



Policy Brief (Draft)

Recovery Strategy: The demand of time for Bangladesh

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EXECUTIVE SUMMARY

An inadequate or failed disaster recovery may result in secondary disaster, derails development gains, increase vulnerability, and create chronic risk conditions in case of recurrent one. According to UNDRR 2020; the global trend shows that in the short-term, disaster management agencies have succeeded in saving lives through better preparedness through dedicated staff and volunteers, the number of affected people (+32%) and economic loss show a sharp increase (+118%). A similar trend has also been observed in the case of Bangladesh. The country has ground-breaking success in managing the disaster, in particular, preparedness and humanitarian response for saving lives from recurrent disasters which are particularly true for disaster risk reduction efforts in the coastal area. However, while the loss of life has been reduced significantly, the economic loss and damage have increased manifolds over the decades, particularly because the rapid development activities and urbanization are falling under a new threat of damages and vulnerability under the amplified disaster events. Under this backdrop, The National Resilience Programme has undertaken this initiative of a cutting-edge study of reviewing the current practices to devise a recovery strategy and action

plan for the medium to mega-disasters coupling recovery and mainstream developments.

As the first step of methodology, pre-disaster baseline data has been collected through secondary literature and field surveys. The study performed Post Disaster Need Assessment (PDNA) guided by The Global Facility for Disaster Reduction and Recovery (GFDRR). The PDNA comprises of the assessment of disaster effects (Damage Assessment of infrastructure and physical assets, Disruption to the production of and access to goods and services, Governance and decision-making processes, Increased risks and vulnerabilities) and disaster impacts (macro-micro level economic impact and Human development impact). The flood 2020 and cyclone Amphan effects and impacts has been assessed basically through the review of secondary literature, FGD, KII and Semi- structured survey in the study area. The sectoral needs and prioritization process have been facilitated by several science-based tools developed at IWFM, BUET.

To address the future recovery issues and thus this study will develop a generic Pre-disaster Recovery Plan (PDRP) which is expected to guide future recovery efforts in different phases with improved recovery outcome.



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INTRODUCTION

BACKGROUND

Bangladesh has groundbreaking success in managing the disaster, in particular, preparedness and humanitarian response for saving lives from recurrent disasters. It has globally become a role model in reducing the loss of life due to disasters over the decades through strong institutional settings with capacity-building initiatives through developing policy, plan, manuals, guidelines, orders and acts. This has been particularly true for disaster risk reduction efforts in the coastal area, with the coastal Cyclone Preparedness Programme (CPP) being the best example. However, while the loss of life has been reduced significantly, the economic loss and damage have increased manifolds over the decades. One of the major reasons for this is limited, uncoordinated recovery efforts, in the absence of a comprehensive post-disaster recovery planning framework or strategy. Disaster recovery in Bangladesh is always handled in a scattered manner with inadequate attention. Recovery and reconstruction have not been effective because of the absence of an inclusive plan, inadequate implementation and long recovery time resulting from weak coordination, absence of proper failure analysis, ignoring the geophysical dynamic process and climatic influence on the disaster. Segmented sectoral recovery efforts without comprehensive (Gender-responsive & Risk-Informed) build back better approach is causing huge loss and damage every year by the recurrent disasters.

It is widely recognized that recovery is complex, exhibiting multiple and diverse patterns of change, having no fixed endpoint, and no single agency or sector alone is responsible for it. Moreover, it takes place in a 'new normal': a context that is, to some extent, irreversibly altered by the disaster itself. As new insights into reconstruction and recovery processes are emerging, we need a comprehensive

approach where human-centric system can be introduced, with the integration of traditional, often very effective community-based and indigenous practices.

