Community Based Approaches to Disaster Risk Reduction in Bangladesh

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Abstract

Bangladesh is disaster prone country and community participation is most effective way to cope up disaster risk. As a disaster prone country every year thousands of live and resources has been destroying at the time of tornados, river bank erosions, cyclones, tidal bores, landslides and earthquakes etc. Every year those kind of natural hazard are affecting in our country. Basically, Bangladesh is surrounded by thousands of river, Himalayan range andBay of Bengal are creates punitive situation for thelarge number of people in theapart of Southern. For the sustainable development, we need to minimize impact of natural disaster. On the others hand prevention of rate of natural disasters prejudiced by natural causes may be impossible but we can reduced it by proper planning, management, human cooperative participation and through awareness. For the realization of this situation, the government of Bangladeshlooks disaster management plan and program for the mitigation of disaster and foreign agency like EU, UN, JICA etc. doing work with government and also with national NGO to minimize the disaster risk for sustainable development. This study analyzes the approaches to disaster management bymasscommunity participation andalso has some recommendation after disaster based on literature review.

Keyword: Risk Reduction, Community Participation, Disaster management, Sustainable development.

1.0. Introduction

Bangladesh is under development and disaster prone country. The area of this country is 148,460 sq km[1] and total population 157 million[2]. Due to geographic location Bangladesh suffering various types of natural Disaster like cyclone, flood, landslide drought etc regularly and frequently. For the purpose damaging economic infrastructure, livelihoods, assets and employments. Disaster also introduced by human like climate change problem.

It's already effected and making sea level change. Researcher already predict at the 21 century possible sea level will riseof 0.3 – 2.5 m (2017)[3]. As a result low land deltaic south Asian country will go under water in near future. Due to cause of natural disaster economic losses total about US $3,313 billion at the period of 2000-2017 (**Fig.1**) all over the world and millions of people lost their living house [4]. Recent eras most developing world has undergone momentous changes for the disaster management, especially reduction of human lives loss as a consequence climate change. It's not only hampering the specific country but also affecting all over the world. In the situation Bangladesh taking extreme experience regarding of climate change.

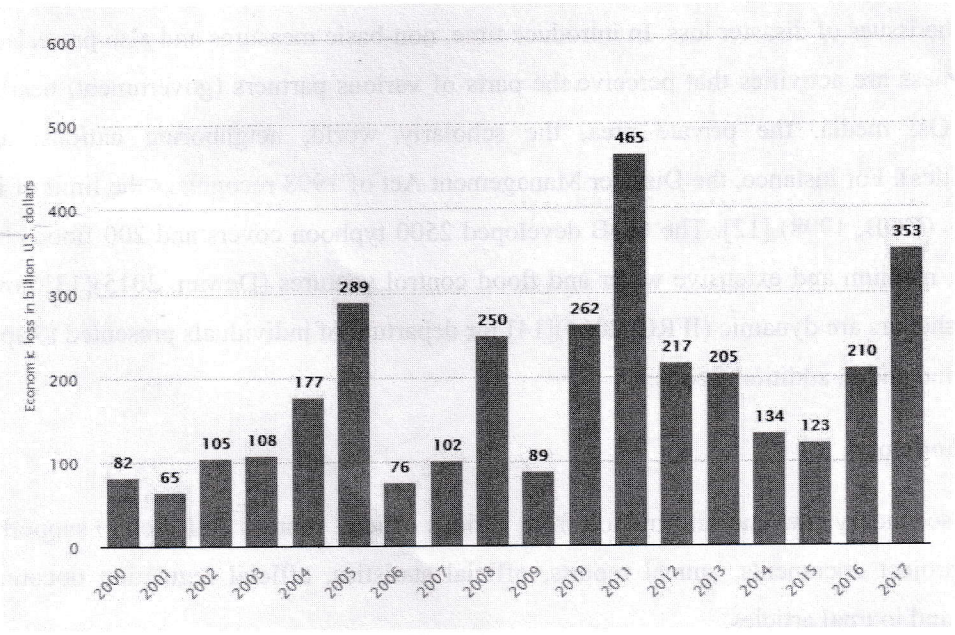

Fig. 1: Source: Statista, Global economic losses from natural disasters 2000-2017

