flood zones who are conscious about the duties of the committee. Only 16 percent of the FGD participants in flood zones stated that relief distribution is the key responsibility that the UDMCs should perform during disaster. Among other duties, they mentioned medical services, supply of drinking water and water purifying medicines, and discussion with community people etc. In contrast to that, almost 80 percent of the FGD participants in cyclone zones put emphasis on rescue works as the major responsibility of the committee during the disaster.

In general, people everywhere identify that shifting to safe shelters is best measure to be taken during disaster. In both cyclone and flood zones, a number of FGD participants said that it is better shift to safe shelters to save themselves and their family members they. However, some FGD participants in flood zones said that they wait to watch the water level if there is any possibility to stay home. In those cases, they raise the height of the bed to stay and usually build a platform (*macha*) to keep the utensils etc. Even they try to raise the cowshed as well. But it all depends on the water level. If the house of totally drowned, there is nothing to do except moving to a safe shelter. To take refuge under pillow or hard tables, to stand by strong pillars or move out to a safer place are some of the measures mentioned by the FGD participants in Dhaka and Sylhet regions.

Responsibilities during Post-disaster Phase: All over again, the level of awareness of the duties in the post-disaster period is not very high in the flood zones. Even less than 6 percent of the committee members (FGD participants) identified some tasks in the post-disaster period, such as relief distribution, assessment of loss, organize people for food for work, repair infrastructure and need assessment. On the other hand, in cyclone zones more than 55 percent of the committee members (FGD participants) pointed out that one of the major task in the post-disaster period is to make coordination of GO and NGO activities is very important. It is stated by a UDMC member in Barguna that *'due to the lack of proper coordination, there remains gap in the GO and NGO activities. As such some people get benefitted again and again and some people remain deprived of the supports they need.'* Around 50 percent members in the cyclone zones also put emphasis on making assessment of loss and need of the affected people. Rehabilitation and rescue activities are also mentioned as major tasks by 50 percent of the FGD participants.

The FGDs with community people, in flood and cyclone zones, reveals two sorts of activities – one is to be done by

'Due to the lack of proper coordination, there remains gap in the GO and NGO activities. As such some people get benefitted again and again and some people remain deprived of the supports they need.'

- A UDMC member in Barguna District

themselves and the other is to be executed by the UDMC. In this way, repairing and cleaning house have been categorized as community people's responsibility whereas repairing roads and other infrastructures are identified as UDMC's responsibility.

In Dhaka and Sylhet, community people are not quite aware of the post-disaster activities. However, from their common sense and expectation, they mentioned some of the measures that should be taken. Such measures are rescuing others, provide medical and emergency supports, supply drinking water etc.

4.3.8. RISK ASSESSMENT

According to the FGD findings of this baseline study, disseminating early warning information are identified as key responsibilities that the UDMCs should perform as risk reduction measures in both flood and cyclone zones. Besides, only an insignificant proportion of the FGD participants in the flood zones mentioned some other responsibilities like forming rescue committees, shelters or cells. Around 50 percent of the committee members in cyclone zones mentioned that identification of the most vulnerable people and providing necessary supports for them should be the key responsibilities of the UDMC to reduce risk. In addition to that, around 40 percent of the FGD participants in cyclone zone accentuated that coordination with GO and NGO is also an important measure for risk reduction.

In Sylhet, some of the FGD participants could mention of a number of risk reduction activities but those are mostly related to flood. However, some of the risk reduction activities like construction of buildings as per rule, training of evacuation etc. are mentioned by the FGD participants in both Dhaka and Sylhet regions.

FGDs with community people, however, reveal mostly those responsibilities which are to be executed by them as well as by the UDMC. For example, as many as 76 percent of the FGD participants in the flood zone identified that raising plinth should be a major step to reduce risk. Similarly, 33 percent of the FGD participants also mentioned that raising tubewells and latrines may also be considered as risk reduction measures. On the other hand, the community people identified some of the responsibilities which are to be executed by the UDMC. Such responsibilities include raising road, inform people etc. FGD participants in Dhaka and Sylhet, mentioned of some of the measures like construction of buildings following the risk reduction rule, removing hang heavy stuffs and fragile showpieces etc. as the risk reduction measures. In Nimali area of Dhaka, some of the FGD participants also emphasized on careful use of fire and inflammable objects as risk reduction measures.

4.3.9. PRACTICE BASED ON RRAP AND ANNUAL ADP OF UP

The FGD sessions explored whether the UDMC has any RRAP and if any recommended project based on RRAP had been included in the Annual Development Plans at Upazilla and Union levels. In reality, such RRAPs are almost non-existent in most of the zones. As there were some newly elected Union Parishads in some places they were not aware of RRAP. But the rest of the committee members of all zones either didn't know about it or there was no RRAP at all. As such, the question of implementation or being included in the ADP becomes irrelevant in this regard. Some committee members said that they did not have any plan of their own, rather 'we only execute the government plans handed down to us'.

As most of the FGD participants reported not to have any RRAP, none of the committees was found to have any fund proposal for RRAP. As such, none of the committees in any zone (flood and cyclone) has

submitted any proposal. In fact some of the FGD participants pointed out that ‘RRAP fund proposals should be prepared and submitted by government’.

A few members who are newly elected expressed their will to prepare and submit RRAP fund proposal in future.

4.3.10. SCHOOL MANAGEMENT COMMITTEE (SMC)s

School management committees were to play an important role in disaster management. As it is found from the FGDs with school committees, some of the schools are at high risk. Some of the risks include vulnerability of different types like – school floors and even sometimes buildings to be submerged, damages of furniture and documents etc. Most of the schools somehow got affected during the disaster.

Most of the committee members in each zone are not properly trained. Therefore, they do not have adequate knowledge as per SoD. Only a headmaster in Dhaka knew about SoD.

The measures of disaster management as mentioned by the SMC members are based on their experience and expectations. For example, raising the plinth of school building, strengthen the school building, plant trees surrounding the school, raise the road to schools are some of the measures they consider as risk reduction measures. Another school committee reported that they arranged alternative building for school while their regular school building was submerged. In addition to this, some schools reported to build wall and plant trees surrounding the schools as risk reduction measures.

‘Often the roads to school got damaged and submerged with mud. We, the school committee, arrange the repairing and reconstruction of the roads there’.

- A SMC member

The disaster time activities refer to mostly shelter based activities like using the school-buildings as shelters, provide students and their families with shelters and necessary supports of food, medicines and water supply. However, in reality, not all the SMCs provide or capable of providing such supports. Only one committee has stated to have raised the plinth of the school building. Another school committee in Gaibandha reported that they had arranged boat transportation for students while the roads to school got inundated during flood.

By post-disaster activities, the SMC members refer to the repairing and cleaning of school buildings. Some members from the flood zones said, *‘often the roads to school got damaged and submerged with mud. We, the school committee, arrange the repairing and reconstruction of the roads there’*. Some of the SMC members from cyclone zone said, *‘since the school buildings are used as cyclone shelters, we have to arrange a lot of cleaning jobs once people are back to their home.’*

However, so far none of the school committees was found to have any detailed RRAP or fund proposal. One committee member said that ‘we had informal discussions and oral decisions, but no plan as such.’ Some others said that they were planning to build wall, but not specifically planned to submit the proposal to any authority. Others mentioned that they are hopeful to have RRAP and risk management plans in future.

‘Since the school buildings are used as cyclone shelters, we have to arrange a lot of cleaning jobs once people are back to their home.’

- A SMC member

4.4. NATIONAL INSTITUTIONS: POLICY, PRACTICE AND PRIORITIES

4.4.1. POLICY BRIEF: NATIONAL CONTEXT

There has been a rapid escalation in the incidence of severe disaster events in recent decades. Rising losses and associated increases in expenditure on post-disaster reconstruction have forced the issue of natural hazard risk management up the policy agenda of affected governments as well as multilateral and bilateral donors and non-governmental organizations (NGOs). Disasters are increasingly recognized as a potential threat to sustainable development, poverty reduction initiatives and the achievement of a number of the Millennium Development Goals.

Risk reduction is about more than physical exposure and technological solutions. Vulnerability is complex and multifaceted, requiring analysis and solutions from social, economic and poverty perspectives as well. The Government of Bangladesh has undertaken initiatives to integrate disaster risk reduction and climate change into sectoral plans and national policies. Disaster and climate related issues have been incorporated into National Water Management Plan, National Food Policy Plan of Action, Bangladesh Climate Change Strategy Action Plan and New Agriculture Extension Policy. Research programs have been taken to develop flood and drought resilient rice varieties. Impacts of climate change have been taken into account in all development plans in revised PSRP and a draft policy and action plan proposed by October 2008 (MoEF, 2009e). The Planning Commission with the assistance from UNDP has initiated a project “Poverty, Environment and Climate Mainstreaming (PECM)” to mainstream disaster risk management and climate change adaptation into the national planning process.

The other national policies related to disaster and climate change are: the National Water Policy (NWP), announced in 1999 the National Environmental Management Plan (NEMAP), the National Land Use Policy, and the National Forest Policy; but these policies do not make specific reference to climate change. However the NWP, which was the first comprehensive look at short, medium and long term perspectives for water resources in Bangladesh, was followed by the National Water Management Plan (NWMP) in 2001 that recognized disaster and climate change as the important factors determining future water supply. NWMP guides the implementation of the NWP. Further, many of the NWP and NWMP priorities, such as the early warning and flood proofing systems are consistent with disaster risk reduction and climate change adaptation (WARPO, 2005b, WARPO, 2001a). Finally, the BCCSAP has created an umbrella policy covering all the concerned sectors and ministries to address disaster risk reduction and climate change issues. Like other countries, Hyogo Framework for Action and UNFCCC are the key guiding frameworks for designing and/or understanding disaster risk reduction and climate change adaptation in Bangladesh.

4.4.1.1. Review of Related Policies and Action Plans

National Strategy for Accelerated Poverty Reduction (NSAPR): Climate Change issues had found its way to the national planning since 2000. Disaster and development concerns and the linkage in between were integrated to a reasonable extent into the first Poverty Reduction Strategy Paper (PRSP), 2004/08; for example, it included a “Strategic Block II: Critical Sectors for Pro-poor Economic Growth”. However, the PRSP does not yet relate the issue to the different sector policy frameworks, e.g. the influence of climate change factors on disasters in agriculture, rural roads and water supply and sanitation (GoB 2005). However, the GoB in its second PRSP, named NSAPR, has taken the disaster and climate change issue very seriously. The NSAPR titled *Moving Ahead* categorically highlights the importance of the mainstreaming disaster risk reduction and climate change adaptation options in the main body of development planning. The NSAPR II emphasizes mainstreaming and

strengthening DRR and CCA across various sectors- improved crop, watershed and coastal zone management including afforestation, cyclone shelters, embankments, salinity control measures, and public awareness (GoB 2008: 5). In its Supporting Strategy IV: Caring for Environment and, the NSAPR developed detailed plan and multi-sectoral engagement and integration program regarding DRR and CCA (ibid).

Despite the fact that the second NSAPR has considered the disaster and climate change problems more rigorously, however, no detail investment plan was prepared. Moreover, the NSAPR is more on dependent on external aid-assistances for encountering the disaster challenges rather than the resilient potential of the community people. Although the NSAPR identified sectoral strategies and multi-sectoral issues for strengthening DRR and CCA, but no clear framework has been proposed to govern these mammoth task. In other words, the proper institutional arrangement for coordinating disaster and the climate change issues and integration of multi-sectoral tasks have not been clearly mentioned in the document (GoB 2008: 178 -222). Furthermore, the role of private sector especially the civil society organizations have also not been taken into account with proper attention.

National Adaptation Programme of Action: Following the commitment to the UNFCCC the GoB prepared the National Adaptation Programme of Action (NAPA) in 2005. The MoEF as the lead government agency prepared and forwarded the NAPA to UNFCCC. NAPA is the first kind of GoB documents that addresses the climate change adaptation issue, to a greater extent, holistically (GoB 2005). The document was prepared as the GoB's response to the decisions taken in the COP 7 of the UNFCCC. The NAPA was prepared by a team of professional experts from government and nongovernment sectors through long and nationwide stakeholder's consultations. A quick review reveals that amongst the 15 priority projects, 8 were intervention in nature and most of them were intervention into the natural physical environment; four projects were to build capacities of different government agencies, only two projects were about awareness raising and two were to conduct related researches. From community's perspective, review of the NAPA shows that the thrust of the priority projects was put upon the infrastructure development and capacity development of government agencies. There have very less incentives to energize the community's resilience power. Secondly, as Islam (2008) showed that the NAPA formulation process was highly dominated by the 'technical expert', the community was mere a passive participant in the process. He further shows that the terms like 'women' was mentioned only 11 times and 'gender' was mentioned 8 times in about 28000 words of the NAPA document. And there was only one women member in the experts committee (Islam 2008). Putting differently, the gender issue in general and women's participation in particular was highly neglected in the NAPA formulation process. It is also revealed that amongst the 15 priority projects none of them was dedicated for women while women are the worst sufferer of climate change related problems.

Bangladesh Climate Change Strategy and Action Plan: In 2008 the Government of Bangladesh released one of the most significant policy documents namely "Bangladesh Climate Change Strategy and Action Plan (BCCSPA) 2008". In continuation with the NAPA, BCCSAP is really a big forward towards developing a country framework to facilitate and addressing climate risk management and adaptation options holistically (GoB 2008). After the COP 13 at Bali widespread agreement was created amongst the politicians, media and general public both in Bangladesh and globally about Bangladesh's position as one of the most vulnerable nations amongst the least developed countries to the adverse impacts of climate change. The BCCSAP was developed as a response to that agreement. The BCCSAP, at the onset, clearly acknowledges that climate is not mere an environmental issue but a core development issue. The document gave 10-year long guidelines to organize national efforts to combat climate change with a scope for periodical revision. Although the responsibilities of implementation of various components are given to respective line ministries, the MoEF has been placed in the overall coordination role and ultimate supervision is given to the highest policy body -National

Environment Council. The document also acknowledges the significance of traditional resilience, adaptability and innovativeness of the people of Bangladesh in combating climate change related problems.

The BCCSAP is built upon six pillars: i) food security, social protection and health, ii) comprehensive disaster management, iii) infrastructure, iv) research and knowledge, v) mitigation and low carbon development, and vi) capacity building and institutional strengthening (GoB 2008: xvi). The BCCSAP is envisioned to be implemented through various interventions by responsible ministries/agencies within these six pillars and the need of the poor, vulnerable including women and children will be the basis of prioritization of those interventions. The document, primarily, outlines 37 prioritized intervention-activities which are to be undertaken in line with the changing needs of the communities and overall development programme of Bangladesh.

To conclude, it can be said that the BCCSAP is a comprehensive and holistic plan document. It considers the need of the poor, women and children; highlights private business and NGO sectors participation and takes well care of contribution of research and knowledge. However, the major weakness of the document is absence of a monitoring framework. Since the activities are expected to be implemented by different government and nongovernment agencies, coordination and monitoring of the have to be done very efficiently. But the document doesn't propose any such guidelines. Moreover, the document also fails to suggest any initiative to generate continuous political support for the action plan.

