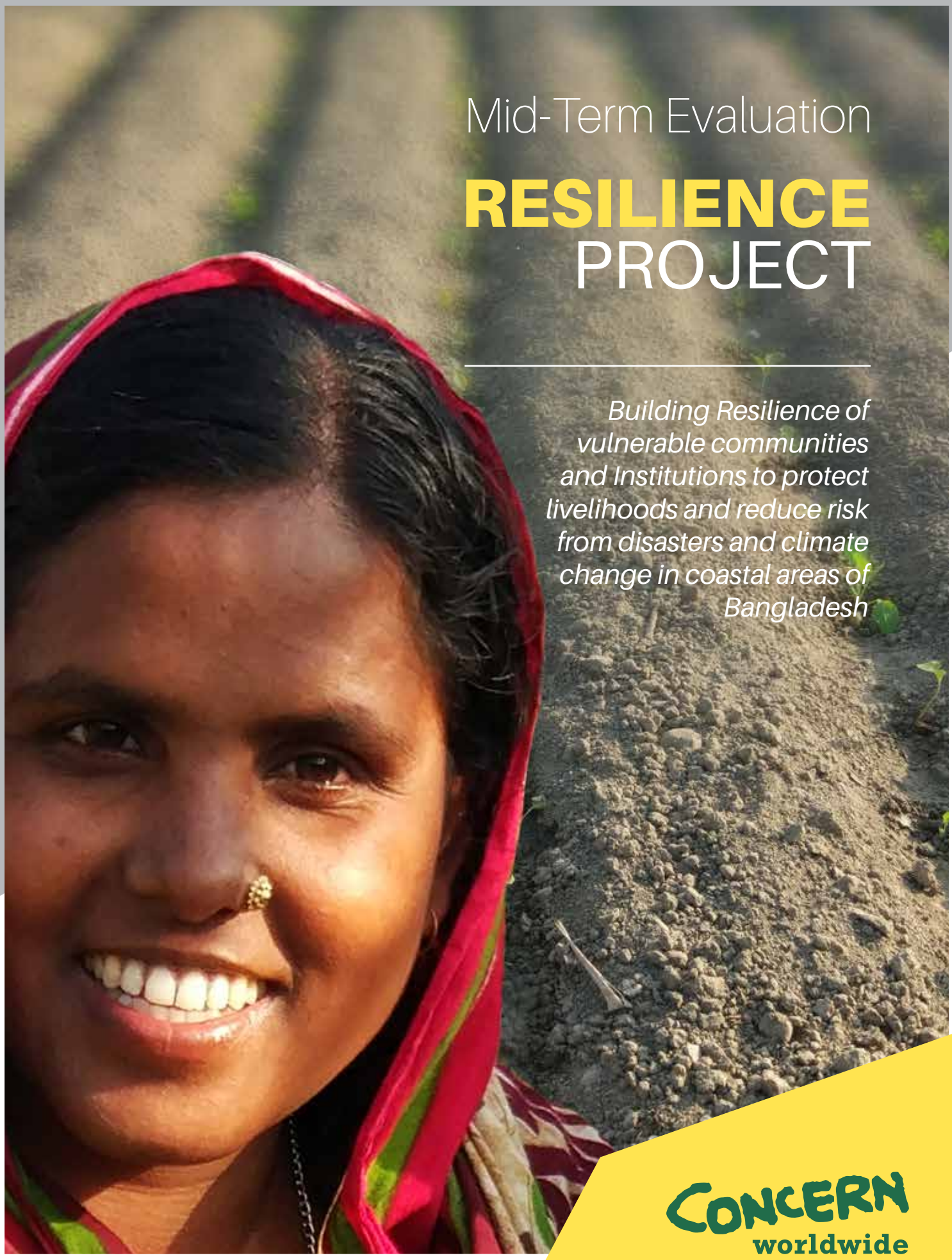

Mid-Term Evaluation

RESILIENCE PROJECT

Building Resilience of vulnerable communities and Institutions to protect livelihoods and reduce risk from disasters and climate change in coastal areas of Bangladesh

CONCERN worldwide

Concern Worldwide, Dhaka, Bangladesh

Cover photo: Marzia Shafin

Design: MI Shahriar

Mid-Term Evaluation

Resilience Project

Building Resilience of vulnerable communities and Institutions to protect livelihoods and reduce risk from disasters and climate change in coastal areas of Bangladesh

Study Team

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January 2017

CONCERN worldwide

CONTENT

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Local community leaders, trainers, government representatives, and most of all the beneficiaries were very cooperative and patient during the focus group discussions, case studies and key informant interviews. Their warm welcome and hospitality will be stored as a cherished memory in our minds. Support from other organisations working in the local area has been undeniably helpful. Members of Shushilan and JJS have assisted us through the field visits and provided interim local area guidance which was very beneficial.