Bangladesh is located in coastal areas and most of the cyclone are hunted in the coastal zone. It's claimed millions of lives and caused the huge amount loss at the period of 1960 and 2017. 1970 cyclone took 500000 human life and damaged one billion US dollars property, another cyclone hited on coastal zone at 1991 and its takes .14 Million people lost lives and damage more than two billion of dollar property. 1960, 1961,1963,1964,1965,1966,1969,1988 to 2017. Also took millions of life and billions of dollarproperty damages. At the year of 1998, hunted the flood of the 52 districts of the country, its took 1517 human lives and 1998 flood took 918 lives. Those flood damages billions of dollar property and also hamper the Bangladesh economy at the same time. Another flood at the season of 2004, which is the reason for an economic misfortune of about US $ 2.3 Billion [5-9]. As far as GDP, this misfortune was not as much as what the world's poorest nations

looked amid the 1985– 99 debacles – lost 13.4% of consolidated GDP. In any case, the misfortune in Bangladesh added up to a tremendous advance in reverse being developed endeavors [10]. The floods in 2007 immersed around 36% of the aggregate region in 57 out of 64 areas and influenced no less than 4.5 million individuals.Tornadoes of 14 April, 1969, 11 April, 1974, 01 April, 1977 and 26 April, 1989 to 2017 caused restricted destruction, both regarding lives and properties [11]. In view of the outrageous weakness of the general population different administrations of the legislature of Bangladesh have built up an institutional foundation to manage common perils and their potential misfortunes.

Customarily, the catastrophe administration approach in the nation has been neglected to successfully manage the issues of disaster loss. In introduce time, non-basic measures and also pre-calamity relief and readiness are activities that perceive the parts of various partners (government, nearby groups, NGO/CBOs, media, the private area, the scholarly world, neighboring nations, and donor communities). For instance, the Disaster Management Act of 1998 recognizes the limit of influenced populaces (GOB, 1998) [12]. The GOB developed 2500 typhoon covers and 200 flood shelters and 482 little, medium and extensive water and flood control ventures (Dewan, 2015)[13] however just 99 flood shelters are dynamic (IFRC, 2014)[14] for departure of individuals presented to approaching violent wind and in addition floods.

2.0. Methodology

Relevant secondary data and information from various official sources collected to support the study such as project documents, annual reports, official statistics, official regulation documents, grey literature and journal articles.

2.1. Conceptual framework

2.1.1. Disaster

Disaster is a sudden, calamitous, distressing, or ruinous effects of a disastrous event by which the working of a general public or a group including far reaching human, material, financial or economical condition etc. are genuinely interrupted. The ability to adapt utilizing its own particular assets of the affected society or group is surpassed by it.

2.1.2. Disaster management

Disaster management is a process of getting prepared to improve the impacts and to mitigate the risk of disaster involving emergency operation and rebuilding the society after the occurrence of devastating disaster (Tan, 2009).

It is associated with various factors and it is obvious for us to have good understanding about the disaster. Hazard is characterized as the likelihood of the event of an unsafe marvel at a given place inside a given timeframe.Then again, vulnerability is characterized as the level of defenselessness to a peril, or the absence of ability to ingest the effect of a risk and recoup from it [15].Hazard is dependably not disaster but rather when the structural and non-structural frameworks of influenced zone are excessively flimsy, making it impossible to adapt to these dangers at that point risk transform into disasters. Fundamentally, peril like flood, cyclone, dry spell, tsunami and so forth are meteorological hazard yet as indicated by UNDP this kind of danger get the state of calamity when vulnerable populaces don't have the capacity to battle it and who can't adapt to it [16]. The administration alone can't and won't have the capacity to legitimately oversee and handle a wide range of disasters with its apparatus without dynamic cooperation by the general population of any nation, a common theory given by policy makers, experts and professionals.