The Environment Policy and National Environment Management Action Plan (NEMAP): The Environment Policy 1992 is one of the earliest policy documents addresses the environmental issues in Bangladesh seriously. This document paved the way of formulation of National Environmental Management Action Plan 1996. Two important laws Bangladesh Environment Conservation Act 1995 and Bangladesh Environment Conservation Rules 1997 were enacted based on this policy. Although it has been about 18 years ever since it was formulated but no subsequent revision of the policy were made.

Despite the fact that the Environment Policy 1992, given the context of early 90s, identified and addressed the major environmental concerns of that time. The policy focused on the principle of sustainable development. It also highlighted the significance of community participation in environment management. The policy clearly spelled out the inter-linkage between environmental degradation and natural disaster. The policies were placed under 13 sectors including Agriculture, industry, health, water resource, livestock and fisheries, forest and bio-diversity conservation, food, urbanization and housing. The policy delineated 27 guidelines for various implementing agencies (GoB 1992). The major contribution of the policy is to recommend having mandatory EIA for any new intervention or installation. However, the main weakness of the document is that it failed to mainstream the environmental concerns across various sectors. Secondly, the policy was almost exclusively dependent on the government agencies and failed to comprehend the potential role of private business sector and NGO sector. The policy also failed to recommend any specific actions for mitigating the impact of environmental degradation on the poor, women and children.

Coastal Development Strategy Bangladesh: Since the study is concerned about the cyclone and salinity hazards – to which coastal areas are the primary victim– Coastal Development Strategy 2006 is needed to be reviewed. The Coastal Development Strategy Bangladesh 2006 was formulated by the Water Resource Planning Organization of MoWR as a continuation of Integrated Coastal Zone Management Plan (ICZMP) project. One of the key outputs of the project is the Coastal Zone Policy (CZPo) which provides the framework for management of the coastal development process. The Coastal Development Strategy (CDS) focuses on the implementation of the coastal zone policy. The

CDS highlighted development opportunities of the coastal zone for reducing vulnerability and poverty of coastal communities. This strategy is an attempt to exploit the potentials of the coastal zone along with strategies to mitigate natural and man-made hazards and to preserve, restore and enhance coastal ecosystems. It describes priorities and targets based on coastal zone policy objectives and the available resources. The strategic priorities are to be implemented through three strategic routes: mainstreaming, investment and governance. It focuses on participation and partnership (GoB 2006).

In addition to the priority identification the CDS suggested to set up a body - the Program Coordination Unit (PCU) - formed by the representatives from WRPO, Ministry of Water Resources (MoWR) and a few GoB departmental experts - to coordinate implementation of CDS. A critical review, however, reveals that there are some important flaws in the document. Firstly, it overlooked the impact of natural disaster on the development interventions. Secondly, it also ignored the impact of disasters and climate change on physical environmental and community's adaptation efforts and resilient.

4.4.1.2. Policy Gaps: Summary of the Policy Review

- Linkages between NSAPR and NAPA, BCCSAP, Environment Policy and CDS are found not clearly enough. It is very evident that these major policies were taken at different point of time in response to different national, mostly international requirements. A thorough long-term vision, which could have been the linking thread between these policy documents, was absent; therefore, they seem stand alone. Nevertheless, relatively closer relation does exist between the recent efforts such as NAPA and BCCSAP. More importantly, it is clear that disaster risk reduction issues are not given sufficient attention and thereby no systemic and institutional measures are found in these action plans.
- It is also observed that these national policies and strategies do not share the importance of DRR and CCA concerns equally. As a result, issues related to DRR, environmental degradation and climate change have not been looked through the same lens. Therefore, the policies and strategies failed to complement each other and in many cases created duplication of interventions.
- While reduction of poverty is the core development goal of the society as a whole and the GoB in particular, all national policies and strategies ought to be guided by the broader framework suggested in the NSAPR. But this has not been attained. One of the reason might be that the NSAPR-II has been formulated very recently while other policies and strategies were formulated before that. It might be worth mentioning that the GoB has recently started formulating Sixth Five Year Plan (The Final Draft has been approved, not yet circulated) as the overarching planning framework for the country. As a result of this new move of the GoB, the previous efforts to integrate the DRR in NSAPR will go futile.
- It is clearly found that the most of the adaptation/interventions are physical infrastructure related. In relation to DRR and CCA, hardware is extremely important but should not be placed at the cost of soft component. Soft component includes awareness raising, community participation, changes in the school-curriculum.
- While social capital plays very crucial role in developing sustainable adaptation option none of the policies exploited the potentials of social capital in DRR and CCA. No such interventions were found in the reviewed policy documents.
- DRR and climate change adaptation options are closely interlinked with many other policies such as National Water Policy, National Power and Energy Policy. It is also indirectly linked with national level National Agriculture Extension Policy, National Health Policy, Education policies and so on. But, key stakeholders opined that coherence amongst these policies is not established.

- No major intervention is found that was designed especially for the poor, women and children. Similarly, no intervention is also found for the ethnic population living in the coastal districts.
- The Environment Policy 1992 has to be revisited and updated.
- The policies are also found short of indicating proper governance framework for implementation of envisioned DRR and CCA options and interventions.

4.4.2. DISASTER MANAGEMENT STRATEGIES AND INSTITUTIONS OF THE GOVERNMENT

After the floods of late 1980s and the devastating cyclone of 1991, the concept of acting only after the occurrence of a disaster has been replaced by the concept of total disaster management involving prevention, mitigation, preparedness, response, recovery and development. The GoB has, therefore, total commitment towards the reduction of human, economic and environmental costs of disasters by enhancing overall disaster management capacity. Further, efforts have been continuing for optimum coordination and best utilization of resources along-with ensuring community involvement so that they are aware of what they can do for protecting their lives and properties against disasters. The planning and disaster management activities, however, conducted by the GoB agencies involve preparedness, response, recovery and mitigation as keynotes for building up self-reliance of the community people.

The GoB is highly committed to develop institutional premises and mechanisms to ensure that appropriate policies are taken to foster a culture of prevention at all levels of our societies. All the Government efforts are being objectified in the line of establishing hazard-resilient communities and the protection of people from the threat of disasters. The Government, therefore, has adopted and implemented policy measures at the regional, sub-regional, national and local levels aimed at reducing the vulnerability of the poor people to both natural and technological hazards through proactive rather than reactive approaches.

The GoB initiatives of disaster risk management aim at increasing the likelihood that a household, community, city or any rural area would be able to anticipate, resist and recover from the losses sustained from a hazard or other threat, without any external assistance. Such programmes will also contribute to safeguarding our natural and economic resources, and our social wellbeing and livelihoods. The Government risk reduction and preparedness approaches include the following characteristics:

- Plan and document risk reduction and preparedness processes.
- These processes are based on a prospective assessment.
- The assessment is periodically reviewed in order to validate the initial findings and to unveil emerging problem areas.
- Defined set of evaluation criteria to cover all aspects of these processes.

Disaster management strategies and institutions of the GoB heavily drawn on Hyogo Framework,.

4.4.2.1. The Hyogo Framework: Building resilient communities

The Hyogo Framework provides the GoB with overarching institutional framework for disaster management. The implementation of the Hyogo Framework for Action - Building the Resilience of Nations and Communities to Disasters – adopted by 168 member States, is to achieve a substantial reduction of disaster losses through the development of disaster risk reduction strategies together with regional bodies, UN agencies and civil society organizations. Accordingly, any efforts to reduce

disaster risks must be integrated into programmes and policies for sustainable development, poverty reduction, and supported through bilateral regional and international cooperation.

The emphasis of the Hyogo Framework at the national level, its implementation, and follow-up, requires, by implication, the development of strong participatory and collaborative ties with civil society, as well as national and local authorities with the national development sectors, the national disaster management systems and, scientific and technical support organizations. The Hyogo Framework specifically calls for the establishment or strengthening of national platforms for disaster risk reduction, while anchored to existing national systems, the GoB has adopted policies for a multi-sectoral approach to determine national priorities in implementing the Hyogo Framework.

4.4.2.2 National Plan for Disaster Management

The National Disaster Management Council approved the National Plan for Disaster Management in April 2010. For the GoB, this the first time a long term comprehensive vision and commitment for disaster management is expressed. In brief, the national plan delineates the action plan for agencies from to national level to grassroots. The plan has seven strategic objectives: 1) professionalizing the disaster management system, 2) Mainstreaming risk reduction, 3) Strengthening institutional mechanism, 4) Empoweing at at risk communities, 5) Expanding risk reduction programmes, 6) Strengthening emergency response systems and 7) Ddeveloping and strengthening networks.

Quick review of the action plan shows that it is a comprehensive action plan that clearly mentions responsibilities of different stakeholders. It is also seen that the plan rightly appreciates the dynamic nature of the planning, meaning, the document have appeared as a document that allows continuous updating.

4.4.2.3 Disaster Management Act 2008 (Draft)

Final draft of the Disaster Management Act 2008 is prepared. The GoB is now strongly considering the completion of the enactment process. This final draft of the law consists of 45 provisions under which there are many sub-provisions. The law mainly outlines the roles and responsibilities of different government agencies and provided the legal boundary for disaster related measures.

4.4.2.4 Standing Order on Disaster: Standing Order on Disaster (SoD) is the key document for disaster management. The GoB has recently, in April 2010 has revised the SoD. The SoD has clear allocation of business of different government agencies and disaster management committees in all stages of disaster management cycle.

4.4.3. DISASTER MANAGEMENT: KEY AGENCIES

4.4.3.1. Policy Forums and Committees

- ❑ **National Disaster Management Council:** National Disaster Management Council is the highest policy body related to disaster related issues in Bangladesh. The council is headed by the Honourable Prime Minister.
- ❑ **National Disaster Management Advisory Committee:** This is the forum for providing technical support to the government of Bangladesh on disaster management.
- ❑ **Inter-ministerial Disaster Management Coordination Committee:** This the national level inter-agency coordination body headed by the Ministry of Food and Disaster Management.

Besides, there are three more committees District Disaster Management Committee, Upazila Disaster Management committee and Union Disaster Management Committee.

The Disaster Management Bureau (DMB): To maintain proper coordination amongst the concerned Ministries, departments, line agencies, Local Government Body (LGD) and community people, and also to ensure their proper functioning in mitigating sufferings of the poor people, the GOB has adopted multilevel decentralized mechanisms of Councils and Committees from the national level to the grass-root levels. The high powered National Disaster Management Council (NDMC) and Inter Ministerial Disaster Management Co-ordination Committee (IMDMCC) developed as effective bodies to promote and coordinate risk-reduction, preparedness activities and mitigation measures. While NDMC formulates and reviews disaster management policies and issues directives to all concerned, the IMDMCC plays key role in implementing the directives and maintaining inter-Ministerial coordination. The Ministry of Food and Disaster Management coordinates and supervises the services of all the actors the Armed Forces as well NGOs working in the field of disaster management in the country. These are functional Disaster Management Committees at District, Upazila and Union level.

The government has taken a number of significant steps during last few years for building up institutional arrangements from national to union levels for effective and systematic disaster management. After the devastating cyclone in 1991, an evaluation of the response activities were carried out by the Government. The need for changes in disaster management strategies was identified at that time. The Disaster Management Bureau (DMB) was created after that as a dynamic professional unit for disaster management. Thereafter, the Disaster Management Bureau (DMB) is performing specialist functions and ensuring coordination with line departments, agencies and NGOs by convening meetings of Disaster Management Training and Public Awareness Building Task Force (DMTATF), Focal Point Operational Co-ordination Group on Disaster Management (FPOCG), NGO Co-ordination Committee on Disaster Management (NGOCC) and Committee for Speedy Dissemination of Disaster Related Warning Signals (CSDDWS) and through other enhanced activities. Through direct involvement of DMB, the Standing Order of Disaster (SOD) was developed during that time to activate the shift. The SOD now acts as a guidebook for all disaster management programmes of the country.

Roles and Responsibilities of DMB: DMB is acting as dynamic professional organization and National Focal Point in the field of disaster management of the country. The Bureau is providing support to the disaster management decision makers, planners and practitioners, at all levels of Bangladesh, in the field of disaster preparedness, local level disaster action and contingency planning, awareness training and facilitating improved information collection.

DMB has established information systems, operating procedures, and telecommunications systems, for a Disaster Management Information Centre (DMIC) and a national emergency operation centre (EOC) control room for immediate use when an emergency arises. Their objective is to establish a network for the mobilization of additional personnel for the EOC and to assist local authorities in the field, whenever required, and to provide documentation and information services on disaster management for line agencies and others. National volunteer Team on Disaster Management, Disaster Management Training centre and Emergency Disaster Risk Reduction Telecommunication System are going to be established very soon under the organizational set-up of DMB. It was decided by the authority that for proper implementation of the enhanced responsibilities, the organizational set-up of DMB will be extended sufficiently within the shortest possible time.

The Comprehensive Disaster Management Programme (CDMP): The Bangladesh Government approved the (CDMP) in 2003 as a key strategy to advance the whole of the government and agency risk reduction efforts in the country. The Secretary, Ministry of Food and Disaster Management, is the National Project Director of the programme. Having successful completion of the first phase of the project, CDMP has now stepped onto its second phase (2010-2014).

CDMP is a strategic institutional and programming approach that is designed to optimize the reduction of long-term risk and to strengthen the operational capacities for responding to emergencies and disaster situations including actions to improve recovery from these events. The salient features of this approach are: (1) The resources and expertise of government, NGO, private sector and the community are deployed according to national priorities, community risk reduction programming needs and not organizational preference; (2) It provides a greater picture of what needs to be done and as such, it is a mechanism for identifying gaps, monitoring and observing achievement; (3) It provides the basis upon which formal collaborating partnerships are developed and nurtured; (5) It facilitates the validation of new projects for the country risk reduction needs; and (6) It serves as a management tool for donor agencies and regional organizations to guide their inputs. CDMP is now implementing programmes for capacity building, partnership development, community empowerment and response management in the country.

Cyclone Preparedness Programme (CPP): In close association with Bangladesh Red Crescent Society, the MoFDM is implementing Cyclone Preparedness Programme (CPP) in the 12 coastal districts of the country to minimize loss of lives and properties in cyclone disaster by strengthening the disaster management capacity of the coastal people of Bangladesh.

The main activities of Cyclone Preparedness Programme are to (a) disseminate cyclone warning signals to local residents; (b) assist people in taking shelter, (c) rescue victims affected by a cyclone, and (d) provide first aid to people injured by a cyclone. CPP is now a worldwide renowned organization for its' dedicated volunteers and effectiveness in emergency response during disaster especially in cyclone. Today it has strength of appx. 50,000 volunteers, 15 in every village in the coastal belt and off-shore islands in the country

Associated Premises and Agencies: In addition to this set of government agencies there are 27 agencies which have strong linkage with disaster management in Bangladesh. Amongst these, Department of Fire Service and Civil Defence, Directorate General of Health Services, Bangladesh Armed Forces Division, Bangladesh University of Engineering and Technology, Bangladesh water Development Board, Bangladesh Betar, Bangladesh Television, Agricultural Extension Directorate, Armed Forces Division, Meteorological Department, Ansar and Village Defense Directorate, 1 Local Government Division, Local Government Engineering Department (LGED), Department of Environment, Bangladesh Red Crescent Society.