Last but not least, our earnest thanks to Concern Worldwide for providing us the opportunity to conduct the MTE of such a remarkable project.

ABBREVIATIONS

ARCAB	Action Research for Community Adaptation in Bangladesh
BARI	Bangladesh Agriculture Research Institute
CAL	Climate Adaptive Livelihood
CBA	Community Based Adaptation
CCA	Climate Change Adaptation
CCP	Community Contingency Plan
CF	Composite Farming
CP	Contingency Plan
CRVA	Community Risk and Vulnerability Assessment
CSC	Cyclone Shelter Centre
DPHE	Department of Public Health and Engineering
DRR	Disaster Risk Reduction
DRRO	District Relief and Rehabilitation Officer
ERC	Emergency Response Committee
ERP	Emergency Response Plan
EWS	Early Warning System
FD	Forest Department
FGD	Focused Group Discussion
LGI	Local Government Institutes
NGO	Non Government Organization
OECD	Organisation for Economic Co-operation and Development
PNGO	Partner NGO
RWH	Rain Water Harvesting
SDW	Safe Drinking Water
SLR	Sea-level Rise
SRDI	Soil Resources Development Institute
STTS	Salinity Tolerant Tree Species
ToR	Terms of Reference
Tk.	Taka
UP	Union Parishad

EXECUTIVE **SUMMARY**

A. The Resilience Project

The Resilience Project emerged based on successes and lessons learnt from the Paribartan Project of Concern Worldwide that started in 2011 and had a successful completion in 2016.The project area forms three districts of the south west coastal parts of Bangladesh namely Khulna, Satkhira and Bagerhat covering 6 sub-districts and 12 unions identified as most vulnerable on the basis of poverty indices and climate vulnerabilities. The main objectives include intervening livelihoods and promoting adaptation practices among poor and vulnerable communities, developing and implementing disaster contingency plans by the community and local government, forming coordination between local development organisations and local government institutions, and finally, documenting the successful strategies and sharing them at national level to influence investments from government and other donors.

A total of 7,829 direct beneficiaries have been covered, including 6,049 community participants and 1,780 government officials, local government institutes, partner NGOs and various development partner. The number of indirect beneficiaries is 21,769. Jagrata Juba Sangha (JJS) and Shushilan are two implementing partners in the field.

The overall objective of the project is to contribute towards poverty alleviation amongst poor communities in coastal areas of Bangladesh, through reducing their risks to the impacts of hazards including climate change. The specific objective is to enhance the resilience of vulnerable communities to protect livelihoods and reduce risk from disasters and climate change in the south west coastal Region of Bangladesh.

Four specific objectives of the project are as below:

Objective-1: Climate resilient livelihood interventions and practices promoted among the targeted extreme poor and vulnerable households.

Objective-2: Disaster Risk Reduction, Climate Change Adaptation and Emergency Response Plans are developed and implemented by the community and local government disaster management committees.

Objective-3: Capacity of and coordination between local government institutions and local development organisations strengthened to prepare for and respond to disaster and climate change.

Objective-4: Documentation and sharing of best practices and lessons learned at local, national level.

B. The Mid Term Evaluation

The Resilience Project started its journey in April 2015 and reached halfway of the implementation in October 2016. At this stage, Concern Worldwide planned to undertake a Mid Term Evaluation (MTE) of the project to appraise the progress so far achieved compared to the initial conditions of the project. Comparing against the baseline information, the progress of the Coastal Resilience project was evaluated and future measures will be determined based on the findings. In this context, this study presents the MTE to assess the progress since the commencement of the project.

C. Methodology

The midterm evaluation process mainly consists of qualitative and quantitative analysis. The qualitative analysis explains the current situation and further requirements in those areas. A structured questionnaire was designed to collect data from the primary beneficiaries of the project. The questionnaire was developed to cover detailed socio-economic conditions, income generating activities, drinking water sources, early warning, Disaster Risk Reduction (DRR) and CCA/ disaster preparedness, etc. A total of 288 households were selected for field survey. The sample size was proportionately distributed across the unions, based on the number of beneficiary households within the project areas.

In order to collect quantitative data, Focused Group Discussions (FGDs) were conducted with the targeted beneficiaries in non-homogeneous groups (Male, female, young, old etc.) A total of 6 FGDs were conducted for the evaluation. Besides FGDs, Key Informant Interview (KII) was conducted to obtain qualitative data. Furthermore, a number of case studies were observed closely during the field visit. For each case study, economic, technical and materialistic data were collected. Field observation has also been included in the evaluation.

The secondary data of the study involved a detailed desk review of relevant project documents. The other part of the desk research included a review of the available literature and studies on the key issues.