Failures of top-down effective disaster management approach to reduce the risk of disaster are the evident of that notion. As a result, various researchers and stakeholders feel that the opportunity has already come and gone to receive another technique that will include vulnerable individuals specifically in the arranging and execution of mitigation, preparedness, response, and recovery measures. Because these groups are the best to judge their own vulnerability and they are fit for settling on the best choices with respect to their prosperity. This theory, includes nearby level individuals, pioneers and group to give important administrations and co-ordinations to their casualties amid and after debacle has been energized both in the created and creating nations and propelled the age of Community-Based Disaster Management (CBDM) methodology.

2.1.3. Emergency response

Emergency response incorporates the basic administrations and exercises that are attempted amid the underlying effect or in the consequence of a disaster. It also includes protection of properties from further damage and saving of lives.

2.1.4. Vulnerability

Vulnerability alludes to an arrangement of overall and considerable conditions that antagonistically influence the capacity of a man, gathering or group to counteract, alleviate, plan for and react to dangerous occasions and recuperate from effect of natural hazards which is connected to physical factors, as well as to a scope of social, monetary, cultural and political elements.

2.1.5. Preparedness

Preparedness is an expansive term that covers the exercises planned in premonition of a catastrophe to guarantee that fitting and viable move is made before to adapt to the disaster and to lessen the loss of lives and properties. These measures incorporate the disaster plans, the preparation of responders, the upkeep of human, material and money related assets and the foundation of government funded instruction and data framework.

2.1.6. Prevention

There is a familiar saying "prevention is better than cure" that incorporates the measures taken to hinder the event of a disaster. Regardless, it isn't conceivable to keep the event of catastrophic events completely yet the degree of its harms can be diminished.

2.1.7. Recovery

In normal sense, recovery may be defined as getting back of something that has been lost amid the event of any odd circumstance. But, in disaster management it alludes to the exercises that are taken after the underlying effect to create financial and ecological conditions that are decimated by disaster for accomplishing ordinariness, that is, calamity recuperation exercises are identified with the restoration of pre-catastrophe social and monetary routine arrangement of money related and different administrations to the casualties and to repair of annihilated properties.

2.1.8. Mitigation

Minimization of the dangerous impacts of hazards and diminishing the magnitude of disaster through some important exercises that can happen previously, amid and result of debacle and cover of all periods of disaster management is called mitigation [17]. In brief flood, cyclone, drought, tidal surge, tornado, chilly wave, stream disintegration, arsenic contamination of ground water are assented as disaster when it transforms into unsafe occasion and influences a specific domain and the influenced individuals of that zone who are not ready to adapt to it. In actuality, disaster management is considered as an approach that joins prevention, preparedness, mitigation, emergency response and recovery to adapt to hazardous circumstance made by previously mentioned natural disasters [18].

2.1.9. Major Disasters and their consequences in Bangladesh

Bangladesh, a low-lying deltaic country in South Asia confined by a lot ofrivers system with long coastline, is significantly exposed to different sorts of destructive natural disasters

which negatively impacts 136.7 million people inside its 147,570 sq. km area. The country has experienced 200 disastrous occasions causing loss of more than 600,000 lives, a considerable number of domesticated animals and leaving prolonged mischief to property, quality of life and livelihoods since the freedom in 1971.

Table.1: Different Types of Natural Disasters Occurred in Bangladesh

Year	**1960**	**1961**	**1963**	**1964**	**1965**	**1966**	**1969**	**1970**	**1973**	**1974**	**1985**
Number of Death	8119	11466	11520	196	20152	850	75	500000	183	50	11069
Wind Speed	210	146	203	NA	210	146	NA	223	122	162	154

Year	**1986**	**1988**	**1989**	**1990**	**1991**	**1994**	**1995**	**1996**	**1997**	**1998**
Number of Death	12	9590	573	132	138958	170	172	545	410	253
Wind Speed	100	162	NA	102	225	200	100	70	225	112