Post-disaster recovery is often conceptualized and designed to return the community to the conditions of normal development it enjoyed before a disaster occurred, ie rebuilding pre-existing conditions of disaster risk, thus preparing the ground for future disaster. In most cases it is limited to the physical aspects and often overlooks pre-existing social, environmental, and financial dynamics of the affected population. The sectoral approach, in absence of a comprehensive and inclusive disaster recovery plan, strategy and design, falls short of addressing this dilemma. This results in gaps in coverage and slow pace of recovery. Risk reduction measures, while initially performing well in reducing risks, often fail to sustain their performance and contributes to increased risks. Lack of coordinated effort and absence of good recovery plan has meant that assessment of loss and damage and recovery has not been a regular phenomenon; damage and loss assessments of only 7 major disasters have been carried out in the last 20 years, with amount valued at \$11.6 billion, while in reality the total loss would be much higher during the same period. In sum, the country is experiencing recovery gaps in terms of knowledge, practice, and resource. First, the concept of recovery is not yet fully integrated into the policies and planning instruments of the Government. Second, recovery plans and efforts are not yet fully aligned with the long-term development agenda. Third, lack of a unified and coordinated sectoral recovery plan might be a gap in the context of recovery and Build Back Better approach.

Realizing the need of GoB, The National Resilience Programme, has undertaken the initiative of a cutting-edge study of reviewing the current practices to devise a recovery strategy and action plan for medium to mega-disasters, drawing experiences



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from the recent disaster events, cyclone Amphan and Monsoon Flood 2020.

EXPERIENCES WITH PAST RECOVERY EFFORTS

Cyclone SIDR

In absence of a recovery policy in Bangladesh's disaster response system, the post-disaster recovery effort to SIDR was largely driven by practice. In fact, the roles of different ministries in housing recovery are not specified in the country's main legal framework for disaster management, rather coordination was based on the Standing order on disasters (GOB, 1999) which has a minimum focus on recovery efforts but the SIDR caused partial/severe damage to over 1.5 million households.

Till 2007, post-disaster recovery efforts were focused on agriculture, infrastructure, water resources, food security, and studying the implications of disasters for macro-economic indicators. The concept of housing recovery never received adequate attention.

Prior to Cyclone SIDR, Bangladesh did not have a definitive national design standard, only a building code for the construction of concrete buildings in urban areas. But it did not cover post-disaster recovery/reconstruction.

Agriculture was one of the most hard-hit sectors during SIDR. The farmers incurred an estimated loss of 800,000 - 1.3 million MTs of cultivable paddy, fisheries, livestock totaling to a US\$ 437.6 million production loss. But initiatives taken by GoB and NGOs were inadequate compared to the scale of agricultural devastation.

Bangladesh's extensive polder system is viewed as the first line of defense for coastal communities against tidal surge and salinity intrusion. SIDR did extensive damage to this earthen embankment enclosed system jeopardizing livelihood of millions around the coastal belt. Study suggests, currently 44 of Bangladesh's 123 coastal polders run risk of overtopping if a severe cyclone hit. While by the year 2050, 59 coastal polders could be overtopped

because of inadequate mangrove forests and mean higher-velocity storm surges owing to shift in climate pattern in the coming decades (Dasgupta et al. 2014). So, we are yet to fully recover let alone evolve from the damaged inflicted by cyclone SIDR.

Flood 1998

The 1998 floods were undoubtedly the worst of the century, approximately 30 million people and 68 percent of the country were affected, as opposed to about 30 percent in a typical flood year.

Although DMB was envisaged to perform specialist functions, in close collaboration with root level administration and concerned line ministries, no significant role of DMB could be found either in the relief or recovery process, excepting that it acted as a repository of information. (WB, 2004). Instead, the ministries including agriculture, fisheries, and livestock were the main players in the recovery process and were coordinated by the planning ministry. They based their actions on sectoral recovery plan, while securing funding from both internal and external sources (Alam 2002).

A major fault of 1998 flood recovery plan was its inattention to the revival of livelihood and housing of flood hit communities.

The recovery efforts of the 1998 Bangladesh floods, it had a considerably lower impact on the affected population than the 1988 floods, even though the 1998 floods were of a considerably longer duration. Notably, the contribution from NGOs as both direct providers of resources and advocates for a more open society, economic growth of 5%, poverty reduction, and prior investment in emergency preparedness all fed into an improved recovery outcome.

Considering the previous experiences, it can be summarized that

- There were no pre-disaster recovery plan (documented)



- Gaps existed in recovery needs assessment through a formal need assessment process.
- The overall recovery process appeared ad hoc basis and not based on an overarching recovery and priorities.
- Recovery was not reinforced by proper financial resources. The aid was typically provided as immediate humanitarian relief with few resources for longer-term recovery needs.
- Recovery suffered rebuilding infrastructure with proper BBB vision.
- Inappropriately addressed community participation and ownership.