4.4.3.2. Progress and Constraints in Policy and Institutional Arena

With regard to disaster management, a significant progress has been made in the policy and institutional arena in recent years. The government has revised Allocation of Business (AOB) of the newly created Disaster Management and Relief Division (DMRD) under the Ministry of Food and Disaster Management (MoFDM). In 2010 the revised Standing Orders on Disaster (SOD) has been approved by the National Disaster Management Council (NDMC), which outlined disaster and climate risk reduction tasks for the ministries, agencies, committees, civil society organizations, non-government organizations and citizens. National Plan for Disaster Management (2010-2015) approved in 2010 also approved Bangladesh Climate Change Strategy and Action Plan (BCCSAP 2009). Disaster and climate risk reduction fund and climate change adaptation fund also allocated during the last two years national budget.

Comprehensive Disaster Management Programme (CDMP) of DMRD supported by a number of development partners working with 12 ministries to incorporate disaster and climate risk in the

respective ministries and organizations policy and plans. Cyclone early warning signal has been updated in 2009. Disaster Management Committee's (DMC) capacity strengthening programmes have been expanded during 2010 -11 and the DMCs have made effective linkages with the public and private organizations engaged in early warning information generations and dissemination in coordination with DMB. Thus, institutionalization of early warning information dissemination has been expanded to community level.

Having acknowledged the above mentioned achievement, it is also clearly evident that there has huge room for further improvement. Field investigation shows:

1. Although there is inter ministerial coordination committee but the required level of coordination among different ministries and their field offices is yet to be achieved. Particularly, coordination between among Ministry of Food and Disaster management and three ministries - Health, Primary Education and Local Government Rural Development (LGRD) has turned as the most complicated job.
2. Coordination between and among field offices are more important than the national level. But it is found that the field level coordination among related government agencies is relatively poor.
3. While social capital plays very crucial role in developing sustainable adaptation option none of the policies exploited the potentials of social capital in DRR and CCA. No such interventions were found in the reviewed policy documents and institutional arrangement
4. Meetings of different coordination committees do not take place regularly
5. Despite the fact that several plans and policies are in place, but the government hasn't paid provided sufficient financial and technical resources to implement the policies and actions.

CHAPTER FIVE: RECOMMENDATIONS

5.1. EXPECTATIONS AND RECOMMENDATIONS OF KEY STAKEHOLDERS OF DIPECHO VI

5.1.1. LOCAL LEVEL INSTITUTIONS AND STAKEHOLDERS

The major concerns came out of the discussions with the local level stakeholders are summarized below:

Stakeholder	Recommendations
UP Chairman and Member	<ul style="list-style-type: none"> ∇ Construction of dam and embankment ∇ Warning and informing people ∇ Adequate Budget ∇ Assist GO and NGO activities and suggest them how to distribute and Coordinate relief activities of the NGOs and GOs ∇ Adequate relief for all ∇ Developing infrastructure especially the roads ∇ Dredging the canals ∇ Make Government shelters ∇ Raising the plinth of the house ∇ Arrange pre-disaster warning ∇ Employment for poor ∇ Arrange safe water and sanitation ∇ Ensure medical supports ∇ Raise the schools ∇ Raise the roads ∇ Construct temporary bamboo-bridges
UP Secretary	<ul style="list-style-type: none"> ∇ Train the vulnerable people ∇ Awareness building ∇ Coordination of GO, NGO and local organizations ∇ Use schools as flood centres ∇ Post-disaster employment ∇ Reform the infrastructure ∇ Medicines for water-borne diseases ∇ Provide relief and medical care
VDMC Member	<ul style="list-style-type: none"> ∇ Strengthen the embankment (beri bandh) ∇ Regular maintenance of embankment ∇ Help people return home and rehabilitate ∇ Continue activities even after the high officials are left ∇ Take care of children and old age people
Livestock Officer	<ul style="list-style-type: none"> ∇ To be careful about flood-time and post-flood health and hazards of human and animal ∇ Warning people regarding health hazards of measure ∇ Take necessary measures ∇ Store medicines (for animal diseases) for disaster time ∇ Prevent epidemic ∇ Be careful about the diseases of livestock ∇ Provide medical support for livestock

	<ul style="list-style-type: none"> ∇ Take measures to prevent epidemic (of livestock) ∇ Vaccination of livestock
Agriculture Officer	<ul style="list-style-type: none"> ∇ Farmers are instructed to have early harvest of jute before the flood water reaches the area (warning phase) ∇ Farmers are instructed to have early harvest of paddy if there is possibility of hailstorm ∇ Farmers are instructed to have an extra seedbed(risk reduction) ∇ Farmers should be given free seeds, fertilizer ∇ Should cultivate BR 51 BR 52 species of rice which are not affected even after 12-15 days' inundation ∇ If the flood lingers, homestead gardening of vegetable can help
Project Implementation Officer	<ul style="list-style-type: none"> ∇ Identify most vulnerable areas and take measures accordingly ∇ Proper coordination of GO and NGO activities ∇ Raising Plinth ∇ Strengthening the house ∇ Improve water and sanitation ∇ Introduce credit ∇ Employment for poor ∇ Medical supports
Education officer	<ul style="list-style-type: none"> ∇ Shift the students from vulnerable area to a safer place ∇ Arrange alternative place for school ∇ Provide dry foods to students ∇ Clean and remodel the school
DPHE	<ul style="list-style-type: none"> ∇ Use plastic ring-slab ∇ Construction of shelters ∇ Medical supports ∇ Arrange security during flood ∇ Arrange safety of livestock ∇ Training through yard-meetings and video clips ∇ Regular and proper coordination of GO and NGO with local people
DRRO	<ul style="list-style-type: none"> ∇ Plan such trees which will provide fruits during the flood period ∇ Put more blocks to resist the current and river erosion ∇ School-based flood shelter ∇ Activating the UDMC ∇ Distribute food and relief ∇ Arrange agriculture loan ∇ Distribute CI sheet ∇ Repair infrastructure ∇ Arrange food for work

FGD	Recommendations
Union Disaster Management Committee	<ul style="list-style-type: none"> ∇ Identify and arrange safe shelters (11) ∇ Early warning dissemination ∇ Arrange warning signals by flagposts (2) ∇ Encourage the people to go to the cyclone centre

	<ul style="list-style-type: none"> ∇ Arrange supports like safe shifting, dry foods and safe water for pregnant women, children, old aged and disable people ∇ Need and Damage Assessment (11) ∇ Coordination and distribution of Government grants and relief (10) ∇ Make list of most vulnerable areas and arrange supports accordingly (6) ∇ Coordinate relief activities of GOs and NGOs (4) ∇ Campaign regarding water level, livestock and safety of children (1) ∇ Reform school, college, mosque, marketplaces, roads and other infrastructure (2) ∇ Arrange Food for Work for most vulnerable people (2) ∇ Prepare plan for bridge and culvert and submit to authority (2) ∇ Arrange training for char people (3) ∇ Provide equipments (1) ∇ Identify the most vulnerable or people at high risk by sex, age, physical ability, social status, occupation and economic status. ∇ Ensure supply of safe water and if necessary other services from specific points near the shelter/centre with the help of Upazila authority. ∇ Prepare a checklist of emergency works to-do during disaster and be sure that appropriate materials and people are available for use. ∇ Organize emergency rescue work by using locally available facilities in times of need and if directed assist others in rescue work. ∇ Take necessary actions to protect environmental degradation by immediate disposal of corpses and animal dead bodies. ∇ Ensure safe return and rehabilitation
<p>Union Parishod</p>	<ul style="list-style-type: none"> ∇ Arrange and circulate Early Warning (2) ∇ Organize committees for rescue, health and campaign (2) ∇ Awareness building (2) ∇ Arrange specific shelters for specific areas (2) ∇ Arrange employment (2) ∇ Organize the really affected people for Food for Work (2) ∇ Supply safe water and water purifying tablets ∇ Purification of tubewells ∇ Relief distribution (5) ∇ Assessment of loss (5) ∇ Assessment of needs (5) ∇ Coordinate other organizations regarding relief and post disaster activities
<p>School Management Committee</p>	<ul style="list-style-type: none"> ∇ Raise plinth of the school building (Risk reduction -8) ∇ Raise the school field (6) ∇ Make an emergency fund of school management committee through individual contribution (5) ∇ Close the school if situation worsens (5) ∇ Arrange transportation for students if the school remains open (5) ∇ Clean and reform the school buildings and roads (post-disaster) (4) ∇ Make a gate for the school building (2)

	<ul style="list-style-type: none"> ∇ Arrange shelters within the school for affected children and their family (6) ∇ Arrange food for students (4) ∇ Create a fund for flood affected students and school (2) ∇ A permanent hostel for students (8) ∇ Use signal lights on embankments as early warning signals (1) ∇ Arrange safe shelter in <i>chars</i> ∇ Arrange special measures to prevent river erosion (6)
VDMC	<ul style="list-style-type: none"> ∇ Arrange boats and transportation (10) ∇ Arrange alternative marketplaces(10) ∇ Reform the roads and mosques (10) ∇ Safe shelter for livestock (8) ∇ Raise and repair roads and mosques (4) ∇ Winter clothes for poor ∇ Training for employment ∇ Raise household plinth ∇ Raise their tube-well, latrines, cowshed ∇ Make people aware of making cooker, dryfood, fuelwood ∇ Rescue the Children, women and old, and shift to a safer place ∇ To take necessary steps (like-using nets, Carbolic acid etc.)to protect snakes during flood time ∇ Shift to a safer place
Community people	<ul style="list-style-type: none"> ∇ Raise plinth of the house (17) ∇ Raise the roads LEVEL (28) ∇ Strengthen and repair the house structure (15) ∇ Keep watching the water level (7) ∇ Inform others (13) ∇ Identify safe shelters (8) ∇ Repair the roads (post-disaster 9) ∇ Ensure security of children and old aged people ∇ Ensure safe place for livestock(5) ∇ Store dry foods (6) ∇ Shift young children and old aged people (2) ∇ Raise the height of the bed (5) ∇ Repair and clean the house (5) ∇ Shift to safe places if the situation worsens (4)

5.1.2. NATIONAL LEVEL INSTITUTIONS AND KEY STAKEHOLDERS

The major findings came out of the discussions with the key stakeholders are summarized below:

Stakeholders	Policy/ Advocacy
The Ministry of Food and Disaster Management (MoFDM)	<ul style="list-style-type: none"> <input type="checkbox"/> Strengthening the Disaster Management act and policy. <input type="checkbox"/> Coordination between the DRR and CCA activities. <input type="checkbox"/> Identify the future needs. <input type="checkbox"/> Strengthening the early warning system. <input type="checkbox"/> A clear coordination between NGOs and Government, especially at root

	level.
Disaster Management Bureau	<input type="checkbox"/> Increase more awareness program among community <input type="checkbox"/> Effective training for the DRR practitioners. <input type="checkbox"/> Monitoring system should be developed. <input type="checkbox"/> NGOs should aware and follow the national DM policy.
FFWC	<input type="checkbox"/> Digital Flood map is necessary. <input type="checkbox"/> Digital evacuation model is necessary.
IFRRC	<input type="checkbox"/> Effective baseline survey for need assessing the quantity before any disaster (Data bank).
CPP	<input type="checkbox"/> Preparing the urban volunteers for earthquake. <input type="checkbox"/> Consider the volunteers benefit and reward systems. <input type="checkbox"/> Ensure the volunteers quality and their dedication. <input type="checkbox"/> Create some job opportunities for the best volunteers at local government level.
Handicap	<input type="checkbox"/> Mainstreaming the disability in national development program. <input type="checkbox"/> Empower the disable persons.
Help Age International	<input type="checkbox"/> Increase the elderly financial allowance (Boyosko vata). <input type="checkbox"/> Giving emphasis on elderly population in DRR plan <input type="checkbox"/> Ensure their health safety.
BGMEA	<input type="checkbox"/> Training for the monitors who have engaged in regular visit the garments. <input type="checkbox"/> Prepare some documentary film for the workers regarding fire fighting or earthquake.
PSTC	<input type="checkbox"/> Training for the partner NGO staff. <input type="checkbox"/> Regular funding for the staff in order to avoid the staff termination from project to project. <input type="checkbox"/> More coordination between NGO to NGOs.
DGHS	<input type="checkbox"/> Ensuring the logistic support before any disaster. <input type="checkbox"/> Increase the community awareness.
Fire Service Department	<input type="checkbox"/> Organize the training for slum population. <input type="checkbox"/> Creating the volunteers <input type="checkbox"/> Massive awareness among the vulnerable groups
Center for Medical Education	<input type="checkbox"/> Include the DM curriculum in medical courses <input type="checkbox"/> Giving emphasis on people's capacity in DRR
CDMP	<input type="checkbox"/> Clear implementation the risk reduction plan. <input type="checkbox"/> Regular coordination with UDMC-UzDMC and DDMC.

5.2. RECOMMENDATIONS

The recommendations presented here are the outcomes of the data produced household survey, FGDs, SSI and KIs conducted in the field as well as discussions with the DIPECHO team. Instead of attempting ambitious plans, we tried to delimit recommendations to plausible suggestions that, we believe, are doable in this phase. These suggestions came to strengthen the programme and project activities, reach the project goals and above all fully accomplish the overall programme goal of enhancing the resilience of communities vulnerable to natural hazards in Bangladesh. It is also intended that these recommendations would also serve to attain the specific objective of supporting and complementing strategies that enable local communities and institutions to better prepare for, mitigate and respond adequately to natural disasters by enhancing their capacities to cope and respond, thereby increasing their resilience and reducing vulnerability in Bangladesh.

5.2.1. POLICY RECOMMENDATIONS

- ❑ **Institutionalization of the DRR efforts:** FGDs with different stakeholders and KII with the key primary stakeholders at national level reveals the growing need of intensifying efforts to institutionalize DRR at the national, regional and local levels. This needs a lot of effort considering the challenges in vertical and horizontal coordination and weak and poorly-funded institutions at the national and local levels that would implement DRR.
- ❑ **Promotion of Rights-based Approach to Resilience Building:** The policy review section and study findings suggest the relevance of rights-based approach to DRR. The rights-based approach would provide guidance for appropriate action in certain areas of resilience building that pose particularly complex dilemmas for governments and other relevant stakeholders of DIPECHO-VI. Human rights provide strong arguments for looking at affected persons as rights holders and not just objects of humanitarian action and disaster management activities. This approach allows identifying not only right holders but also duty bearers, thus allowing establishing accountability when relevant rights are violated.