Year	**2007**	**2008**	**2009**	**2013**	**2015**	**2016**	**2017**
Number of Death	4234	15	197	17	132	25	24
Wind Speed	250	80	95	85	75	NA	117

Source: Wikipedia and Bangladesh Meteorological Department 2017

3.0. Damage and Losses

The southwest coast of Bangladesh was the main focus of Cyclone Sidr. Bagerhat, Barguna, Patuakhali and Pirojpur- the four out of thirty districts were assigned as "Severely affected" due to the damage and loss from the Sidr. Khulna, Madaripur, Shariatpur, Barishal, Bhola, Satkhira, Jhalakathi and Gopalgonj were the eight moderately affected districts. About one million people were seriously affected and 4 out of 2.3 million family units were affected to some degree by the effects of this devastating Cyclone.

Table.2: presents an overall summary of the damage and losses

Sector	Sub-Sector	Disaster Effects (BDT Million)			Disaster Effects (US $ Million)		
		Damage	**Losses**	**Total**	**Damage**	**Losses**	**Total**
Social Sectors		**4482**	**1453**	**5934**	**65**	**21.1**	**86**
	Health and Nutrition	169	1038	1206	2.4	15	17.5
	Education	4313	415	4728	62.5	6	68.5
Infrastructure		**71064**	**2130**	**73194**	**1029.9**	**30.9**	**1060.8**
	Housing	57915		57915	839.3		839.3
	Transport	8006	1725	9731	116	25	141
	Electricity	576	359	935	8.3	5.2	13.6
	Water and Sanitation	157	46	203	2.3	0.7	2.9
	Urban and Municipal	1696		1696	24.6		24.6
	Water Resource Control	4918		4918	71.3		71.3
Productive Sectors		**1734**	**32083**	**33817**	**25.1**	**465**	**490.1**
	Agriculture	1472	28725	30197	21.3	416.3	437.6
	Industry	262	2035	2297	3.8	29.5	18.2
	Commerce		1258	1258		18.2	0.9
	Tourism		65	65		0.9	6.1
Cross-Cutting Issues		**420**	**0**	**420**	**6.1**	**0**	**6.1**
	Environment	420		420	6.1		6.1
TOTAL		**79904**	**35665**	**115.569**	**1158**	**516.9**	**1674.9**
Sourse: Estimates by JDNLA Team							

The quantity of passings caused by Sidr is evaluated at 3,406, with 1,001 as yet absent, and more than 55,000 individuals supporting physical wounds. Enhanced counteractive action measures, including an enhanced anticipating and cautioning framework, seaside afforestation ventures, tornado sanctuaries, and banks are credited for bringing down setback rates than what

might have been normal, given the seriousness of the tempest. A large portion of the devastation and related social and financial misfortunes came about because of the unforgiving tempest conditions and the consequent disappointment of a broad bank framework.During the occurrence of Cyclone Sidr, the Government of Bangladesh, accompanied by worldwide specialists, embraced a complete harm and loss, and requirements evaluations to find out the degree of the harm caused by the tempest, and to characterize an extensive and achievable recuperation design. The Joint Damage, Loss, and Needs Assessment (JDNLA) evaluated the summation of damage and losses to be Bangladesh Taka (BDT) 115.6 billion (US$ 1.7 billion) caused by the cyclone. **Table.2** displays a general rundown of the harm and misfortunes separated by sectors.

3.1. Significant paddy losses at sub-national level

3.1.1. Floods in March and April 2017

Serious flash floods over northeastern piece of the nation were activated by the substantial rains in late March and early April. It affected approximately 850 000 households and caused severe damage to food crops, housing and infrastructure, including bridges and roads. Sylhet, Moulvibazar, Sunamgonj, Habiganj, Netrokona and Kishoreganj were the most affected districts. Official estimates says that about 220 000 hectares of products, for the most part to the prepared to-be gathered "boro" paddy crop in low-lying territories were severely damaged by the floods in April. The flood influenced regions represent under 1 percent of the aggregate national wheat generation and for this reason the floods marginally affected the general 2017 wheat yield.