NEW RECOVERY CHALLENGES INCLUDING PANDEMIC

Based on previous experience of the affected region permeant infrastructure development plan (i.e., polder, seawall, dam, shelter house, embankments,

irrigation projects. river protection schemes) should be put into place to simulate future recovery effort keeping in sync with the hazard calendar. The major challenges to overcome with such comprehensive planning would be lack of inter-ministerial administrative coordination, expertise on recovery policy protocols, unstable security situation, and constant influx of financial resource.

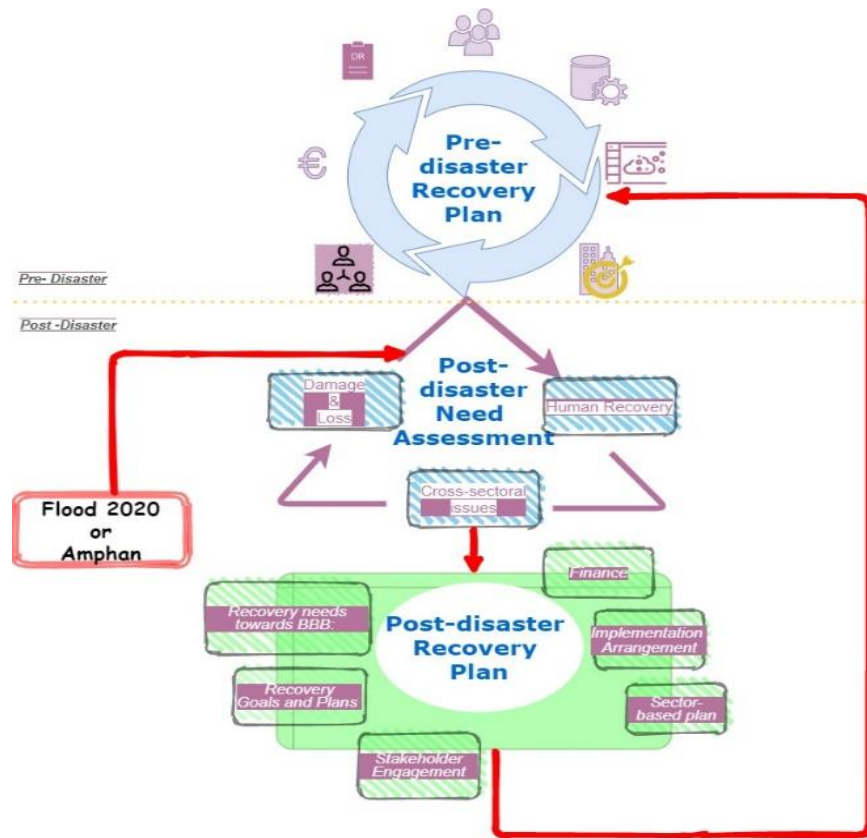
The post-disaster recovery scheme should be based on academic research, statistics, social experiment, and hard evidence. To have a head start, our age-old perception of post-disaster recovery should be substituted by the core concept of Built Back Better (BBB). Correlation between disaster and development should be recognized. The challenge would be to develop a total response system to assist a pool of well-informed, educated advisor panel. They would aid in times of disaster in decision making with the capacity to improvise immediate action plans to tackle unknown situations in the post-disaster recovery period.

METHODS AND MATERIALS

APPROACH OF THE STUDY

Fig. 1 shows a summarized outline of the study. Following the red arrows, this study will firstly analyze the Post-Disaster Need Assessment (PDNA) due to flood 2020 and Cyclone Amphan. Then based on the PDNA Post-Disaster Recovery Strategy (PDRS) will be initiated. Based on the PDNA and PDRS the Pre-Disaster Recovery Plan (PDRP) for the next flood or cyclone will be developed. Thus, a complete recovery strategy for flood and cyclone is aimed to develop through this study.

Fig. 1: Outline of Recovery Strategy



CORE VISION AND GUIDING PRINCIPLES

This study identifies nine core principles that, when put into practice, maximize the opportunity for achieving recovery success.