5.2.2. PROGRAMME RECOMMENDATIONS

COORDINATION

- ❑ **Revision of Targets and Outcomes:** The findings and experience of the survey reveal that the project goals and outcomes need to be revised considering the specific features of intervention areas and/ or types of disasters. As such, significant discrepancies are noticeable in the survey findings. For instance, while a significant percentage of respondents from flood and cyclone-prone zones could mention a number of core responsibilities, the responses regarding the responsibilities are very poor in earthquake zones. Such inconsistencies are observable in almost all aspects of study which might affect the monitoring and evaluation of the entire project.
- ❑ **Coordination of Responsibilities:** Appropriate mechanism needs to be in place for ensuring coordination amongst and between local level government agencies, Upazilla Disaster Management Committees, Union Disaster Management Committees, Village Disaster Management Committees and School Management Committees. As it is mentioned by most of the members of UDMCs, VDMCs, UzDMCs and SMCs there is no coordination of responsibilities, they are not sure which activities are delegated upon whom and who is to execute which specific task. Therefore, more explicit synergies and linkages of organizational responsibilities and tasks with the broader programme agendas around enhancing resilience could be realized, e.g. pursuing RRAP at all levels with appropriate fund proposal and implementation plans.
- ❑ **Coordination of GO and NGO:** Appropriate mechanism also needs to be in place for ensuring coordination between government and nongovernment organizations (working in DRR). Almost all the members of FGDs has pointed out that due to lack of proper coordination of activities of GOs, NGOs and local organizations, some people get benefitted repeatedly whereas others remain deprived. Appropriate coordination can reduce overlapping and the gap of activities. Consultation with local institutions (e.g. VDMCs, UDMCs) can make substantial contribution in doing so.

- ❑ **Ensure Continuation:** As the KIs and some FGD members stated that it is a common scenario that all sorts of activities become slow-moving once the high-officials are left. Incessant motivations will be needed on the added value when working on disaster management issues among different organizations, GO and NGO partners if resilience is to become a core concern of DIPECHO.

PARTICIPATION

- ❑ **Socially Excluded Groups:** Participation of excluded groups such as poor, marginalized ethnic communities, PWDs needs to be enhanced in design and implementation of DRR interventions (particularly at grassroots level). Participation should not refer to presence only, rather active participation through expressing their concerns and opinion, patient attention to the opinions and appropriation of their concerns in implementation planning should be encouraged. As the survey data show, most of the members are not properly informed about the committees and their activities. As such, to ensure their effective participation, proper knowledge and awareness of SoD, advanced notice of meetings, suitable time and place of meetings and friendly environment for their participation in the meetings must be made certain.
- ❑ Awareness raising Empowerment of communities on rights and entitlements among community people should be given emphasis at the grassroots level

INSTITUTION BUILDING

- ❑ **Institutional Practice:** Institutional practices are important to ensure effective functioning of the institutions. Both the survey data and FGDs indicate that the members of the committees are not adequately informed of responsibilities of the committees. Meetings of the committees are not held on a regular basis. As such, due to the lack of sense of responsibility and belongingness, the committees are least functioning. Organizations should become more involved as they can contribute to enhance the articulation of a people-oriented rights-based perspective of disaster management for both the Programme and its partners.
- ❑ **Institutions and Integration:** UDMCs and VDMCs need to be integrated and coordinated with local level institutions such as SMCs, CBOs, local clubs and Bazar Committees etc.

GOVERNANCE

- ❑ **Reporting:** Programme implementation would greatly benefit from clarifying lines of reporting and accountability in roles and responsibilities of local and national offices/programs in ways that promote leadership, synergies, and strategic linkages, as well as greater efforts to engender ownership and institutionalization of change processes.
- ❑ **Transparency:** Accountability and Transparency of key actors in service providing agencies such as Union Parishad chairman and members, PIO and DRRO to be enhanced.
- ❑ **Sustainability:** Sustainability of results could be enhanced by working closely with partners in developing exit strategies (including fund-raising efforts directed at local and international donors) early on in the process. Increase public investment on capacity building of local level institutions and service providers including NGOs might contribute significantly. It is also

important to initiate interventions and increase investment on engaging youth and children in DRR activities.

- ❑ National Disaster Management Laws should be enacted as soon as possible for making the disaster governance more effective.
- ❑ Improved managing processes (structure and capacity) to enhance strategic guidance, local oversight and backstopping to donors and local partners are needed.

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ANNEXURE

ANNEXURE- ONE

CHAPTER ONE

Table- 1.1: Distribution of Beneficiaries by INGO Partners and Intended Results

Organizations	IRW	CU	Plan	OGB	AAB	CWW	Total NARRI
Result	Total HH	Total HH	Total HH	Total HH	Total HH	Total HH	Total HH
Result 1	20.00	7.47	0.69	5.91	24.79	15.67	12.60
Result 2	18.43	26.66	33.49	17.53	12.82	28.97	22.99
Result 3	26.55	43.13	32.33	40.42	11.12	19.92	27.14
Result 4	35.01	22.74	33.49	36.14	51.26	35.44	37.27
Total	9953	12394	20690	9275	22062	9617	83990

CHAPTER TWO

Table- 2.1: Baseline Survey for the DIPECHO VI Project

District	Upazilla/ Thana	Union/ Ward	Place/ Village	INGO	Partner NGO	Sample Size	Cluster Number
Serajgon	Serajgon	Belkuchi	Boroitala	CWW	GKS	31	01
		Kaliahoripur	Chatiantali	CWW	GKS	30	02
Jamalpur	Sarishabari	Pogoldigha	Ganderpar	CU	DAM	31	03
		Aowna	Sthal	CU	DAM	30	04
Sylhet		01	Rajar Goli and Jalalabad	IR		30	05
		16	Chara Dighirpar	IR		30	06
		08	Pathantula and Brahman Sasan	OWW	VARD	15	07
		07	Bonbalapara and Pirmahalla	OWW	VARD	16	
Dhaka		01	Vashantek-15	CU	AM	30	08
		48	Hajaribag	AAB	PSTC	16	09
		69	Nimtali and Sikkatuli	AAB	PSTC	16	
		03	Mirpur-10	CWW	SEEP	16	10
		05	Mirpur-11	CWW	SEEP	16	
Khulna	Dakop	Kumarkhola	Kalinagar	AAB	USS	31	11
		Sutarkhali	Naliyan	AAB	USS	31	12
Satkhira	Shamnagar	Burigalin	DatinKhali	AAB	JJS	31	13
		Padmapukur	Jhapa	AAB	JJS	31	14
Faridpur	Sadarpur	Char Nasirpur	Char Jangikandi	OGB	AKK	22	15
	Sadarpur	Narkellbariya	Aynuddin Sikdarerkandi	OGB	AKK	10	
	Char Vadrashan	Char Haripur	Salipur	OGB	AKK	32	16
Barguna	Sadar	Dhanua	Potkakhali	PI	SAP-B	32	17
		Noltona	Garjonbunia	PI	SAP-B	30	18
Pabna	Bera	Haturiya	Char Nagda	AAB	MMS	30	19
Gaibandha	Fulchari	Fulchari	Pipuliya	AAB	MMS	30	20
		Uriya	Kalasona	IR	SKS	30	21

CHAPTER THREE

Table- 3.1: Distribution of the Household Population by Five Year Age Group, According to Sex

Age group	Male		Female		Total		Cumulative %	Sex Ratio (M:F)
	N	%	N	%	N	%		
00 – 04 years	146	9	135	8.8	281	8.9	23.1	92.5
05 – 09 years	176	10.8	193	12.6	369	11.7	20.6	109.7
10 – 14 years	194	12.0	220	14.4	414	13.1	33.8	113.4
15 – 19 years	176	10.8	154	10.1	330	10.5	44.2	87.5
20 – 24 years	141	8.7	128	8.4	269	8.5	52.8	90.8
25 – 29 years	126	7.8	159	10.4	285	9.0	61.8	126.2
30 – 34 years	116	7.1	115	7.5	231	7.3	69.1	99.1
35 – 39 years	118	7.3	121	7.9	239	7.6	76.7	102.5
40 – 44 years	88	5.4	87	5.7	175	5.6	82.3	98.9
45 – 49 years	102	6.3	70	4.6	172	5.5	87.7	68.6
50 – 54 years	68	4.2	44	2.9	112	3.6	91.3	64.7
55 – 59 years	58	3.6	35	2.3	93	3.0	94.2	60.3
60 – 64 years	49	3.0	29	1.9	78	2.5	96.7	59.2
65 – 79 years	52	3.2	29	1.9	81	2.6	99.3	55.8
80 > years	13	0.8	10	0.7	23	0.7	100.0	76.9
Total	1623	100.0	1529	100.0	3152	100.0	--	94.2
Average Age	27.0		24.4		25.7			

Table- 3.2: Distribution of the Household Population by Five Year Age Group and Sex

Age group		Flood						Cumulative %	Sex ratio (M:F)
		Male		Female		All			
		N	%	N	%	N	%		
MONTHS	00 – 11	13	1.8	11	1.7	24	1.7	1.7	84.6
	12 – 23	8	1.1	11	1.7	19	1.4	3.1	137.5
	24 – 35	15	2.0	10	1.5	25	1.8	4.9	66.7
	36 – 47	11	1.5	20	3.1	31	2.2	7.1	181.8
	48 – 59	24	3.2	16	2.5	40	2.9	10.0	66.7
YEARS	05 – 09	98	13.2	100	15.5	198	14.3	24.3	102.0
	10 – 14	93	12.6	95	14.7	188	13.6	37.9	102.2
	15 – 19	93	12.6	57	8.8	150	10.8	48.7	61.3
	20 – 24	61	8.2	53	8.2	114	8.2	56.9	86.9
	25 – 29	52	7.0	56	8.7	108	7.8	64.7	107.7
	30 – 34	47	6.3	49	7.6	96	6.9	71.6	104.3
	35 – 39	41	5.5	40	6.2	81	5.8	77.4	97.6
	40 – 44	33	4.5	35	5.4	68	4.9	82.3	106.1
	45 – 49	33	4.5	35	5.4	68	4.9	87.2	106.1
	50 – 54	31	4.2	25	3.9	56	4.0	91.3	80.6
	55 – 59	30	4.0	12	1.9	42	3.0	94.3	40.0
	60 – 64	33	4.5	10	1.5	43	3.1	97.4	30.3
65 – 79	20	2.7	9	1.4	29	2.1	99.5	45.0	
80 +	5	0.7	2	0.3	7	0.5	100.0	40.0	
Total		741	100.0	646	100.0	1387	100.0		87.2
Average age		25.6		22.9		24.3			

Table- 3.3: Distribution of the Household Population by Five Year Age Group and Sex

Age group		Cyclone						Cumulative %	Sex ratio (M:F)
		Male		Female		All			
		N	%	N	%	N	%		
ON TH	00 – 11	4	0.9	4	0.9	8	0.9	0.9	100.0

	12 – 23	5	1.2	5	1.1	10	1.1	2.1	100.0
	24 – 35	6	1.4	7	1.6	13	1.5	3.5	116.7
	36 – 47	9	2.1	6	1.3	15	1.7	5.3	66.7
	48 – 59	17	4.0	11	2.5	28	3.2	8.4	64.7
YEARS	05 – 09	47	11.0	48	10.7	95	10.8	19.3	102.1
	10 – 14	58	13.5	72	16.1	130	14.8	34.1	124.1
	15 – 19	35	8.2	53	11.9	88	10.0	44.2	151.4
	20 – 24	31	7.2	30	6.7	61	7.0	51.1	96.8
	25 – 29	28	6.5	49	11.0	77	8.8	59.9	175.0
	30 – 34	30	7.0	35	7.8	65	7.4	67.4	116.7
	35 – 39	39	9.1	40	8.9	79	9.0	76.4	102.6
	40 – 44	26	6.1	25	5.6	51	5.8	82.2	96.2
	45 – 49	34	7.9	13	2.9	47	5.4	87.6	38.2
	50 – 54	18	4.2	10	2.2	28	3.2	90.8	55.6
	55 – 59	11	2.6	7	1.6	18	2.1	92.8	63.6
	60 – 64	8	1.9	12	2.7	20	2.3	95.1	150.0
65 – 79	16	3.7	14	3.1	30	3.4	98.5	87.5	
	80 +	7	1.6	6	1.3	13	1.5	100.0	85.7
Total		429	100.0	447	100.0	876	100.0		104.2
Average age		27.6		25.4		26.5			

Table- 3.4: Distribution of the Household Population by Five Year Age Group and Sex

		Earthquake						Cumulative %	Sex ratio (M:F)
Age group	Male		Female		All				
	N	%	N	%	N	%			
MONTHS	00 – 11	5	1.1	5	1.1	10	1.1	1.1	100.0
	12 – 23	6	1.3	3	0.7	9	1.0	2.1	50.0
	24 – 35	5	1.1	7	1.6	12	1.3	3.5	140.0
	36 – 47	10	2.2	11	2.5	21	2.4	5.8	110.0
	48 – 59	8	1.8	8	1.8	16	1.8	7.6	100.0
YEARS	05 – 09	31	6.8	45	10.3	76	8.5	16.2	145.2
	10 – 14	43	9.5	53	12.2	96	10.8	27.0	123.3
	15 – 19	48	10.6	44	10.1	92	10.3	37.3	91.7
	20 – 24	49	10.8	45	10.3	94	10.6	47.9	91.8
	25 – 29	46	10.2	54	12.4	100	11.2	59.2	117.4
	30 – 34	39	8.6	31	7.1	70	7.9	67.0	79.5
	35 – 39	38	8.4	41	9.4	79	8.9	75.9	107.9
	40 – 44	29	6.4	27	6.2	56	6.3	82.2	93.1
	45 – 49	35	7.7	22	5.0	57	6.4	88.6	62.9
	50 – 54	19	4.2	9	2.1	28	3.1	91.8	47.4
	55 – 59	17	3.8	16	3.7	33	3.7	95.5	94.1
	60 – 64	8	1.8	7	1.6	15	1.7	97.2	87.5
65 – 79	16	3.5	6	1.4	22	2.5	99.7	37.5	
	80 +	1	0.2	2	0.5	3	0.3	100.0	200.0
Total		453	100.0	436	100.0	889	100.0		96.2
Average age		28.5		25.4		27.0			

Table- 3.5: Persons with Disabilities (PWDs) at the Household

	Frequency	Percent
PWDs at HH	33	5.10
No PWD at HHs	614	94.90
Total HH (N)	647	100.00
Types of Disability		
Mental & Intellectually Impaired	6	18.18
Visually Impaired	5	15.15

Hearing Impaired	1	3.03
Physically Impaired	13	39.39
Multiple Impairments	8	24.24
Total	33	100.00

Table- 3.6: Distribution of Households by Household Size

Indicator (s)	Flood		Cyclone		Earthquake		All	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
01 – 02 members	22	8.0	2	1.1	7	3.8	31	4.8
03 – 04 members	96	34.8	86	46.2	87	47.0	269	41.6
05 – 06 members	104	37.7	82	44.1	61	33.0	247	38.2
07 members	54	19.6	16	8.6	30	16.2	100	15.5
Total	276	100.0	186	100.0	185	100.0	647	100.0

Table- 3.7: Distribution of Households by Household Headship HH

Indicator (s)	Flood		Cyclone		Earthquake		All	
	N	%	N	%	N	%	N	%
Male Headed HH	259	93.8	176	94.6	163	88.1	598	92.4
Female Headed HH	17	6.2	10	5.4	22	11.9	49	7.6
Total	276	100.0	186	100.0	185	100.0	647	100.0