3.1.2. Floods in July 2017

Heavy monsoon rains in late June and July caused the fundamental northern and northeastern streams of Bangladesh to flood, which triggered flash floods and landslides and it brought about far reaching immersions in the low-lying territories. Sylhet and Moulvibazar were just recovering from the April floods and then they faced the floods in July and were affected the most. Rangourm, Kurigram, Sirajgonj, Jamalpur, Lalmonirhat, Bogra, Nilphamari and Gaibandha were also affected. The official estimates says that 1.6 million people (some 338 500 households) were affected, 100 000 houses were damaged, schools, roads, bridges and embankments were destroyed. “Aus” paddy crop (represents about 7 percent of the annual output) was in late development stage, the planting of “aman” (represents about 38 percent of the annual output) had just started at the time of floods. The Government assessments reported that about 40 000 hectares of cropped land was immersed and thus it is said that the effect of the floods on standing crops was constrained.

3.1.3. Floods in August 2017

Heavy rains in August again hit the northern part of the country and it caused rivers to overflow. It resulted in severe floods in 31 out of the country's 64 districts. The information from the Network for Information, Response and Preparedness Activities on Disaster (NIRAPAD) of Bangladesh states that the livelihoods of about 6.8 million people were affected and housing and infrastructure were significantly damaged by the flood. According to preliminary estimate, people lost 16 000 hectares of crops and this flood also damaged 560 000 hectares of standing crops partially. "Aman" rice paddy in low-lying zones is probably going to be influenced the most, however an extensive assessment of the August flood damage to food crops isn't accessible yet.

4.0. National Plan for Disaster Management 2010-15 [19]

As indicated by the National Plan for Disaster Management 2010-15, the vision of the legislature is to diminish the danger of individuals, particularly poor people and the distraught, from the impacts of regular, ecological and human incited risks, to a sensible and adequate helpful level, and to have set up an effective crisis reaction framework equipped for taking care of substantial scale catastrophes. The Plan envisages a group of broad-based strategies:

1. The management of both risks and consequences of disasters would be involved by the disaster management. Counteractive action, crisis reaction and post-catastrophe recuperation would also be included.

2. The local community will be involved for readiness program for securing lives and properties, which would be a noteworthy core interest. Nearby government bodies will also be involved, which would be an essential part of the strategy. It is self-reliance, which should be the key for preparedness, response and recovery.

3.It should provide a high need to non-auxiliary moderation measures, for example, community disaster preparedness preparing backing and public awareness; a coordination of basic alleviation with non-basic measures would be required.

4.1. The scope of the Plan includes

a. Break down the normal and man-made calamity dangers, which includeenvironmental change to their kin and society, economy and framework, so that it can be identified thatwhere and when these dangers are probably going to happen and in what recurrence.

b. Recognize by additionally nitty gritty investigation who and what are vulnerable against the event of these threats and how these are probably going to be influenced by them.

c. Look at what measures are possible to avoid event of the disaster events, (probably not going to be conceivable on account of the natural phenomenon however conceivable on account of man-made debacles and ecological debasement), what should be possible to alleviate the impacts of disasters and environmental degradation can be set up in suspicion of these.

d. Inspect where duties regarding counteractive action, alleviation and preparedness planning and activity should lie in the Government, non-government associations (NGOs) and the private division.

e. Make arrangement in the national spending plan for subsidizing of exercises, which identifies with Disaster Reduction and a possibility store to meet the prompt needs of catastrophe help, at all regulatory levels of the organization.

f. Make sure that the costs of calamity help and post-fiasco recuperation are supervised and encouraged by a high state board of trustees to keep up a vital separation from duplication or waste over the scope of donor agencies, including government, national and widespread NGOs and the private fragment.

g. Make sure of forming a compelling framework inside Government, which can connect and arrange the procedures of planning and the administration of sustainable development, environmental management and fiasco lessening.