D. Results

Objective 1

Climate adaptive livelihood is the key concept in the first objective of Resilience Project. In order to address the vulnerability of the designated population, a number of climate adaptive livelihood options have been demonstrated and scaled up.

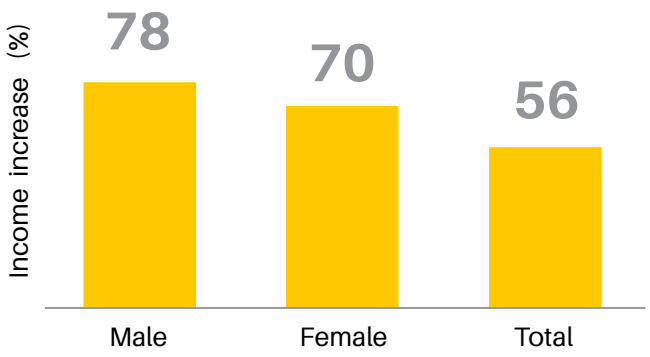
Composite Farming: Composite farming is an innovative way of producing different types of food in a small area of land. It is an integrated practice of farming of rice, fish and vegetable in a small piece of land. About 62% of target community beneficiaries of this component (1,500) practice composite agriculture and 77% of them receive a cash grant from the Resilience Project. However, two-third of the people who are involved in composite farming are involved in the production of these three type of production. People involved in fish and vegetable; rice and vegetable; rice and fish and only vegetables are 13%, 12%, 5% and 4%, respectively. Available land of all beneficiaries is not same. Some are suitable only for vegetables and some are suitable only for rice. Variation in the area of land ownership has resulted in them not incorporating all three options. Some modifications on climate adaptive livelihoods, including but not limited to, incorporating technology and private sector linkage have been made.

Rain Water Harvesting (RWH): The community of the study area suffer from acute drinking water shortage. In order to arrange water supply, a total of 885 community members were trained for RWH and supported with cash of Tk.13,745 to have a big water tank of 1,500 litres for the storage of drinking water. Availability of drinking water saved time and labour of women collecting water from a distance of 2-5 km. People have become aware of sourcing safe drinking water after being motivated by the Resilience Project.

Pond water is not safe for human health. Collecting water from pond or open well has reduced from 52% to 19%.

Social Forestry: Homestead plantation and social forestry have been introduced in the project area. Communities have been supported with Salinity Tolerant Tree Species (STTS). A total of 3,918 beneficiaries (65.3%) have been supported with social forestry. However, all of the community beneficiaries (6,000) have planted salinity tolerant tree species in their homestead and on the embankment. Trees near houses and on embankments will provide a defence against strong wind and tidal surges. The grafted sapling that were planted in the first year have started giving fruits and these sapling have multi-purpose uses such as fruits, timber, fuel and living fence. These trees are providing fruits and will be a source of timber in the long run.

Community Income: Income of the respondents has increased markedly. It has been evident from field data that income of the project beneficiaries has increased by 56%. The project has covered 84% female as the beneficiaries of Resilience Project. High coverage of female beneficiaries have contributed in the increase of income of rural women.



Objective-2

Community capacity building is the second focal area of Resilience Project. Community based group formation is the first step in developing their capacity. They have been trained on Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) with a particular focus on addressing the impacts of climate change.

Disaster Preparedness: Community have been involved in every stage of CCA and DRR preparedness plans. They participated in Community Risk and Vulnerability Assessment (CRVA) sessions and developed village level vulnerability maps. Checklist of resources, defined role of each member of the household, disaster warning following and evacuation plans are included in household disaster preparedness plan. Additionally, they have developed disaster Contingency Plan, especially for an emergency event of cyclone.

Capacity Development: A total of 18 Disaster Management Committees (DMC) have been supported with DRR tools. The capacity of DMCs has been increased by supporting them with regularisation of meeting and providing training on the legal aspects of disasters in Bangladesh, with a particular focus of the study area. Furthermore, Disaster awareness has been enhanced by means of several activities.

Objective-3

The third objective of the project is also capacity building, but special focus has been aimed on local level government institutions and partner NGOs. Partner NGOs have engaged local government institutes in community risk assessment and risk reduction planning activities.

Better Coordination: Improved coordination among the local government and civil society organisation have been observed in the field. A total of 12UDMCs and 6 UzDMCs have been supported for a better coordination and regularization of monthly meetings. All meetings (CRVA validation, local level workshops) have been conducted on time, and in advance in some instances.

Capacity Building: Local key stakeholders were supported with Building Better Response (BBR) online learning. A total of 87 staff representing government office, UN, INGOs, NGOs, CSOs and press were supported with online training on humanitarian principles, international humanitarian architecture and cluster approaches. A total 17 stakeholders have qualified this prestigious course offered by Humanitarian Academy at Harvard.