Table- 3.8: Distribution of Households by Household Head's Age and Sex

Indicator	Flood					
	Male		Female		All	
	N	%	N	%	N	%
20-24	4	1.54	0	0.00	4	1.45
25-34	44	16.99	1	5.88	45	16.30
35-44	64	24.71	2	11.76	66	23.91
45-54	61	23.55	6	35.29	67	24.28
55-64	62	23.94	6	35.29	68	24.64
65 +	24	9.27	2	11.76	26	9.42
Total	259	100.00	17	100.00	276	100.00
Average age	46.5		50.7		46.7	
Std	13.4		10.7		13.2	

Table- 3.9: Distribution of Households by Household Head's Age and Sex

Indicator	Cyclone					
	Male		Female		All	
	N	%	N	%	N	%
20-24	2	1.14	0	0.00	2	1.08
25-34	30	17.05	4	40.00	34	18.28
35-44	60	34.09	1	10.00	61	32.80
45-54	50	28.41	3	30.00	53	28.49
55-64	19	10.80	1	10.00	20	10.75
65 +	15	8.52	1	10.00	16	8.60
Total	176	100.00	10	100.00	186	100.00
Average age	44.3		43.4		44.2	
Std	11.7		13.5		11.8	

Table- 3.10: Distribution of Households by Household Head's Age and Sex

Indicator	Earthquake					
	Male		Female		All	
	N	%	N	%	N	%
Below 20 years	1	0.61	0	0.00	1	0.54
20-24	6	3.68	0	0.00	6	3.24

25-34	27	16.56	5	22.73	32	17.30
35-44	43	26.38	5	22.73	48	25.95
45-54	47	28.83	8	36.36	55	29.73
55-64	23	14.11	1	4.55	24	12.97
65 +	16	9.82	3	13.64	19	10.27
Total	163	100.00	22	100.00	185	100.00
Average age	44.6		44.4		44.6	
Std	12.7		13.4		12.7	

Table- 3.11: Distribution of Households by Household Head’s Age and Sex

Indicator	Total (Flood, Cyclone and Earthquake)					
	Male		Female		All	
	N	%	N	%	N	%
Below 20 years	1	0.17	0	0.00	1	0.15
20-24	12	2.01	0	0.00	12	1.85
25-34	101	16.89	10	20.41	111	17.16
35-44	167	27.93	8	16.33	175	27.05
45-54	158	26.42	17	34.69	175	27.05
55-64	104	17.39	8	16.33	112	17.31
65 +	55	9.20	6	12.24	61	9.43
Total	598	100.00	49	100.00	647	100.00
Average age	45.3		46.4		45.4	
Std	12.7		12.7		12.7	

Table- 3.12: Level of Education of the Household Members (> 6 Years)

Indicator	Total (Flood, Cyclone and Earthquake)					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	164	11.5	197	15.0	361	13.2
Can Read & write	328	23.1	277	21.1	605	22.1
Pre-primary	88	6.2	77	5.9	165	6.0
Class-I to Class V	332	23.4	320	24.3	652	23.8
Class VI-Class IX	241	17.0	246	18.7	487	17.8
SSC	80	5.6	66	5.0	146	5.3
HSC	89	6.3	61	4.6	150	5.5
Graduate	72	5.1	58	4.4	130	4.8
Masters	27	1.9	13	1.0	40	1.5
Total	1421	100.0	1315	100.0	2736	100.0
Number of HH (N)	1623		1529		3152	

Table- 3.13: Level of Education of the Household Members (> 6 Years)

Indicator	Flood					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	109	17.1	107	20.0	216	18.4
Can Read & write	189	29.6	152	28.5	341	29.1
Pre-primary	51	8.0	43	8.1	94	8.0
Class-I to Class V	170	26.6	134	25.1	304	25.9
Class VI-Class IX	84	13.2	84	15.7	168	14.3
SSC	13	2.0	6	1.1	19	1.6
HSC	13	2.0	5	0.9	18	1.5
Graduate	8	1.3	3	0.6	11	0.9
Masters	1	0.2	0	0.0	1	0.1
Total	638	100.0	534	100.0	1172	100.0

Number of HH (N)	741	646	1387
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Table- 3.14: Level of Education of the Household Members (> 6 Years)

Indicator	Cyclone					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	37	9.8	51	12.8	88	11.3
Can Read & write	98	26.1	88	22.0	186	24.0
Pre-primary	32	8.5	27	6.8	59	7.6
Class-I to Class V	94	25.0	113	28.3	207	26.7
Class VI-Class IX	71	18.9	91	22.8	162	20.9
SSC	21	5.6	17	4.3	38	4.9
HSC	16	4.3	6	1.5	22	2.8
Graduate	6	1.6	5	1.3	11	1.4
Masters	1	0.3	2	0.5	3	0.4
Total	376	100.0	400	100.0	776	100.0
Number of HH (N)	429		447		876	

Table- 3.15: Level of Education of the Household Members (> 6 Years)

Indicator	Earthquake					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	18	4.4	39	10.2	57	7.2
Can Read & write	41	10.1	37	9.7	78	9.9
Pre-primary	5	1.2	7	1.8	12	1.5
Class-I to Class V	68	16.7	73	19.2	141	17.9
Class VI-Class IX	86	21.1	71	18.6	157	19.9
SSC	46	11.3	43	11.3	89	11.3
HSC	60	14.7	50	13.1	110	14.0
Graduate	58	14.3	50	13.1	108	13.7
Masters	25	6.1	11	2.9	36	4.6
Total	407	100.0	381	100.0	788	100.0
Number of HH (N)	453		436		889	

Table- 3.16: Level of Education of the Household Head

Indicator	Total (Flood, Cyclone and Earthquake)					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	122	20.4	18	36.7	140	21.6
Can Read & write	219	36.6	11	22.4	230	35.5
Pre-primary	6	1.0	0	0.0	6	0.9
Class-I to Class V	70	11.7	7	14.3	77	11.9
Class VI-Class IX	76	12.7	3	6.1	79	12.2
SSC	29	4.8	3	6.1	32	4.9
HSC	28	4.7	3	6.1	31	4.8
Graduate	32	5.4	2	4.1	34	5.3
Masters	16	2.7	2	4.1	18	2.8
Total	598	100.0	49	100.0	647	100.0

Table- 3.17: Level of Education of the Household Head

Indicator	Flood					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	87	33.6	10	58.8	97	35.1
Can Read & write	106	40.9	3	17.6	109	39.5

Pre-primary	1	0.4	0	0.0	1	0.4
Class-I to Class V	36	13.9	4	23.5	40	14.5
Class VI-Class IX	21	8.1	0	0.0	21	7.6
SSC	2	0.8	0	0.0	2	0.7
HSC	3	1.2	0	0.0	3	1.1
Graduate	3	1.2	0	0.0	3	1.1
Total	259	100.0	17	100.0	276	100.0

Table- 3.18: Level of Education of the Household Head

Indicator	Cyclone					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	26	14.8	5	50.0	31	16.7
Can Read & write	83	47.2	5	50.0	88	47.3
Pre-primary	5	2.8	0	0.0	5	2.7
Class-I to Class V	20	11.4	0	0.0	20	10.8
Class VI-Class IX	27	15.3	0	0.0	27	14.5
SSC	7	4.0	0	0.0	7	3.8
HSC	5	2.8	0	0.0	5	2.7
Graduate	3	1.7	0	0.0	3	1.6
Total	176	100.0	10	100.0	186	100.0

Table- 3.19: Level of Education of the Household Head

Indicator	Earthquake					
	Male		Female		All	
	N	%	N	%	N	%
Illiterate	9	5.5	3	13.6	12	6.5
Can Read & write	30	18.4	3	13.6	33	17.8
Pre-primary	0	0.0	0	0.0	0	0.0
Class-I to Class V	14	8.6	3	13.6	17	9.2
Class VI-Class IX	28	17.2	3	13.6	31	16.8
SSC	20	12.3	3	13.6	23	12.4
HSC	20	12.3	3	13.6	23	12.4
Graduate	26	16.0	2	9.1	28	15.1
Masters	16	9.8	2	9.1	18	9.7
Total	163	100.0	22	100.0	185	100.0

Table- 3.20: Occupational Status of the Household Members

Indicator (s)	Total (Flood, Cyclone and Earthquake)					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	123	7.6	19	1.2	142	4.5
Agriculture (Tenured land)	79	4.9	18	1.2	97	3.1
Agricultural Laborer	160	9.9	18	1.2	178	5.6
Skilled Laborer	131	8.1	14	0.9	145	4.6
Non-motor Vehicle Driver	87	5.4	0	0.0	87	2.8
Motor Vehicle Driver	28	1.7	0	0.0	28	0.9
Labourer in shrimp farm	6	0.4	4	0.3	10	0.3
Forager/ going to the forest	4	0.2	0	0.0	4	0.1
Fish business	20	1.2	146	9.5	166	5.3
Fishing/fisherman	55	3.4	0	0.0	55	1.7
Petty Businessman	72	4.4	30	2.0	102	3.2
Housewife	0	0.0	604	39.5	604	19.2
Working in others household	12	0.7	18	1.2	30	1.0

Catch shrimp	7	0.4	2	0.1	9	0.3
Unemployed	57	3.5	36	2.4	93	3.0
Student	443	27.3	363	23.7	806	25.6
Old aged /retired person	30	1.8	38	2.5	68	2.2
Disable or dependent person	9	0.6	14	0.9	23	0.7
Catching crab	5	0.3	0	0.0	5	0.2
Honey Collection	29	1.8	1	0.1	30	1.0
Begging	4	0.2	2	0.1	6	0.2
Govt/Non govt officers/staff	38	2.3	16	1.0	54	1.7
Teacher/Advocate/Doctor/Engineer	4	0.2	0	0.0	4	0.1
Not applicable(<6 years)	161	9.9	157	10.3	318	10.1
Others	59	3.6	29	1.9	88	2.8
Total	1623	100.0	1529	100.0	3152	100.0

Table- 3.21: Occupational Status of the Household Members

Indicator (s)	Flood					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	81	10.9	3	0.5	84	6.1
Agriculture (Tenured land)	33	4.5	2	0.3	35	2.5
Agricultural Laborer	92	12.4	4	0.6	96	6.9
Skilled Laborer	44	5.9	4	0.6	48	3.5
Non-motor Vehicle Driver	24	3.2	0	0.0	24	1.7
Motor Vehicle Driver	2	0.3	0	0.0	2	0.1
Fish business	6	0.8	0	0.0	6	0.4
Fishing/fisherman	12	1.6	0	0.0	12	0.9
Petty Businessman	17	2.3	0	0.0	17	1.2
Housewife	0	0.0	299	46.3	299	21.6
Working in others household	0	0.0	4	0.6	4	0.3
Unemployed	46	6.2	28	4.3	74	5.3
Student	207	27.9	190	29.4	397	28.6
Old aged /retired person	15	2.0	8	1.2	23	1.7
Disable or dependent person	3	0.4	3	0.5	6	0.4
Catching crab	1	0.1	0	0.0	1	0.1
Honey Collection	29	3.9	1	0.2	30	2.2
Begging	4	0.5	2	0.3	6	0.4
Govt/Non govt officers/staff	27	3.6	10	1.5	37	2.7
Teacher/Advocate/Doctor/Engineer	0	0.0	0	0.0	0	0.0
Not applicable(<6 years)	76	10.3	80	12.4	156	11.2
Others	22	3.0	8	1.2	30	2.2
Total	741	100.0	646	100.0	1387	100.0

Table- 3.22: Occupational Status of the Household Members

Indicator (s)	Cyclone					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	6	1.4	0	0.0	6	0.7
Agriculture (Tenured land)	3	0.7	0	0.0	3	0.3
Agricultural Laborer	58	13.5	10	2.2	68	7.8
Skilled Laborer	20	4.7	6	1.3	26	3.0
Non-motor Vehicle Driver	23	5.4	0	0.0	23	2.6
Motor Vehicle Driver	4	0.9	0	0.0	4	0.5
Labourer in shrimp farm	6	1.4	2	0.4	8	0.9
Fish business	13	3.0	0	0.0	13	1.5
Fishing/fisherman	41	9.6	0	0.0	41	4.7
Petty Businessman	14	3.3	1	0.2	15	1.7

Housewife	0	0.0	178	39.8	178	20.3
Working in others household	1	0.2	3	0.7	4	0.5
Unemployed	11	2.6	8	1.8	19	2.2
Student	119	27.7	145	32.4	264	30.1
Old aged /retired person	15	3.5	30	6.7	45	5.1
Disable or dependent person	6	1.4	9	2.0	15	1.7
Catching crab	4	0.9	0	0.0	4	0.5
Govt/Non govt officers/staff	9	2.1	6	1.3	15	1.7
Teacher/Advocate/Doctor/Engineer	4	0.9	0	0.0	4	0.5
Not applicable(<6 years)	48	11.2	40	8.9	88	10.0
Others	24	5.6	9	2.0	33	3.8
Total	429	100.0	447	100.0	876	100.0

Table- 3.23: Occupational Status of the Household Members

Indicator (s)	Earthquake					
	Male		Female		All	
	N	%	N	%	N	%
GO Service	36	7.9	16	3.7	52	5.8
Private Service	43	9.5	16	3.7	59	6.6
Business (Large)	10	2.2	4	0.9	14	1.6
Business (Medium)	67	14.8	4	0.9	71	8.0
Business (Small)	40	8.8	0	0.0	40	4.5
Daily Wage Laborer	22	4.9	0	0.0	22	2.5
Garments Laborer	0	0.0	2	0.5	2	0.2
Vehicle Driver	4	0.9	0	0.0	4	0.4
Housewife	1	0.2	146	33.5	147	16.5
Housekeeping	2	0.4	0	0.0	2	0.2
Unemployed	41	9.1	29	6.7	70	7.9
Students	0	0.0	127	29.1	127	14.3
Old People	11	2.4	11	2.5	22	2.5
Disable or dependent person	7	1.5	2	0.5	9	1.0
Not applicable(<6 years)	117	25.8	28	6.4	145	16.3
Others	13	2.9	12	2.8	25	2.8
Total	453	100.0	436	100.0	889	100.0

Table- 3.24: Occupational Status of the Household Head

Indicator (s)	Total (Flood, Cyclone and Earthquake)					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	87	14.5	1	2.0	88	13.6
Agriculture (Tenured land)	56	9.4	1	2.0	57	8.8
Agricultural Laborer	116	19.4	2	4.1	118	18.2
Skilled Laborer	60	10.0	3	6.1	63	9.7
Non-motor Vehicle Driver	62	10.4	0	0.0	62	9.6
Motor Vehicle Driver	20	3.3	0	0.0	20	3.1
Labourer in shrimp farm	5	0.8	1	2.0	6	0.9
Forager/ going to the forest	4	0.7	0	0.0	4	0.6
Fish business	10	1.7	16	32.7	26	4.0
Fishing/fisherman	37	6.2	0	0.0	37	5.7
Petty Businessman	24	4.0	1	2.0	25	3.9
Housewife	0	0.0	10	20.4	10	1.5
Working in others household	11	1.8	3	6.1	14	2.2
Catch shrimp	2	0.3	0	0.0	2	0.3
Unemployed	6	1.0	0	0.0	6	0.9
Old aged /retired person	22	3.7	5	10.2	27	4.2
Disable or dependent person	4	0.7	2	4.1	6	0.9