5.0. Disaster Management Practices in Bangladesh Perspective

Disaster management in independent Bangladesh has undergone a complex process of development that's why it develop a workable system of disaster management as Bangladesh is one of the worst victim of natural disasters. In Bangladesh, disaster management program is the mix of both the improvement of physical framework and non-basic practices [20]. Development of physical infrastructure means construction of flood and cyclone shelters for emergency resort, and building of flood protection embankments, sluice gates, waste channel, and controllers as security measures against immersion by tsunamis, storm-surges and flooding, and foundation of crisis task focus.Action and strategies, preparedness and co-ordination among the actors are mainly involved in the non-structural practices. It is a procedure of adoption associated with national disaster management policy, disaster management enactment, arrangement of training program and workshop disaster management plan;, and introduction of institutional framework of disaster management with

the foundation of Disaster Management Bureau, efoundation of boards and advisory groups at the national, district, upazila and association levels [21].The Government of Bangladesh (GoB) has taken some initiatives to reduce disaster intensity likeawareness raising effort, preparing program in a debacle readiness, community medical aid, cyclone shield support, establishment of drinking water, sustenance storerooms, social wellbeing program, development of cyclone and flood covers, erection of surge insurance dikes, adoption of catastrophe administration design, advancement of institutional structure and improvement of solid, straightforward and reasonable cautioning framework that is connected to neighborhood, territorial and national data framework.

5.0.1. Aim of Community-Based Disaster Management in Bangladesh

Alleviating vulnerabilities and strengthening individuals' ability to manage risks and adapt to fiascos is the main vision of CDBM. The community will able to address the problems related to disaster and mitigation measures in the existing system for disaster management in the country that covers activities at normal times for important disaster management aspects like mitigation/prevention, preparedness, response and recovery. The local capacity and preparedness measures will be improved by developing program and support from the group in arranging and executing the projects.

5.0.2. Considerations for implementation of CBDM

According to Yodmani the consideration are:

1. The central role inlong-term and short-term disaster management belongs to the local community and thus the focus must be on them in case of disaster management.
2. CBDM must increase a community's capacities and their resources to reduce Disaster risk or vulnerability, and coping strategies should also be improved and strengthened.
3. Linkages to the development process should be established by CBDM and they should also improve the personal satisfaction of most by far of the needy individuals and of the common habitat.
4. CBDM adds to individuals' strengthening and it influences their lives. They can appreciate the advantages of a sound domain.
5. The role and interests of community must be recognized, because it is a key resource in disaster reduction.
6. A multi-sectorial and multi-disciplinary and trans-disciplinary approach must be applied.

7. Being an including and dynamic structure, the execution of CBDM must be observed, assessed and adjusted to fuse more up to date components.

5.0.3. Stumbling blocks in Community Participation

From the study it is proved that without simultaneous participation of community it is very painstaking to cope with natural disaster but customary reasoning of group, bureaucratic state of mind of government authorities, shortage of assets and pervasive socio-social standards and values made it extremely gigantic task. The major hindrances that pave the way of community participation in disaster management are outlined below:

a. Primitive notion that distribution of relief materials among the victims is the solely duty of government as well as deliberate agencies during the period of disaster. But this culture must be eradicated from the society.

b. The associated administrators are not willing to acknowledge the conclusion of illiterate however savvy and experienced nearby individuals in strategy cycle.

c. Financial assistance is fundamental component of disaster management though Bangladesh endorsed yearly portion of US$ 12 million yet this sum isn't sufficient [22]. Moreover, the national and neighborhood deliberate organizations have lack of satisfactory money related assets to operate community based program because of shortage of assets.

d. Nonattendance of basic gathering, absence of co-appointment, disarray of locale of work, absence of shared trust and regard and so on are constraints of community participation.

Ladies would prefer not to leave their habitation and take protection in people in general structures amid disaster arrangement of social course of action is the establishment of purdah or female isolation. Routine with regards to purdah limits the portability of women and confinement of sanitation facilities for women out in general structures is another limit. That are the great barrier to women participation in disaster management.