Objective-4

Concern and its local partners have extended network coverage with local and national partners. Concern has been involved with Gobeshona and Action Research for Community Adaptation in Bangladesh (ARCAB) and the Community Based Adaptation (CBA) network in the region and has shared project learning with broader audience.

Documentation:

Best practices and lessons learnt have been shared with key stakeholders of Government Organizations, local NGOs, INGOs and Local Government Institutes (LGIs) through arranging regional workshops. The project is supposed to have terminal evaluation to check its expected achievements over time. This MTE is part of the evaluation process and a final evaluation is due by the endline of scheduled activities.

E. DAC Criteria

Five Criteria including Relevance, Effectiveness, Efficiency, Impact and Sustainability identified by the Development Assistance Committee (DAC) of OECD have been addressed in the study. Additionally, crosscutting issues have also been addressed.

Relevance : The study area is one of the most poverty stricken areas of the country. Repeated natural calamities maintain the vicious cycle of poverty. Water scarcity in Khulna, Satkhira and Bagerhat area is very high too. The key focus of the project is livelihood improvement and a solution to fresh water scarceness. The components of composite farming and RWH are very relevant in the area.

Effectiveness: The implementation strategy of the project is effective in terms of geographic location and technical soundness. From the very beginning of Resilience Project, all stakeholders have been involved in the work agenda. Development actors of the area have been involved in various activities of training, coordination and learning sharing. Besides, resources of the project have been utilised effectively.

Efficiency: Considering environmental, ecological and socio-economic setting of the area, the methodology of project implementation has been considered as an appropriate option. The delivery of objective 1 and 4 have been delivered to time. However, the delivery of objective 2 and 3 has been achieved in advance, allowing a full follow up of achievements before the conclusion of the project. Community support in project implementation has been found as an added advantage. Outputs of the project have been achieved almost fully for a number of the indicators. In spite of having very little delay in achieving a few activities, most of the indicators in objective 3 and 4 have been achieved 100% by this MTE study.

Impacts: The project has made direct positive changes in the life and livelihood of local communities. People income and expenditure has increased compared to baseline findings. Access to safe drinking water and improved food consumption from composite farming has improved the health status of the community. Additionally, CRVA formulation, community contingency plan development, capacity building of local leaders and UDMCs, coordination among local government institutions and NGOs have all improved compare to baseline values of the indicators. Early warning message have reached entire communities and this was the case for cyclone Roanu and cyclone Komen in 2016. The impact of these two cyclones was very low considering their strength and power. The mid term may not be the right time to assess sustainability and a true sense of impact can be assessed at the final review, but this is a very positive start.

Sustainability: Composite farming offers an additional income to communities. In addition to the direct support of the implementation of composite farming, communities are able to invest the additional money they make into other areas of their lives. Neighbouring communities of the project implementation site have started to implement it on their own initiatives. Some private sectors companies have come forward with the idea of establishing rain water harvesting systems (RWHS) through the distribution of polymer tank with instalment. The idea has been turned into a sustainable business model. Thus, the sustainability of the project is already visible.

Cross Cutting Issues: In addition to livelihood and drinking water supply, the project worked for women empowerment, community development, enhanced interaction among community and Local Government Institutions (LGI) and capacity development of local level disaster management bodies. The programme has motivated women to be involved in wider production systems. It has helped women experience more than their traditionally domestic roles. Additionally, it has motivated women to raise their voices and be involved with community leadership. Women, who have been involved only in domestic activities are now participating in community meeting and also attending upazila and district level workshops. It has helped to have a dramatic change in their mindset. This outgoing habit and self confidence to interact with external people indicate their empowerment to move forward for formal leadership at union and upazila level. Initial involvement with the leadership of community groups will ultimately open the door of formal leadership.

F. Key Achievements

1. Increased food production with the introduction of composite farming.
2. Safe drinking water has been arranged for the lean period.
3. Community level social forestry has been introduced.
4. Technological capacity of community has been improved.
5. Women leadership has been developed.
6. Capacity of local government institutes have been improved.
7. Capacity of local level disaster managers has been improved.
8. Project activities have been replicated by community.
9. Task Force Groups (TFG) have been formed.
10. Digital Early Warning Systems (EWS) has been developed.
11. Intellectual capacity building has been supported.
12. Project success and learning have been shared with spatially different stakeholders.
13. Private sectors have extended their activities in the area, offering easy availability of water tank in the region.
14. NGOs working in the region have started to work on CF and RWH systems.
15. INGOs have taken similar initiative of providing drinking water by trapping rain water.