1. Individual and community empowerment and resilience;
2. Eco-centric solutions towards a Build back better future;
3. Pre-Disaster Recovery Planning with the aid of science backed assessment tools;
4. Timeliness and Flexibility of recovery work;
5. Ensuring resilient recovery of citizens which is the basic human right recognized as an essential foundation for effective recovery;
6. Ensuring People-centric recovery which will identify the needs and priorities of affected populations by creating participatory processes that involve communities themselves in decision-making, service delivery and recovery;
7. Inclusion of Traditional/ indigenous approaches;
8. Gender inclusive recovery which will be pro-poor/ livelihood focused;
9. Efficient use of resources to avoid sectoral overlaps in a coordinated manner.

POST DISASTER NEED ASSESSMENT

DAMAGE & LOSS ASSESSMENT: EXISTING PRACTICE AND GAPS

A Damage-Loss and Needs Assessment (DNA) cell was established within the Disaster Management Bureau (DMB) for the institutionalization of the DNA methodology across all government departments and at all administrative levels, down to the Upazila level. The cell is responsible for strengthening the existing data collection by using a standardized template (FORM-D) and to build the capacity of relevant agencies and administrative levels to conduct DNA.

Department of Disaster Management gradually shifted to a formal damage and loss assessment in the name of Joint Needs Assessment (JNA) since

2011. The JNA approach has embedded in it a national coordination mechanism and has the buy-in of a broad range of stakeholders including the DDM, MoDMR, NGOs and INGOs.

A major constraint has been the scarcity of sectoral damage data as a function of flooding characteristics such as depth, duration, velocity etc. (i.e. flood damage functions or damage curves), and the difficulty in assessing indirect flood damages, which may constitute substantial proportion of the total flood.

IDENTIFICATION OF SECTORAL RECOVERY NEEDS

The needs will be determined using the following four components of each sector.

- The reconstruction of damaged infrastructure and physical assets.
- The resumption of production, service delivery and access to goods and services;
- The restoration of governance and decision making processes;
- The reduction of risks.

RECOVERY FRAMEWORK

The strategy will identify recovery priorities, a cost structure, stakeholders, and suggests a timeframe for recovery. It should be noted that the recovery strategy will need to be followed through with a detailed recovery framework which comprises information on the policy and institutional arrangements, financial mechanisms, monitoring and evaluation systems for recovery. Here already developed science-based tools will be used to strategizing the strategy for BBB, linking sectoral needs and prioritization and financing

The following tools have been developed at IWFM, BUET through a number of internationally collaborative projects for last 10 years (2010-2020) which will be used to develop the recovery framework.



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- ✓ Dynamic Flood Risk Model (DFRM) is a flood risk generating tool based on the combination of various flood characteristics such as depth, duration, velocity, and several risk elements showing in various spatial scale (upazilla, union, village).

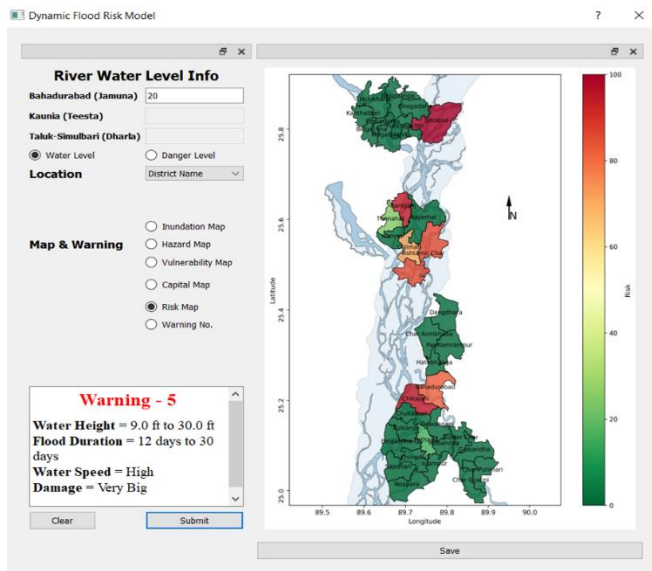


Fig.: An example of flood risk map in Kurigram-Jamalpur area using Dynamic Flood Risk Model (DFRM)

- ✓ Cyclone Classified Model (CCM) is developed based on various wind speed, different landfall location of a cyclone, water depth and thrust forces of those cyclones. CCM helps to indicate the structural damages of various regions for an incoming cyclone.
- ✓ Dynamic Adaptation Model (DAM) is used to find the need for adaptations to reduce the emerging risks due to climate change and can also be used as a pre- and post-disaster adaptation assessment tool. An example of Dynamic Adaptation Model (DAM) to delineate the adaptation deficiency in a particular hot-spot area is shown in Fig..