Catching crab	3	0.5	0	0.0	3	0.5
Honey Collection	7	1.2	0	0.0	7	1.1
Begging	1	0.2	0	0.0	1	0.2
Govt/Non govt officers/staff	23	3.8	2	4.1	25	3.9
Teacher/Advocate/Doctor/Engineer	2	0.3	0	0.0	2	0.3
Others	36	6.0	2	4.1	38	5.9
Total	598	100.0	49	100.0	647	100.0

Table- 3.25: Occupational Status of the Household Head

Indicator (s)	Flood					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	57	22.0	1	5.9	58	21.0
Agriculture (Tenured land)	29	11.2	0	0.0	29	10.5
Agricultural Laborer	67	25.9	1	5.9	68	24.6
Skilled Laborer	11	4.2	0	0.0	11	4.0
Non-motor Vehicle Driver	17	6.6	0	0.0	17	6.2
Motor Vehicle Driver	1	0.4	0	0.0	1	0.4
Fish business	4	1.5	0	0.0	4	1.4
Fishing/fisherman	8	3.1	0	0.0	8	2.9
Petty Businessman	10	3.9	0	0.0	10	3.6
Housewife	0	0.0	6	35.3	6	2.2
Working in others household	0	0.0	1	5.9	1	0.4
Unemployed	3	1.2	0	0.0	3	1.1
Old aged /retired person	15	5.8	3	17.6	18	6.5
Disable or dependent person	2	0.8	2	11.8	4	1.4
Honey Collection	7	2.7	0	0.0	7	2.5
Begging	1	0.4	0	0.0	1	0.4
Govt/Non govt officers/staff	19	7.3	2	11.8	21	7.6
Others	8	3.1	1	5.9	9	3.3
Total	259	100.0	17	100.0	276	100.0

Table- 3.26: Occupational Status of the Household Head

Indicator (s)	Cyclone					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	5	2.8	0	0.0	5	2.7
Agriculture (Tenured land)	3	1.7	0	0.0	3	1.6
Agricultural Laborer	44	25.0	1	10.0	45	24.2
Skilled Laborer	16	9.1	1	10.0	17	9.1
Non-motor Vehicle Driver	16	9.1	0	0.0	16	8.6
Motor Vehicle Driver	2	1.1	0	0.0	2	1.1
Labourer in shrimp farm	5	2.8	1	10.0	6	3.2
Fish business	6	3.4	0	0.0	6	3.2
Fishing/fisherman	29	16.5	0	0.0	29	15.6
Petty Businessman	12	6.8	1	10.0	13	7.0
Housewife	0	0.0	2	20.0	2	1.1
Working in others household	1	0.6	1	10.0	2	1.1
Unemployed	3	1.7	0	0.0	3	1.6
Old aged /retired person	7	4.0	2	20.0	9	4.8
Disable or dependent person	2	1.1	0	0.0	2	1.1
Catching crab	3	1.7	0	0.0	3	1.6
Govt/Non govt officers/staff	3	1.7	0	0.0	3	1.6
Teacher/Advocate/Doctor/Engineer	2	1.1	0	0.0	2	1.1
Others	17	9.7	1	10.0	18	9.7

Total	176	100.0	10	100.0	186	100.0
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Table- 3.27: Occupational Status of the Household Head

Indicator (s)	Earthquake					
	Male		Female		All	
	N	%	N	%	N	%
Agriculture (own land)	25	15.3	0	0.0	25	13.5
Agriculture (Tenured land)	24	14.7	1	4.5	25	13.5
Agricultural Laborer	5	3.1	0	0.0	5	2.7
Skilled Laborer	33	20.2	2	9.1	35	18.9
Non-motor Vehicle Driver	29	17.8	0	0.0	29	15.7
Motor Vehicle Driver	17	10.4	0	0.0	17	9.2
Forager/ going to the forest	4	2.5	0	0.0	4	2.2
Fish business	0	0.0	16	72.7	16	8.6
Petty Businessman	2	1.2	0	0.0	2	1.1
Housewife	0	0.0	2	9.1	2	1.1
Working in others household	10	6.1	1	4.5	11	5.9
Catch shrimp	2	1.2	0	0.0	2	1.1
Govt/Non govt officers/staff	1	0.6	0	0.0	1	0.5
Others	11	6.7	0	0.0	11	5.9
Total	163	100.0	22	100.0	185	100.0

Table- 3.28: Distribution of Households by Different Types of Land Ownership

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
Homestead Land	201	72.83	146	78.49	347	75.11
Agricultural Land	98	35.51	51	27.42	149	32.25
Pond	8	2.90	42	22.58	50	10.82
n	207	111.23	149	128.49	356	118.18
Number of HH (N)	276		186		462	

Table- 3.29: Distribution of Households by Ownership of Homestead Land

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
No Homestead Land	78	28.26	71	38.17	149	32.25
01-05 decimals	93	33.70	47	25.27	140	30.30
06-10 decimals	47	17.03	31	16.67	78	16.88
11-15 decimals	14	5.07	14	7.53	28	6.06
16-20 decimals	25	9.06	11	5.91	36	7.79
20 decimals and above	19	6.88	12	6.45	31	6.71
n	276	100.00	186	100.00	462	100.00
Number of HH (N)	276		186		462	

Table- 3.30: Distribution of Households by Agricultural Land

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
Owns Agricultural Land	98	35.51	51	27.42	149	32.25
No Agricultural Land	178	64.49	135	72.58	313	67.75
01-20 Deci	29	29.59	12	23.53	41	27.52
21-50 Deci	14	14.29	19	37.25	33	22.15
51-100 Deci	17	17.35	11	21.57	28	18.79
101-200 Deci	19	19.39	3	5.88	22	14.77
201 Deci & Above	19	19.39	6	11.76	25	16.78
Number of HH (N)	276		186		462	

Table- 3.31: Distribution of Households by Amount of Pond Lands for Aquaculture

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
01-05 Deci	1	12.5	30	73.2	31	63.3
06-30 Deci	2	25	11	26.8	13	26.5
30 Deci & Above	5	62.5	0	0	5	10.2
Total (n)	8	100	41	100	49	100
Number of HH (N)	276		186		462	

Table- 3.32: Distribution of Households by Ownership of Major Assets

Indicator (s)	Flood		Cyclone		All (Flood and Cyclone)	
	Freq	Per	Freq	Per	Freq	Per
Cot/ Khat	254	92.0	162	87.1	416	90.0
Almirah	57	20.7	57	30.6	114	24.7
Television	29	10.5	22	11.8	51	11.0
Radio	9	3.3	31	16.7	40	8.7
Electric fan	25	9.1	7	3.8	32	6.9
Cassette/ CD/ VCD Player	1	0.4	7	3.8	8	1.7
Mobile Phone	142	51.4	126	67.7	268	58.0
Sewing Machine	4	1.4	12	6.5	16	3.5
Rickshaw/ Van	9	3.3	16	8.6	25	5.4
Power Tiller	5	1.8	3	1.6	8	1.7
Irrigation Equipments	7	2.5	0	0.0	7	1.5
Other Equipments of cultivation	8	2.9	1	0.5	9	1.9
Motor Cycle	4	1.4	0	0.0	4	0.9
Bi-Cycle	32	11.6	15	8.1	47	10.2
Fishing net	20	7.2	86	46.2	106	22.9
Boat	15	5.4	28	15.1	43	9.3
Solar Pannel	25	9.1	31	16.7	56	12.1
Gold Jewelry	208	75.4	134	72.0	342	74.0
Silver Jewelry	42	15.2	39	21.0	81	17.5
Others	30	10.9	11	5.9	41	8.9
Total	926	335.5	788	423.7	1714	371.0
Number of HH (N)	276		186		462	
Notes on Others:						

Table- 3.33: Distribution of Households by Estimated Present Market Price of Assets (excluding Land)

Indicator (s)	Flood		Cyclone		All (Flood and Cyclone)	
	Freq	Per	Freq	Per	Freq	Per
<25000 Tk	228	82.6	128	68.8	356	77.1
25001-50000 Tk	16	5.8	27	14.5	43	9.3
50001- 75000Tk	9	3.3	12	6.5	21	4.5
75001-100000Tk	4	1.4	11	5.9	15	3.2
100001-150000Tk	9	3.3	3	1.6	12	2.6
150001-200000 Tk	4	1.4	4	2.2	8	1.7
200001- 300000 Tk	5	1.8	1	0.5	6	1.3
300001-500000 Tk	1	0.4	0	0.0	1	0.2
500001-1000000Tk	0	0.0	0	0.0	0	0.0
1000001 and above	0	0.0	0	0.0	0	0.0
Total	276	100.0	186	100.0	462	100.0
Number of HH (N)	276		186		462	

Table- 3.34: Distribution of Households by Monthly Income in Earthquake Prone Areas

Indicator (s)	Earthquake
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	Freq	Per
<2000 Tk	3	1.6
2001-5000 Tk	11	5.9
5001- 7500Tk	14	7.6
7501-10000Tk	31	16.8
10001-15000Tk	32	17.3
15001-20000 Tk	21	11.4
20001- 30000 Tk	25	13.5
30001-50000 Tk	31	16.8
50001 and above	17	9.2
Total	185	100.0
Number of HH (N)	185	

Table- 3.35: Households by Duration of Settlement in the Current Place of Living

Indicator (s)	Flood		Cyclone		Earthquake		All	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
<1 year	10	3.6	10	5.4	12	6.5	32	4.9
01-05 years	45	16.3	76	40.9	42	22.7	163	25.2
06-10 years	69	25.0	10	5.4	26	14.1	105	16.2
11-15 years	79	28.6	6	3.2	20	10.8	105	16.2
16 years and above	73	26.4	84	45.2	85	45.9	242	37.4
Total	276	100.0	186	100.0	185	100.0	647	100.0

Table- 3.36: Distribution of Households by Ownership Types of Housing

Indicator (s)	Flood		Cyclone		Earthquake		All	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
Own house on own land	166	60.1	110	59.1	72	38.9	348	53.8
Government house	1	0.4	1	0.5	13	7.0	15	2.3
Rented house	4	1.4	1	0.5	78	42.2	83	12.8
Own house on others' land	73	26.4	23	12.4	2	1.1	98	15.1
Own house on khas land	29	10.5	21	11.3	20	10.8	70	10.8
Others	3	1.1	30	16.1	0	0.0	33	5.1
Total	276	100.0	186	100.0	185	100.0	647	100.0

Table- 3.37: Distribution of Houses by Number of Rooms

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
01	185	67.0	115	61.8	300	64.9
02-03	84	30.4	68	36.6	152	32.9
04-05	7	2.5	2	1.1	9	1.9
06 and above	0	0.0	1	0.5	1	0.2
Total	276	100.0	186	100.0	462	100.0

Table- 3.38: Distribution of Households by Types of Housing Materials

Indicator (s)	Flood	Cyclone	Earthquake	Total
Building/ Cement Construction	0.00	0.00	54.1	15.5
Tin Shed (Pucca or Semi Pucca Wall)	1.1	3.2	26.5	9.0
Tin Shed (Tin/ Thatched/ Mud Wall)	85.9	70.5	3.2	57.8
Thatched House (Cane/ Straw/ Leaf)	13	26.3	0.00	13.1
Squatter House (Plastic/ Polythene)	0.00	0.00	16.2	4.6
Number of HH (N)	276	186	185	647

Table- 3.39: Distribution of Houses by Types of Construction Materials in Earthquake Prone Areas

Indicator (s)	Earthquake	
	Freq	Per

Indicator (s)	Earthquake	
	Freq	Per
Multi-storeyed/ Flat/ Apartment	81	43.8
01 – 10 Years Old Building	4	2.2
11 – 20 Years Old Building	9	4.9
More than 21 Years Old Building	6	3.2
Tin Shed (Pucca or Semi Pucca Wall)	49	26.5
Tin Shed (Thatched Wall)	6	3.2
Squatter House (Plastic Sheet/ Polythene)	30	16.2
Total	185	100.0
Number of HH (N)	185	

Table- 3.40: Elevation of the House Plinth in Relation to Last Severe Flood or Storm Surge

Indicator (s)	Flood		Cyclone		All (Flood and Cyclone)	
	Freq	Per	Freq	Per	Freq	Per
Submerged during Flood or Storm Surge	99	35.9	180	96.8	279	60.4
Remained Above Water Level	161	58.3	5	2.7	166	35.9
Don't Know	8	2.9	0	0.0	8	1.7
Others	8	2.9	1	0.5	9	1.9
Total	276	100.0	186	100.0	462	100.0
Number of HH (N)	276		186		462	
Notes on Others:						

Table- 3.41: Primary Sources of Drinking Water

Indicator (s)	Flood		Cyclone		All (Flood and Cyclone)	
	Freq	Per	Freq	Per	Freq	Per
Taped Water in House Premise	0	0.0	1	0.5	1	0.2
Deep Tube Well	9	3.3	1	0.5	10	2.2
Tube Well	264	95.7	115	61.8	379	82.0
Preserved/ Protected Well	0	0.0	57	30.6	57	12.3
Uncovered Well	0	0.0	5	2.7	5	1.1
Harvested Rainwater	0	0.0	7	3.8	7	1.5
Others	3	1.1	0	0.0	3	0.6
Total	276	100.0	186	100.0	462	100.0
Number of HH (N)	276		186		462	
Notes on Others:						

Table- 3.42: Situation of Drinking Water Source during Last Severe Flood or Storm Surge

Indicator (s)	Flood		Cyclone		All (Flood and Cyclone)	
	Freq	Per	Freq	Per	Freq	Per
Submerged during Flood or Storm Surge	213	77.2	181	97.3	394	85.3
Remained above Water Level	51	18.5	1	0.5	52	11.3
Don't Know	9	3.3	0	0.0	9	1.9
Others	3	1.1	4	2.2	7	1.5
Total	276	100.0	186	100.0	462	100.0
Number of HH (N)	276		186		462	
Notes on Others:						

Table- 3.43: Types of Latrine and Situation during Last Severe Flood

Indicator (s)	Flood	
	Freq	Per
Flash Latrine	11	4.0
Pit latrine (with Slab/ Ring)	108	39.1
Pit latrine (without Slab/ open)	29	10.5

Indicator (s)	Flood	
	Freq	Per
Kachcha Latrine	88	31.9
Open/ Hanging	34	12.3
doesn't have latrine/ bush/ field	6	2.2
Total	276	100.0
Number of HH (N)	276	

Table- 3.44: Situation of Latrine during Last Flood

Indicator (s)	Flood	
	Freq	Per
Submerged during Flood	229	83.0
Remained Above Water Level	33	12.0
Don't Know	7	2.5
Others	7	2.5
Total	276	100.0
Number of HH (N)	276	

CHAPTER FOUR

Table- 4.1: Knowledge and Practice of Preparedness Measures against Flood and Cyclone