G. Recommendations

1. Communities could be supported with three components of project activities, i.e. i) Composite agriculture, ii) RWH, and iii) Social Forestry. Providing an integrated support to same beneficiary will help to attain true sustainability.
2. Community members expected RWH units the most, and expressed a higher expectation for a greater coverage of RWH system.
3. Extreme poor people can be included in the program with an extra allocation for stronger roofing or by tagging with a family of stronger house.
4. Community managed DRR implementation plan should be strengthened for all target community.
5. Community level disaster management plan could be scaled down to family scale.
6. Naturally dead saplings should be replaced with new plants.
7. Terms of Reference (ToR) of Task Force Group should be clearly defined.
8. Task Force Groups can be renamed as Community Resilience Group and engage them to promote community resilience in the area and their legal status should be arranged.
9. A better dissemination is possible by developing a quality communication book and uploaded to various international electronic platform.
10. People living on the embankments should be addressed in the project project activities by leasing land from richer community.
11. Establishing a Coastal Network will help in setting an effective network of the sector, exchange views with fellow development practitioners and have an organized platform to work for the development of the entire coastal zone.
12. Community leadership can be encouraged by involving them in decision making process of the convention.
13. Coastal Convention can be arranged to convey project successes and voices from other parts of the coastal zone to national level.
14. Community level disaster contingency plan should be tested periodically through Mock Drill.
15. Coverage of the project can be expanded to the neighbouring areas.

INTRODUCTION

The world is warming up to an alarming point, and the need for adaptation and coping methods for climate change has become a necessity rather than a choice. In order to address the intensifying consequences, climate resilience practices are implemented in order to develop adaptation solutions which are very effective in the developing world considering the immense vulnerability. Community resilience is essential to face vulnerabilities from multi-hazards and climate disaster. Resilience is a complex and challenging concept, as defined by Magis (2010),

Community resilience, as defined herein, is the existence, development, and engagement of community resources by community members to thrive in an environment characterised by change, uncertainty, unpredictability, and surprise.

In Bangladesh, the pioneer of climate resilience program is Concern Worldwide which piloted the concept in 2011 through Paribartan project and started a separated program in 2015 focusing to build resilience of coastal communities in the country. The main approaches of this project is risk reduction and community based adaptation practices in order to minimize the impacts of climate induced disasters.

1.1 Resilience Project

Paribartan Project of Concern Worldwide that started in 2011 with supports from European Union (EU) and had a successful completion in 2016. That project experienced various adaptation options for climate change impacts in the coastal zone. The Resilience Project has been using knowledge, skills and learning from Paribartan and moving forward with a view to build resilient coastal communities. The project area forms 3 districts of the South Western Coastal parts of Bangladesh namely Khulna, Satkhira and Bagerhat covering 6 sub-districts and 12 Unions (Figure 1) identified as most vulnerable on the basis of poverty indices and climate vulnerabilities. The main objectives include intervening livelihoods and promoting adaptation practices among poor and vulnerable communities, developing and implementing emergency response plans by the community and local government, forming coordination between local development organizations and local government institutions, and finally, documenting the successful strategies and sharing them at national level to influence investments from government and other donors. The Resilience Project is a scaling up of the Paribartan Project.

Figure 1: Resilience Project area.

A total of 7,829 direct beneficiaries have been covered, including 6,049 community participation and 1,780 members from Government officials, DMC members, Taskforce committee members, CPP Volunteers, academics and members form partner NGOs and other development partners (Figure 2). However, indirect beneficiaries are as high as 21,769. Out of the total direct beneficiaries, 1,500 households (HH) have been targeted by composite agriculture (CF) and same number of HH have been aimed to

support for rain water harvesting (RWH) system. All of the 6,049 beneficiaries have been covered under social forestry component. However, beneficiaries who have not received CF or RWH system have received additional supports for fruits orchard or road side plantation.

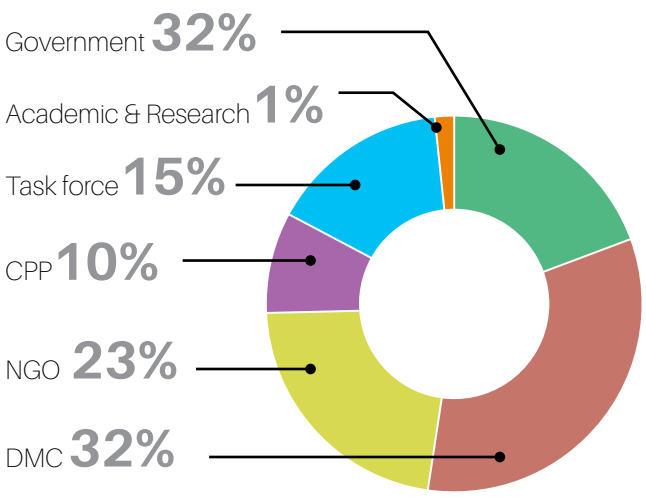


Figure 2: Beneficiaries from non community participants.