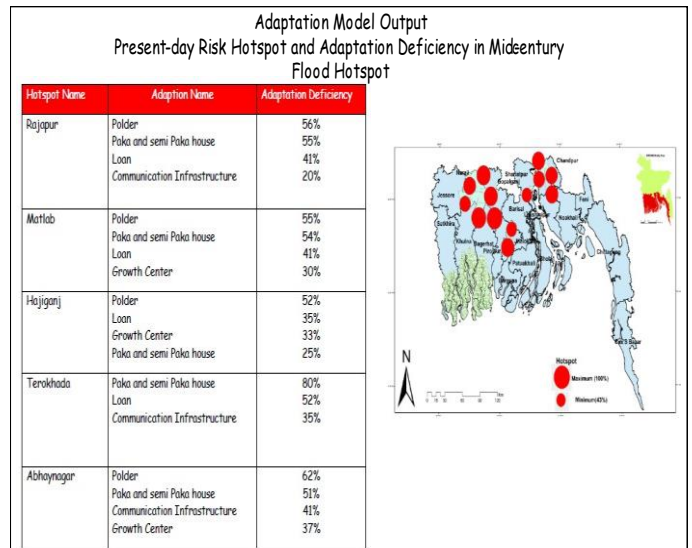


Fig.: Example of Dynamic Adaptation Model (DAM) to delineate the adaptation deficiency in a particular hot-spot area.

- ✓ Delta Dynamic Integrated Emulator Model (DDIEM) is a decision-making tool that helps to show the biophysical changes as well as socio-economic changes of various adaptations at different time scale. Doing trade-off of the biophysical changes and socio-economic changes helps the policy makers to decide of adaptations (interventions) strategy which will be practically needed for a specific zone.

STRATEGIZING FOR BUILD-BACK-BETTER (BBB)

To make any recovery initiative sustainable in line with BBB, it necessary to assess its capacity to cope any future disaster. Here the concept of coupled DFRM- DAM-CCM-DDIEM will be used. The quantitative additional risk generated from CCM and DFRM can be an input to DAM. Knowing various adaptations strategy from DAM assists to put as inputs of Biophysical model and DDIEM. Finally, the requirement of those adaptations can be optimized coupling DAM and DDIEM. Though DFRM, DAM, CCM and DDIEM are independently developed and their purposes are different, but practically, these



work in a cyclic way and hence, it is possible to consider them altogether as a coupling model.

LINKING SECTORAL NEEDS AND PRIORITIZATION

Recovery needs in the agriculture, public infrastructure, and socio-economic sectors due to flood 2020 and cyclone Amphan will need to be prioritized and sequenced (short-term, medium-term and long-term). To formulate appropriate interventions in the sector recovery strategy, a *response analysis* which links the assessment results and situation analysis with response formulation and planning using the DFRM- DAM-CCM-DDIEM will be done. The Dynamic Adaptation Model (DAM) will be widely used in this case. The Fig. presents a conceptual overview of a response analysis framework that will be used in this study.