Indicator (s)	Flood				Cyclone			
	Knowledge		Practice		Knowledge		Practice	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
Deposit Money/ Savings	15	5.4	16	7.7	2	1.1	2	1.4
Plant Flood/ Cyclone Resilient Trees	4	1.4	0	0.00	10	5.4	3	2.1
Preserve Seeds	8	2.9	9	4.3	2	1.1	3	2.1
Identify Shelters	152	55.1	113	54.1	90	48.6	79	55.2
Teach Swimming to HH Members	17	6.2	9	4.3	6	3.2	5	3.5
Prepare Portable Hearth	169	61.2	152	72.7	0	0.00	0	0.00
Protect Professional Equipments	0	0.00	0	0.0	7	3.8	5	3.5
Preserve Dry Firewood in a High Place	107	38.8	97	46.4	56	30.3	50	35.0
Preserve Hurricane, Match and Fuel	38	13.8	25	12.0	49	26.5	55	38.5
Preserve Fodder for Livestock	55	19.9	38	18.2	10	5.4	9	6.3
Collect Alum, Medicine, ORS, Carbolic Soap, Potassium	12	4.3	10	4.8	51	27.6	44	30.8
Preserve Dry Foods	75	27.2	60	28.7	83	44.9	73	51.0
Don't Know/ Can't Say	15	5.4	0	0.00	29	15.7	0	0.00
Others	20	7.2	14	6.7	6	3.2	9	6.3
Total	687	248.8	543	259.9	401	216.8	337	235.7
n	687		543		401		337	
Number of HH (N)	276				186			

* Multiple Responses

Table- 4.2: Number of Preparedness Measures Known and Practiced against Flood and Cyclone

Indicator (s)	Flood		Cyclone		Earthquake	
	Knowledge	Practice	Knowledge	Practice	Knowledge	Practice
Know/ Practice 01 Measure	94.57	75.72	86.02	76.88	49.19	12.97
Know/ Practice 02 Measures	85.51	67.75	71.51	62.37	19.46	5.95
Know/ Practice 03 Measures	63.41	53.26	43.55	41.94	6.49	0.54
Do not Know/ Practice any Measure	5.43	24.28	13.98	23.12	50.81	87.03
Total						
Number of HH (N)	276		186		185	

Table- 4.3: Knowledge and Practice of Preparedness Measures against Earthquake

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Fix the Furniture and Fixtures to the Wall with Clump	16	8.6	4	14.3
Safely Fix the Hanging Items/ Stuffs e.g. Fan, Photo Frame etc.	14	7.6	7	25.0
Remove the Big/ Heavy Furniture from Sitting and Sleeping Places	7	3.8	2	7.1
Clearing the Evacuation Route	37	20.0	6	21.4
Collect the Necessary Items (e.g. Saw, Hammer, Radio Rope etc) for Emergency Situation	8	4.3	5	17.9
Prepare and Plan for Evacuation of the Children, Old Persons, Pregnant Mother and PWDs During Emergency	21	11.4	3	10.7
Prepare the Household Members about Do's and Don'ts During Emergency	14	7.6	4	14.3
Don't Know/ Can't Say	94	50.8	4	14.3
Others	22	11.9	5	17.9
Total	233	125.9	40	142.9
Number of HH (N)	185		185	

Table- 4.4: Number of Preparedness Measures Known and Practiced against Earthquake (601 & 603)

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Could Say about 05 Measures	0	0.0	0	0.0
Could Say about 03 – 04 Measures	12	6.5	1	3.6
Could Say about 01 – 02 Measures	79	42.7	23	82.1
Could Not Say about any Measures	94	50.8	4	14.3
Total	185	100.0	28	100.0
Number of HH (N)	185		185	

Table- 4.5: Sources of Early Warning Information

Indicator (s)	Flood		Cyclone		All	
	Freq	Per	Freq	Per	Freq	Per
Radio	37	22.0	156	85.2	193	55.0
Television	66	39.3	102	55.7	168	47.9
Newspaper	3	1.8	2	1.1	5	1.4
Govt organization	1	0.6	3	1.6	4	1.1
Union Parisad	0	0.0	16	8.7	16	4.6
Non govt, organization	7	4.2	2	1.1	9	2.6
Speech from Imam	3	1.8	11	6.0	14	4.0
Neighbor/Relatives	63	37.5	92	50.3	155	44.2
Social Voluntary Organization	1	0.6	20	10.9	21	6.0
Miking	9	5.4	71	38.8	80	22.8
Village Disaster Committee	5	3.0	2	1.1	7	2.0
SMS/ Mobile	14	8.3	2	1.1	16	4.6
Others	40	23.8	4	2.2	44	12.5
Total	249	148.3	483	263.8	732	208.7
n	249		483		732	
Number of HH (N)	276		186		462	

* Multiple Responses

Table- 4.6: Knowledge and Practice of Responses to Different Cyclone Warning Signals

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Knowledge and Practice in Responding to Distant and Local Cautionary Warning Signals				
Do not Know/ Practice any Measures	43	23.1	94	50.5

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Watching Weather and Listening News Updates	65	34.9	35	18.8
Refrain from Visiting Distant Places	2	1.1	2	1.1
Watching the Depression or Cyclone	50	26.9	43	23.1
Remain Aware of Evacuation Routes to Shelters	13	7.0	8	4.3
Rounding up the Cattles & Livestock	22	11.8	14	7.5
Relocating Necessary Equipments for Easy Access	79	42.5	40	21.5
Others	4	2.2	8	4.3
Total	278	149.5	244	131.1
Responses to Danger Signals				
Do not take any Measure	6	3.2	30	16.1
Inform Other People about Danger Signal	60	32.3	36	19.4
Prepare to Move to Shelter	162	87.1	131	70.4
Bury Important and Valuable Items Under Floor/ Surface	33	17.7	19	10.2
Bury Dry Foods (Rice-Puff, Molasses, Biscuits etc) Under Floor/ Surface	30	16.1	14	7.5
Take the Children, Old Persons, Pregnant Mother and PWDs to Shelter	19	10.2	7	3.8
Round up the Poultry and Livestock in an Elevated Place (Killa)	10	5.4	5	2.7
Others	5	2.7	23	12.4
Total	325	174.7	265	142.5
Responses to Great Danger Signals				
Do not take any Measure	6	3.2	2	1.1
Take Refuge to Shelters	162	87.1	181	97.3
Encourage Others to Take Refuge	43	23.1	78	41.9
Others	20	10.8	2	1.1
Total	231	124.2	263	141.4
Number of HH (N)	186		186	

Table- 4.7: Knowledge and Practice of Responses to Different Flood Warning Signals

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Responses to Increasing Water Flow Approaching Danger Level				
Do not take any Measures	25	7.25	111	40.2
Watch out the Water Level Everyday	30	10.87	100	36.2
Prepare to Take the Children, Old Persons, Pregnant Mother and PWDs to Shelters	75	27.17	19	6.9
Round up the Poultry and Livestock in an Elevated Place	101	36.59	56	20.3
Collect Dry-Foods and Necessary Medicines	107	38.77	45	16.3
Make Raft (Vela)	15	5.43	28	10.1
Others	5	1.81	36	13.0
Total	353	127.9	395	143.1
Responses to Increasing Water Flow above Danger Level				
Do not take any Measure	57	20.7	72	26.1
Send the Children, Old Persons, Pregnant Mother and PWDs to Shelters	55	19.9	45	16.3
Make Necessary Arrangements for the Poultry and Livestock	101	36.6	69	25.0
Inform the UP and Local NGOs about Own Location and Situation	4	1.4	4	1.4
Watch out the Water Level Everyday	30	10.9	81	29.3
Take Protection Measures against Snakes and Insects	0	0.0	11	4.0
Ensure Fresh Drinking Water for Household Members	45	16.3	67	24.3
Appropriate Protective Measures for Women and Young Girls	47	17.0	7	2.5
Others	9	3.3	54	19.6
Total	348	126.1	410	148.6
Number of HH (N)	276		276	

Table- 4.8: Knowledge and Responses to Water Flow near and above Danger Level

	Know Proper Responses		Water Flow Near Danger Level		Water Flow Above Danger Level	
	Freq	Per	Freq	Per	Freq	Per
Do not Know/ Respond	30	10.87	111	40.22	72	26.09
Know/ Respond 01 or more Measures	246	89.13	165	59.78	204	73.91
Know/ Respond 02 or more Measures	158	57.25	90	32.61	106	38.41
Know/ Respond 03 or more Measures	77	27.90	29	10.51	28	10.14

Table- 4.9: Knowledge and Responses to Cyclone Signals

	Know Proper Responses			Practice Proper Responses		
	Cautionary Warning Signals	Danger Signals	Great Danger Signals	Cautionary Warning Signals	Danger Signals	Great Danger Signals
Do not Know/ Respond	23.7	3.2	1.1	50.5	16.1	3.2
Know/ Respond 01 or more Measures	76.3	96.8	98.9	49.5	83.9	96.8
Know/ Respond 02 or more Measures	41.4	53.8	41.4	29.6	33.3	23.7
Know/ Respond 03 or more Measures	8.1	21.0	0.0	1.6	9.1	0.5

Table- 4.10: Knowledge of Response during Earthquake

Indicator (s)	Knowledge	
	Freq	Per
Not to Take Any Measures	4	2.2
Immediately Evacuate to an Open Place	149	80.5
If Evacuation is not possible, Take Shelter Underneath Table, Bed or beside RCC Pillar etc.	95	51.4
Avoid Elevator to go Downstairs	0	0.0
Stop Gas and Electric Supply After Earthquake	15	8.1
Avoid Rushing or Panicking	20	10.8
Adopt Measures for Evacuation of the Children, Old Persons, Pregnant Mother and PWDs	35	18.9
Don't Know/ Can't Say	13	7.0
Others	17	9.2
Total	348	188.1

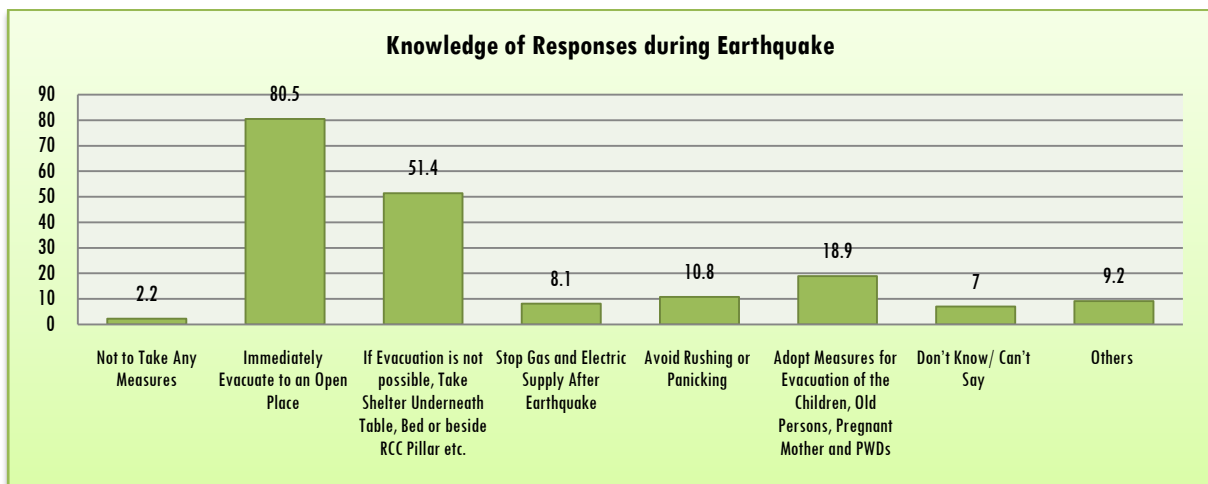


Table- 4.11: Knowledge and Practice of Mitigation Measures against Flood and, Cyclone and Storm Surge

Indicator (s)	Flood				Cyclone			
	Knowledge		Practice		Knowledge		Practice	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
Raising the Plinth above the Last Know Flood/ Storm Surge Level	154	55.8	43	26.4	128	68.8	64	71.9
High Wind Resilient House Construction	0	0.0	0	0.0	37	19.9	7	7.9
Strengthen and Repairing the Housing Structure	183	66.3	116	71.2	131	70.4	59	66.3
Raising the Plinth of the Corral/ Animal Shed	92	33.3	78	47.9	22	11.8	12	13.5
Reconstruct the Toilet in an Elevated Place	35	12.7	10	6.1	24	12.9	4	4.5
Elevate the Tubewell	38	13.8	20	12.3	4	2.2	2	2.2
Don't Know/ Can't Say	11	4.0	1	0.6	19	10.2	0	0.0
Others	24	8.7	16	9.8	8	4.3	7	7.9
Total	537	194.6	284	174.2	373	200.5	155	174.2
n	537		284		373		155	
Number of HH (N)	276		276		186		186	

Table- 4.12: Number of Mitigation Measures Known and Practiced against Flood Cyclone and Earthquake

Indicator (s)	Flood		Cyclone		Earthquake	
	Knowledge	Practice	Knowledge	Practice	Knowledge	Practice
Know/ Practice 03 or more Measures	29.0	13.0	31.2	7.0	10.3	0.5
Know/ Practice 02 or more Measures	65.6	30.8	69.4	28.5	24.9	2.7
Know/ Practice 01 or more Measure	96.0	59.1	89.8	47.8	54.6	9.2
Do not Know/ Practice any Measure	4.0	41.3	10.2	52.2	45.4	90.8
Total						
Number of HH (N)	276		186		185	

Table- 4.13: Knowledge and Practice of Mitigation Measures against Earthquake

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Strengthen and Repair the Housing Structure (Own House)	23	12.4	0	0.0
Follow Building Codes During New House Construction	42	22.7	2	8.7
Plan and Identify the Person going to Stop Gas and Electric Supply During Earthquake	16	8.6	2	8.7
Renting the House that Followed Building Codes During Construction	10	5.4	1	4.3
Collect the Phone Numbers of Life saving Service Providers e.g. Fire Service and Civil Defense, Titash Gas, Electric Supply Authority, Police, Hospitals etc.	5	2.7		0.0
Identify the Evacuation Route	44	23.8	6	26.1
Prepare the Household Members about Do's and Don'ts During Emergency	14	7.6	9	39.1
Don't Know/ Can't Say	85	45.9	6	26.1
Others	12	6.5	3	13.0
Total	251	135.7	29	126.1
Number of HH (N)	185		185	

Table- 4.14: Number of Mitigation Measures against Earthquake (604 & 606)

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Could Say about 05 Measures	0	0.0	0	0.0
Could Say about 03 – 04 Measures	19	10.3	1	4.3
Could Say about 01 – 02 Measures	82	44.3	16	69.6
Could Not Say about any Measures	84	45.4	6	26.1
Total	185	100.0	23	100.0
Number of HH (N)	185		185	

Table- 4.15: Knowledge on VDMC

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Yes	72	26.1	72	38.7	4	2.2
No	204	73.9	114	61.3	181	97.8
Total	276	100.0	186	100.0	185	100.0
Number of HH (N)	276		186		185	