Jagrata Juba Sangha (JJS) and Shushilan are two implementing field partners of the project. The overall objective of the project is to contribute towards poverty alleviation amongst poor communities in coastal areas of Bangladesh, through reducing their risk to the impacts of hazards including climate change. The specific objective is to enhance the resilience of vulnerable communities to protect livelihoods and reduce risk from disasters and climate change in the South West Coastal Region of Bangladesh.

The broader objective of the project is to enhance the resilience of vulnerable communities, to protect livelihoods and reduce risk from disasters and climate change in the South West Coastal Region of Bangladesh.

Four specific objectives of the project are as below:

Objective-1: Climate resilient livelihood interventions and practices promoted among the targeted extreme poor and vulnerable households.

Objective-2: Disaster Risk Reduction, Climate Change Adaptation and Emergency Response Plans are developed and implemented by the community and local government disaster management committees.

Objective-3: Capacity of and coordination between local government institutions and local development organizations strengthened to prepare for & respond to disaster and climate change.

Objective-4: Documentation and sharing of best practices and lessons learned at local, national level.

METHODOLOGY

2.1 Introduction

The midterm evaluation process mainly consists of qualitative and quantitative analysis of collected data. The qualitative analysis explains the current situation and further requirements in those areas.

2.2 Methods and Techniques of the Study

2.2.1 Quantitative data (Household survey)

A structured questionnaire was designed to collect data from the primary beneficiaries of the project. The questionnaire was developed to cover detailed socio-economic conditions, income generating activities, drinking water sources, early warning, Disaster Risk Reduction (DRR) and CCA/ disaster preparedness, etc.

In sample designing, a two-stage random sampling strategy was adopted. First, Primary Sample Unit - PSUs (Union) was chosen. The union wise households were selected, thereafter.

In the first stage the upazila and union was selected based on intervention proximity to the resilience project. Administrative unit of 'union' has been considered as the primary sampling unit for the baseline study.

A standard statistical formula has been used to calculate the sample size for the the household survey. The following principle has been used to estimate the required sample size of target respondents:

$$N2 = \frac{p(1-p) \; X \; Z^2}{e^2} \; X \; Deff$$

Where,

N = Total number of project participant households

N2 = the desired sample size which would be sufficient to measure the different variables;

Z = the standard normal deviate, usually set at 1.96 at 5% significance level for a two-tailed test which corresponds to 95% confidence level;

p = estimated prevalence of main variable or variable of interest, we assume 50% or 0.5,

Deff = design effect for cluster sampling. It has been set to 1;

e = the precision level or the distance from the prevalence estimate in either direction. It has been set to ± 6.60% or 0.07 point for two tails equation

n= Final Sample size

Thus, N2 is 213 for Resilience project households. The final sample size (n):

$$n = N2/((1+N2/(N)))$$

The final sample size was calculated as 288. Therefore, a total of 288 households were selected using the aforementioned sampling procedure. The sample size was proportionately distributed across the PSU-Unions, based on the number of beneficiary households within the project areas (Figure 3).