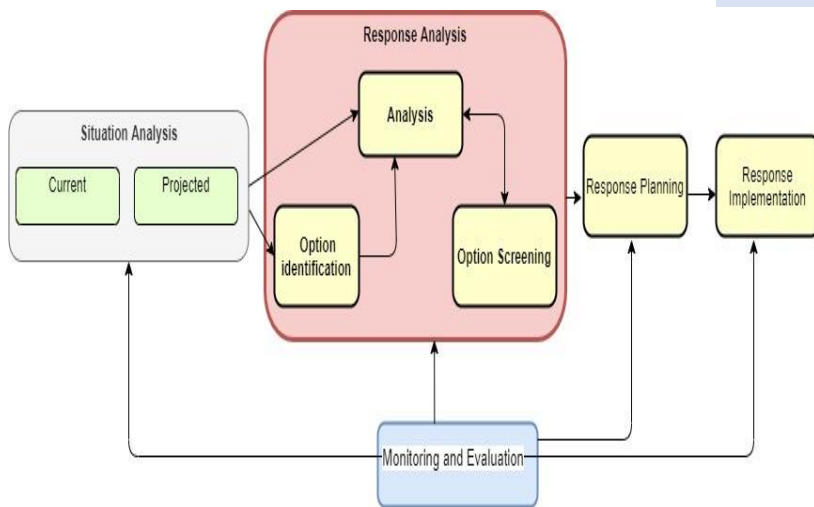


Fig.: Conceptual framework of response analysis

The concept of resilience triangle will be used here (

Fig.). By analyzing several options the most quick and sustainable options will be selected. This should include prioritizing critical needs expressed by the affected population and government, but also prioritizing vulnerable population groups, geographic areas most affected, conflict prevention and peace-building objectives when relevant, among others.

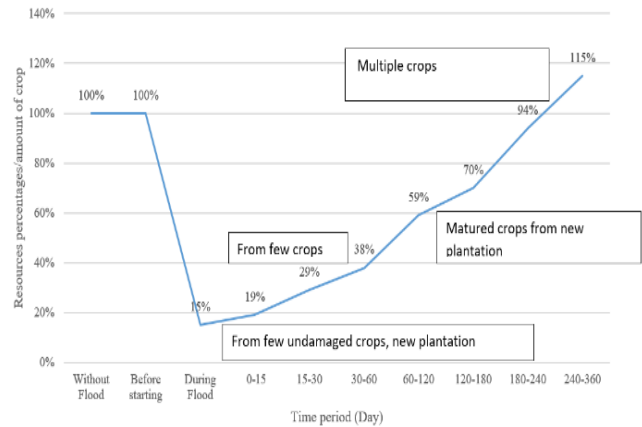


Fig.: Resilience triangle to restore the livelihood in Agricultural sector after flood

1.1 SECTOR RECOVERY STRATEGY

In line with the PDNA guidance (GFDRR 2013) on the recovery strategy, the sectoral recovery plan will be developed where the key elements will be

- 1) Priority needs
- 2) Interventions required
- 3) Expected outputs
- 4) Recovery costs, and
- 5) Intended outcomes.

The assessments results will be combined using the model studies and a results-based recovery plan will be developed. An

| Priority Recovery Needs | Interventions | Expected Outputs | Recovery Costs | Intended Outcomes |
|---|--|---|----------------|--|
| To assist farmers affected by the disaster with the rehabilitation of farms | <ul style="list-style-type: none"> Supply primary production inputs, training and marketing support. Multi sector support for traditional small-scale irrigation. Agricultural technical assistance and capacity building support. Restore farmers' access to agricultural land. Rebuild agricultural infrastructure. | <ul style="list-style-type: none"> Agricultural input package (tools, seeds, fertilizers, training) supplied to 290,000 farmers. Irrigation networks repaired to cover 15,000 ha of agriculture land. Three training centres established and 340 government staff trained. 450,000m³ of debris cleared to open up agricultural areas. 8 processing and 34 storage facilities rebuilt. | \$7,650,000 | To rehabilitate and develop the Agricultural Sector. |

example of such plan in agriculture section is shown in Table 1.



Table 1: An example of Results-Based Recovery Plan (source GFDRR (2013))

FINANCING AND IMPLEMENTATION ARRANGEMENT

The Financing and implementation arrangement will be developed through the consultation with the ministries i.e Planning Ministry, Ministry of Disaster Management and Relief, Ministry of Agriculture, Ministry of Fisheries and Livestock, Ministry of Health, Ministry of Education, Ministry of Women and Children Affairs, Ministry of Social Welfare, Ministry of Water Resources, Ministry of Local Government, Rural Development & Co-operatives, Ministry of Social Welfare etc. A technical team comprising of experts from govt., UN, I/NGOs/Academia, will sketch down the implementation framework of the recovery strategy. It will elucidate the Coordination arrangements between government, civil society, and the private sector; Inter-sectoral arrangements and Inter-agency management arrangements (e.g., coordination unit or similar arrangements, support services to be established, such as offices, human resources, etc.).