6.0. Community coping strategy to disaster

To face the various disasters community undertake multi steps to cope with the severity of disaster individually. The Disaster Management Bureau set up first milestone by conducting research on the issue and implementing the objectives to reduce disaster risk and loss. Moreover, six workshops on disaster preparedness were organized by DMB for community leaders in the year of 2003.

6.0.1. Creation of public awareness

This tool is very important in disaster management because there are some superstitions about women participation that can be eradicated by creating awareness among the people. In June 2000, Pulong-Pulongsa (barangay gatherings) was begun in to engage the generalpopulation.It has been intended to set up a community radio stationto empower the people through information dissemination and informative/educational programs. Programs on cultivating methods and new innovations, medicinal services, job, and an intuitive program that would fill in as a stage for community-local government discourse and money related help has been looked for from and submitted by Congressman Mon fort.

6.0.2. Proper utilization of climate information

Information on climate is very essential for preparedness and reducing disaster related losses. Convenient climate determining is the pressing need as a consequence community radio station was set up to communicate time-relevant and exact data and warnings amid crises and specialized help is given by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). Community-based flood forecasting and warning in collaboration with PAGASA help in recognizing risks and measures to decrease the danger.

6.0.3. Appropriate prevention and mitigation measures

The allotment of National government assets to LGUs is controlled by an equation that successfully expects to enhance the personal satisfaction at all thickly populated zones granting half of the assets as indicated by populace measure, 25% via arrive territory and 25% separated similarly between every single (neighborhood legislature of similar classifications [23]. Nonetheless, the World Bank contends that 'the sums exchanged bear no important relationship to the real cost ramifications of lapsed capacities. Nor do they consider the limit of nearby governments is to raise their own particular assets or to complete regressed capacities. Shifting levels of financing are really drawn down contingent upon the rate of disasters in a specific year in light of the fact that distinctive LGUs confront differing use requests as to catastrophic events at specific focuses in time, depending both on their defenselessness to disasters and LGUs feel obliged to utilize such subsidizing in full cost-recuperation extends, a training which could oppress interest in a fiasco anticipation and relief ventures. Moreover, land can be exempted from arrive charges which gather to LGUs if catastrophic events legitimately or physically counteract change, utilize or development of that land [24].

6.0.4. Showing Mutual respect

Keeping in mind the end goal to guarantee co-ordination, appropriate administration, general prosperity of affected individuals every single civil agencies and military organization must have respect for each other.

6.0.5. Timely communication

For achieving the desired fruit or goal, legitimate and opportune correspondence amongst civil and military organization is a genuinely necessary tool.

6.0.6. Regular basis specialized Training

Without training, it is hard to make out the mitigation measures and annual preparedness among the affected people even though most of them are illiterate.

7.0. Conclusion and Recommendations

Disaster management in Bangladesh is an important phenomenon for the sustainable and meaningful development as Bangladesh is a natural disaster prone country by its geographical location. Government alone cannot cope with the disaster for this need community participation with their opinion and ensuring interest in each phase of strategy cycle, rose on the scenery of prevailing methodology however it is extremely hard to anticipate the approaching risk and the financial conditions and the logistic support facilities. But there are some problems related to community participation which must be solved by social workers as they have broadened organizes in groups, they know about group assets and probability of neighborhood pioneers and are furnished with important learning for tending to complex circumstance resulting in crisis at local and national levels. Because of climate change more trained as well as devoted social worker need for post disaster situation. Moreover, more funds have to be allocated in disaster management sector by the government. Government authorities need to surrender bureaucratic disposition and must be more individuals amicable so that CBDM program can become a successful. Nonstructural measures should be enhanced for flood management. Weather forecasting and cautioning framework ought to be sufficiently arranged and timely done. For this need expert and trained personnel which can be generated by training on regular basis. Seminars, consultations and public discussions are necessary tools for providing education and counseling services. Giving emphasis on building more strong infrastructures for shelter during disaster. At the end, it is urgent to bring disaster prone areas under feasible communication system for the reduction of disaster period losses.

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