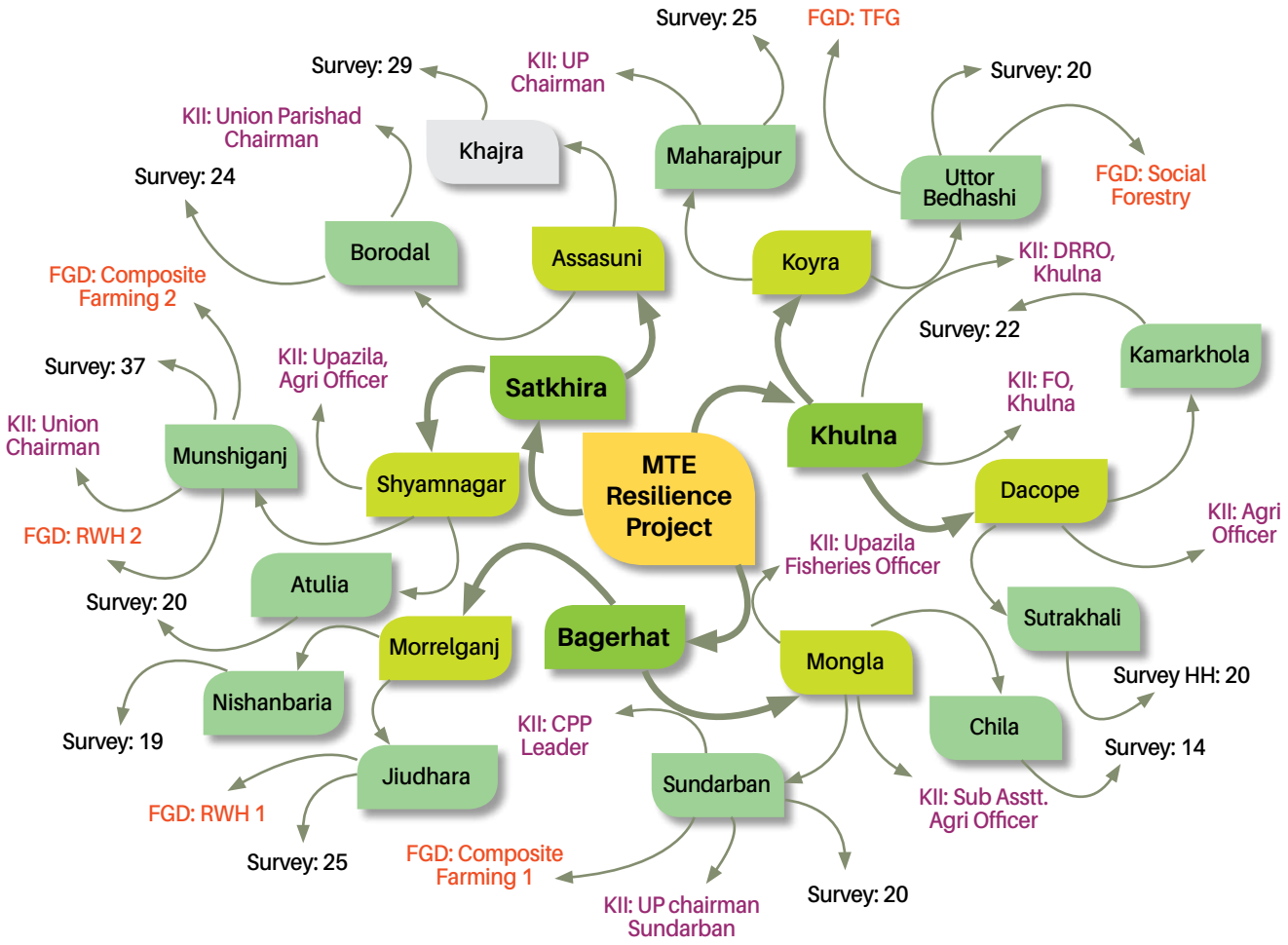


Figure 3: Distribution of study data

2.2.2 Qualitative data

In order to collect quantitative data, Focused Group Discussions (FGDs) were conducted with the targeted beneficiaries in non-homogeneous groups (Male, female, young, old etc.) for assessing the understanding of Community Risk and Vulnerability Assessments (CRVA), early warning systems, drinking water sources, composite agriculture, homestead gardening, etc. and an understanding of climate change issues affecting their lives and livelihoods (Figure 4). The FGDs were conducted with the targeted beneficiaries with an FGD checklist.

A total of 6 FGDs were conducted for the evaluation. These FGDs included people from several types of stakeholders starting from beneficiaries to local authorities. Union Disaster Management Committee, Cyclone Preparedness Programme (CPP) Volunteers and Women group were met for FGD. List of FGDs are as-

i. Safeda Mahila Dal, North Bajikarkhanda, jiudhara, Morrelganj, Bagerhat.
ii. Narikel Mahila Dal, Boyasinha, Sundarban, Mongla, Bagerhat.
iii. Narikel Mahila Dal, Baital Bazar, North Bedkashi, Koyra, Khulna.
iv. Task force group, Sardar Para, North Bedkashi, Koyra, Khulna.
v. Dhankhali Narikel Dal, Dhankhali, Munshigonj, Shyamnagar, Satkhira.
vi. Jalikhali Narikel Dal, Jalikhali Bazar, Munshiganj, Shyamnagar, Satkhira.

Figure 4: FGD conducted for MTR

Besides FGDs, a total of 12 Key Informant Interviews (KII) were conducted to obtain qualitative data (Figure 2). Key informants included government officials, local government representatives, CPP volunteers and private sector groups. The members for KII were chosen with the help of local JJS and Shushilon representatives. Furthermore, a number of case studies were observed closely during the field visit. For each case study, economic, technical and materialistic data were collected. Field observation has also been included in the evaluation.

A list of KII has been given below:

i. M. A. Mannan, District Disaster Risk Reduction Officer (DRRO), Khulna.
ii. Mosaddek Hosain, Upazila Agriculture Officer, Dacope, Khulna.
iii. G.M. Al Mamun, Chairman, Moharajpur Union, Koyra, Khulna.
iv. Md. Abul Kasem Morol, Chairman, Munshiganj Union, Shymnagar, Satkhira.
v. Md. Masum Billah, Upazila Agriculture Officer, Shyamnagar, Satkhira.
vi. Md. Abdul AlimMollah, Chairman, Bardal Union, Assasuni, Satkhira.
vii. Md. Liyakat Ali, Upazila Fisheries Officer, Mongla, Bagerhat.
viii. Mr. Palash Kanti Roy, Sub. Assistant Agriculture Officer, Mongla, Bagerhat.
ix. Md. Abul Kasem, CPP leader, DhalirKhondo, Mongla, Bagerhat.
x. Sheikh Kabir Uddin, Chairman, Sundarban Union, Mongla, Bagerhat.