Table- 4.16: Mitigation Practice by VDMC/ WDMC Based on RRAP

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Yes	29	40.3	32	44.4	4	2.2
No	10	13.9	8	11.1	181	97.8
Don't Know/Can't say	33	45.8	32	44.4	0	0.0
Total	72	100.0	72	100.0	185	100.0
Mitigation Practice Based on RRAP						
Form Volunteer Team	3	10.3	4	12.5	4	100.0
Arrange Trainings for Volunteers	6	20.7	6	18.8	2	50.0
Make People Aware of Flood/ Cyclone/ Earthquake Preparedness	23	79.3	28	87.5	0	0.0
Identifying Safe Shelters	6	20.7	6	18.8	0	0.0
Make a List of Women, Children , Old Aged and Disable People	3	10.3	1	3.1	0	0.0
Involve UDMC in Execution of RRAP	0	0.0	1	3.1	0	0.0
Don't Know/Can't say	2	6.9	1	3.1	0	0.0
Others	4	13.8	1	3.1	0	0.0
Total	29	162.1	32	150.0	4	150.0
Number of HH (N)	276		186		185	

Table- 4.17: Knowledge on UDMC in Flood and Cyclone Prone Areas

Indicator (s)	Flood		Cyclone		All Regions	
	Freq	Per	Freq	Per	Freq	Per
Yes	26	9.4	77	41.4	103	22.3
No	250	90.6	109	58.6	359	77.7
Total	276	100.0	186	100.0	462	100.0
Number of HH (N)	276		186		462	

Table- 4.18: Knowledge and Practice of UDMC Responsibilities

Indicator (s)	Flood				Cyclone			
	Knowledge		Practice		Knowledge		Practice	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
Performance During Normal Time								
No Responsibilities/ Activities					4	15.4	39	50.6
Make People Aware on Risk Reduction	19	73.1	19	24.7	11	42.3	13	16.9
Taking Measure to Reduce Risk at Community and Family	3	11.5	4	5.2	1	3.8	1	1.3
Arrange Regular Training and Workshop with UzDMC	2	7.7	3	3.9	3	11.5	2	2.6
Make Contingency Plan	3	11.5	1	1.3	1	3.8	1	1.3
Make RRAP fund	0	0.0	1	1.3	1	3.8	0	0.0
Don't Know/ Can't Say	6	23.1	58	75.3	8	30.8	24	31.2
Others	0	0.0	0	0.0	1	3.8	2	2.6
Total	26	126.9	77	111.7	26	115.4	77	106.5
Performance During Warning Phase								
No Responsibilities/ Activities					6	23.1	26	33.8
Circulate early warning	19	73.1	37	48.1	8	30.8	25	32.5

Indicator (s)	Flood				Cyclone			
	Knowledge		Practice		Knowledge		Practice	
	Freq	Per	Freq	Per	Freq	Per	Freq	Per
Supervise early warning activities	3	11.5	9	11.7	1	3.8	5	6.5
Visit Shelters and supervise emergency supports	3	11.5	2	2.6	3	11.5	0	0.0
Remove women, children and disable people according to plan	6	23.1	3	3.9	5	19.2	2	2.6
Don't know/can't say	7	26.9	36	46.8	10	38.5	25	32.5
Others	0	0.0	3	3.9	0	0.0	1	1.3
Total	26	146.2	77	116.9	26	126.9	77	109.1
Performance During Disaster								
No Responsibilities/ Activities					4	15.4	33	42.9
Rescue activities	15	57.7	28	36.4	9	34.6	16	20.8
Arrange safe water	3	11.5	11	14.3	1	3.8	0	0.0
Conduct relief works	14	53.8	11	14.3	13	50.0	2	2.6
Ensure safety of relief workers	4	15.4	2	2.6	1	3.8	0	0.0
Ensure safety of women, children and disable people	3	11.5	4	5.2	3	11.5	1	1.3
Don't know/Can't say	6	23.1	46	59.7	8	30.8	26	33.8
Others	0	0.0	0	0.0	0	0.0	2	2.6
Total	26	173.1	77	132.5	26	150.0	77	103.9
Performance After Disaster								
No Responsibilities/ Activities					4	15.4	35	45.5
Provide medical care and support to injured and ill	5	19.2	17	22.1	2	7.7	5	6.5
Make assessment of loss	2	7.7	9	11.7	1	3.8	5	6.5
Provide support to local and Gov relief activities	17	65.4	14	18.2	13	50.0	6	7.8
Support HH members' return home	0	0.0	3	3.9	0	0.0	3	3.9
Don't Know/ Can't Say	7	26.9	47	61.0	8	30.8	26	33.8
Others	0	0.0	2	2.6	1	3.8	4	5.2
Total	26	119.2	77	119.5	26	111.5	77	109.1
Number of HH (N)	276		276		186		186	

Table- 4.19: Knowledge and Practice of WDMC Responsibilities (Earthquake)

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Performance During Normal Time				
No Responsibilities/ Activities	0	0.0	0	0.0
Arrange Regular Training, Workshop, Meeting and Seminar	0	0.0	0	0.0
Forming Volunteer Groups for Emergency Response	1	50.0	0	0.0
Assess Risk at City Corporation Level	0	0.0	0	0.0
Make Contingency Plan for Earthquake Response	0	0.0	0	0.0
Make List of Women, Children, Aged People and PWDs	1	50.0	0	0.0
Make and Implement Short and Medium Term Contingency Plan to Reduce Vulnerability and Enhance Capacity	0	0.0	1	50.0
Don't Know/ Can't Say	1	50.0	1	50.0
Others	0	0.0	0	0.0
Total	2	150.0	2	100.0
Performance During Earthquake				
No Responsibilities/ Activities				
Search and Rescue Activities	0	0.0	1	50.0
Arrange Safe Water Supply	1	50.0	0	0.0
Adopt Measures to Prevent the Spread of Water Borne Diseases Including Diarrhoea	0	0.0	0	0.0
Conduct Relief Works	0	0.0	0	0.0

Indicator (s)	Knowledge		Practice	
	Freq	Per	Freq	Per
Coordinate Relief Distribution Works	0	0.0	0	0.0
Ensure the Safety of Relief Workers	0	0.0	1	50.0
Adopt Measures to Prevent Environmental Degradation	1	50.0	0	0.0
Ensure Safety of Women, Children and PWDs	0	0.0	0	0.0
Facilitate the Transfer of Necessary Items to Local People	0	0.0	1	50.0
Don't know/Can't say	1	50.0	0	0.0
Others	0	0.0	0	0.0
Total	2	150.0	2	150.0
Performance After Earthquake				
No Responsibilities/ Activities	0	0.0	0	0.0
Provide Medical Care and Support to Injured and Ill People	0	0.0	2	100.0
Assess the Los/ Damage Situation according to DMB	0	0.0	0	0.0
Collect and Mobilize Supports/ Resources from Local, Government and Donor Sources and Distribute Among the Affected People	0	0.0	0	0.0
Submit the Relief Distribution Report to DMB and Government Agencies	0	0.0	0	0.0
Support Affected People to Return Home			1	50.0
Don't Know/ Can't Say	2	100.0	0	0.0
Others	0	0.0	0	0.0
Total	2	100.0	2	150.0
Number of HH (N)	185		185	

Table- 4.20: Representations of Excluded Groups in the UDMC/ VDMC

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Yes	20	7.2	6	3.2	0	0.0
No	256	92.8	180	96.8	185	100.0
Total	276	100.0	186	100.0	185	100.0
Number of HH (N)	276		186		185	

Table- 4.21: Knowledge of Meeting Frequency of UDMC/ VDMC

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Frequency of Meeting During Regular/ Normal Time						
Never	0	0.0	0	0.0	0	0.0
Once a month	15	75.0	1	16.7	0	0.0
Once in three months	0	0.0	1	16.7	0	0.0
Once in six months	0	0.0	0	0.0	0	0.0
Once a year	0	0.0	0	0.0	0	0.0
Don't Know/Can't say	3	15.0	2	33.3	0	0.0
Others	2	10.0	2	33.3	0	0.0
Total	20	100.0	6	100.0	0	0.0
Frequency of Meeting During Warning Phase						
Never	0	0.0	0	0.0	0	0.0
On need basis	3	15.0	3	50.0	0	0.0
Once everyday	0	0.0	0	0.0	0	0.0
Three times a week	1	5.0	0	0.0	0	0.0
Once a week	2	10.0	0	0.0	0	0.0
Don't Know/Can't say	3	15.0	1	16.7	0	0.0
Others	11	55.0	2	33.3	0	0.0
Total	20	100.0	6	100.0	0	0.0
Frequency of Meeting During Disaster						
Never	0	0.0	0	0.0	0	0.0
On the basis of need	3	15.0	1	16.7	0	0.0

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Once everyday	1	5.0	0	0.0	0	0.0
Three times a week	1	5.0	0	0.0	0	0.0
Once a week	1	5.0	0	0.0	0	0.0
Don't Know/Can't say	3	15.0	2	33.3	0	0.0
Others	11	55.0	3	50.0	0	0.0
Total	20	100.0	6	100.0	0	0.0
Frequency of Meeting after Disaster						
Never	0	0.0	1	16.7	0	0.0
On the basis of need	6	30.0	1	16.7	0	0.0
Once everyday	0	0.0	0	0.0	0	0.0
Three times a week	0	0.0	0	0.0	0	0.0
Once a week	0	0.0	0	0.0	0	0.0
Don't Know/Can't say	3	15.0	2	33.3	0	0.0
Others	11	55.0	2	33.3	0	0.0
Total	20	100.0	6	100.0	0	0.0
Number of HH (N)	276		186		185	

Table- 4.22: Participation of Excluded Groups in UDMC Meetings

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Yes	17	85.0	2	33.3	0	0.0
No	3	15.0	4	66.7	0	0.0
Total	20	100.0	6	100.0	0	0.0
Number of HH (N)	276		186		185	

Table- 4.23: Participation Frequencies of Excluded Groups in UDMC/ VDMC Meetings

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Frequency of Participation in Meeting During Regular/ Normal Time						
Never	0	0.0	0	0.0	0	0.0
Once a month	14	82.4	0	0.0	0	0.0
Once in three months	1	5.9	1	50.0	0	0.0
Once in six months	0	0.0	0	0.0	0	0.0
Once a year	0	0.0	0	0.0	0	0.0
Don't Know/Can't say	1	5.9	0	0.0	0	0.0
Others	1	5.9	1	50.0	0	0.0
Total	17	100.0	2	100.0	0	0.0
Frequency of Participation in Meeting During Warning Phase						
Never	0	0.0	0	0.0	0	0.0
On need basis	5	29.4	0	0.0	0	0.0
Once everyday	0	0.0	0	0.0	0	0.0
Three times a week	0	0.0	0	0.0	0	0.0
Once a week	1	5.9	0	0.0	0	0.0
Don't Know/Can't say	0	0.0	0	0.0	0	0.0
Others	11	64.7	2	100.0	0	0.0
Total	17	100.0	2	100.0	0	0.0
Frequency of Participation in Meeting During Disaster						
Never	0	0.0	0	0.0	0	0.0
On the basis of need	4	23.5	0	0.0	0	0.0
Once everyday	1	5.9	0	0.0	0	0.0
Three times a week	0	0.0	0	0.0	0	0.0
Once a week	1	5.9	0	0.0	0	0.0
Don't Know/Can't say	0	0.0	0	0.0	0	0.0

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Others	11	64.7	2	100.0	0	0.0
Total	17	100.0	2	100.0	0	0.0
Frequency of Participation in Meeting after Disaster						
Never	0	0.0	1	50.0	0	0.0
On the basis of need	5	29.4	0	0.0	0	0.0
Once everyday	0	0.0	0	0.0	0	0.0
Three times a week	0	0.0	0	0.0	0	0.0
Once a week	0	0.0	0	0.0	0	0.0
Don't Know/Can't say	0	0.0	0	0.0	0	0.0
Others	12	70.6	1	50.0	0	0.0
Total	17	100.0	2	100.0	0	0.0
Number of HH (N)	276		186		185	

Table- 4.25: Participation of Excluded Groups in Decision Making

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Always	6	35.3	0	0.0	0	0.0
Sometimes	10	58.8	2	100.0	0	0.0
Never	1	5.9	0	0.0	0	0.0
Total	17	100.0	2	100.0	0	0.0
Number of HH (N)	276		186		185	

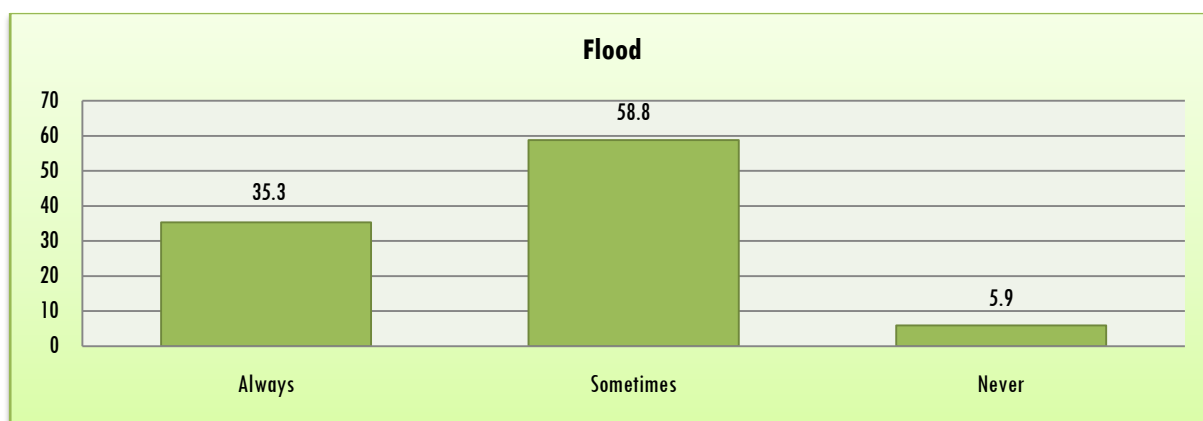


Table- 4.26: Acceptance of Decisions from Excluded Groups

Indicator (s)	Flood		Cyclone		Earthquake	
	Freq	Per	Freq	Per	Freq	Per
Yes	9	56.3	1	50.0	0	0.0
No	3	18.8	0	0.0	0	0.0
Don't Know/Can't say	4	25.0	1	50.0	0	0.0
Total	16	100.0	2	100.0	0	0.0
Number of HH (N)	276		186		185	

Table- 4.27: Information of the UDMC (NARRI Baseline Survey Areas)

Sl	District	Upazilla	Union	Total Participants	Men Inc disable	Women Inc disable	Number of Disable
1.	Sirajgonj	Sadar	Belkuchi	35	32	3	3
			Kaliahoripur	37	30	7	1
2.	Jamalpur	Sarishabari	Pogaldigha	32	26	6	1
			Awona	31	23	8	2
3.	Khulna	Dakop	Kumarkhola	37	29	8	1

			Sutarkhali	37	25	12	0
4.	Satkhira	Shamnagar	Burigualin	32	28	4	1
			Padmapukur	35	29	6	1
			Char Nasirpur	30	24	6	1
5.	Faridpur	Faridpur Sadar	Narkellbariya	33	28	5	1
			Char Harirampur	33	29	4	1
			Dhalua	39	34	5	0
6.	Barguna	Sadar	Noltona	38	32	6	0
			Nakalia Haturiya	33	27	6	0
7.	Pabna	Bera	Fulchari	23	19	4	0
8.	Gaibandha	Fulchari	Uriya	35	30	5	1