FOCUSING THE FUTURE: RECOVERY PLAN FOR NEXT THE DISASTER

Through the development of recovery strategy for flood 2020/cyclone Amphan as discussed earlier the future recovery issues such as underlying gaps and challenges in recovery approach and initiatives, recovery needs in a post-disaster scenario, capacity building and coordination needs, and possible execution process, under different scenarios will be identified. Thus this study aims to developed a generic Pre-disaster Recovery Plan (PDRP) which is expected to guide future recovery efforts in different phases with improved recovery outcomes. With clear and agreed-upon guidelines for information gathering, tools for assessing pre disaster damages and needs and for providing assistance, defining recovery roles and responsibilities along with funding arrangement, and most importantly focusing on ‘building back better’, it is expected that the disaster recovery efforts will

gradually move towards reduction of vulnerability of affected populations and risk of future events, thus ensuring the sustainability of recovery efforts through inclusion with mainstream developments. The PDRP will contain-

1. A mechanism to form a collaborative planning team: A collaborative planning team including the members from all sectors will be formed and who will start from a common understanding of PDRP towards BBB.
2. Baseline information: This baseline information will coincide with the baseline information collected during PDNA. In addition to the information of the human, natural, cultural, financial, social and physical capital, Infrastructure and physical assets in pre-disaster time it will include the info of production and delivery of goods and services, and their access, governance and decision-making processes. The baseline information of IWFM developed model such as DFRM/ DAM/CCM/DDIEM will be used in this purpose.
3. Generation of disaster scenarios: Using the DFRM of CCM several disaster scenarios will be developed, Risks and vulnerabilities, analyze existing plans will be tested by using DAM.
6. Define strategies and actions: From disaster scenarios, PDRP will identify recovery needs and sectoral intervention leading to BBB, prioritize the recovery needs and determine the overall role of coordinating organizations during the disaster. It will have an estimate the recovery costs and financing method

Recommendation

1. As Bangladesh and its people are poor, their supply is insufficient compared to their needs, so no matter how much relief or financial assistance is given to them, it is much less than their needs.
2. The government of Bangladesh or other non-governmental organizations cooperate as much as they can but most of the people do not get the cooperation due to



lack of proper management and Lack of communication etc. But the most significant thing.

3. It is possible to reduce the recovery time by sowing different varieties of salt tolerant crops.
4. It is possible to reduce the damage during cyclones by constructing polders or embankments by providing more tactical and appropriate budget to the government.
5. It is possible to accelerate the socio-economic development of the local communities if arrangements are made to take loans at low or nominal interest from various NGOs and moneylenders.

CONCLUSION:

Natural disasters are the 'characteristic feature' of Bangladesh due to its geophysical setting. Due to the low level of community resilience and the high exposure to multiple hydro-meteorological hazards, the damage and economic loss are increasing. Overlaying of the recent pandemic event (COVID-19) is fueling the situations to new dangerous and unpredictable levels. However, experience disclosed that the recovery from any disaster in Bangladesh is always handled in a scattered manner at sectoral levels with inadequate attention losing focuses as

time passes. Therefore, it leads to long-lasting risk conditions in case of a recurrent disaster like floods and cyclones. There is always an absence of a comprehensive pre and post-disaster recovery planning framework and action plan triggered by science-backed damage and loss assessment tools. In the densely populated country, as the development activities are being implemented even in the known disastrous locations, the upcoming vulnerabilities and risks are also growing with the time that causes significant loss and damage every year by the recurrent disasters.

The review of secondary literature, FGD, KII, and Semi-structured survey in the study area will be performed for focusing on three sectors-agriculture, public-infrastructure and socio-environment for PDNA. Then based on the, PDNA Post-Disaster Recovery Strategy (PDRS) will be initiated. The sectoral needs and prioritization process will be facilitated by several science-based tools developed at IWFM, BUET. Based on the PDNA and PDRS, the Pre-Disaster Recovery Plan (PDRP) for the next flood or cyclone will be developed. Thus, a complete recovery strategy for flood and cyclone is targeted to develop through this study which is expected to guide future recovery efforts in different phases with improved recovery outcomes.



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