2.2.3 Secondary Research

The secondary data of the study involved a detailed desk review of relevant project documents. This also included a review of the project proposal and other relevant documents. The other part of the desk research included a review of the available literature and studies on the key issues. The information collated through the literature review was compiled and used in developing a brief study tracking the broad parameters/ key dimensions for the baseline survey.

2.3 Quality Control and Field Editing

As part of the quality control measures, more than 50% of the submitted filled-up questionnaires were reviewed every day online (as the survey was DDG system which was conducted through Tabs) by the respective country administrator (M&E) and required corrections were made on the spot. Field supervisors were present to check the completed survey questionnaires for any inconsistencies before departing from the field. A further review and cross-check was made at the team meeting that took place every day at the end of data collection to check any questionable figures and to discuss field interviews with the participation of enumerators and respective country administrators (M&E) A strong quality control mechanism was installed at various levels. The respective country administrator (M&E) also made a number of field visits during the fieldwork.

CLIMATE RESILIENT **LIVELIHOOD**

(Objective-1)

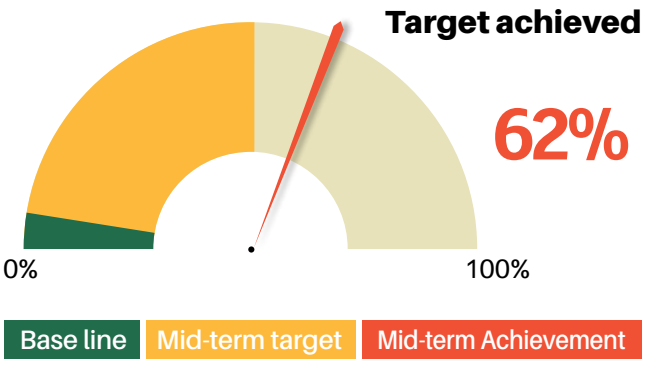
3.1 Indicator Based Outcomes

The first expected result of the project is the intervention and promotion of Climate resilient livelihood among the targeted extreme poor households.

A total of five (5) indicators were identified to judge the achievement of the project. The midterm evaluation has justified indicator based present status of the project compare to its baseline survey. Synopses of result#1 have been highlighted below:

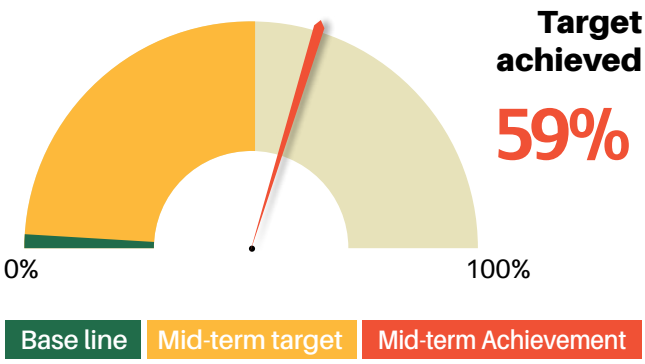
Indicator 1.1

Composite agriculture practice is a key objective of the project. At the beginning of the project, only 5.2% people were engaged in composite agriculture. This has increased to 62% by December 2016. The mid-term target of composite agriculture practices was 50% of the target population of 1,500.



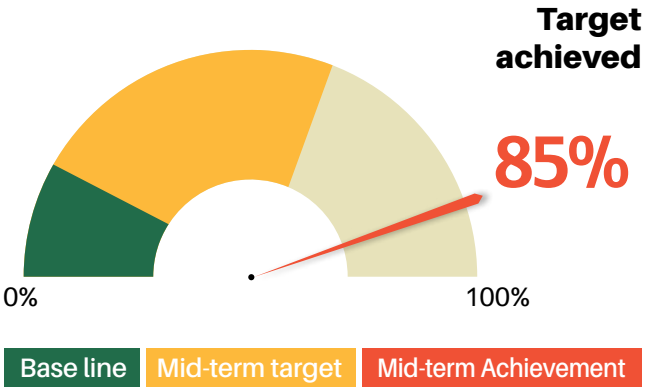
Indicator 1.2

Only 1.9% respondents were collecting rainwater for the use in lean period. By MTR, 59% of the respondents started to practice RWH. There is a high demand for RWH systems among community members. However, it is a seasonal operational technology and the project has only had one season to work with beneficiaries on training and rainwater harvesting. The mid-term target of practicing RWH system is 50% of total target population (1,500) for the activity.



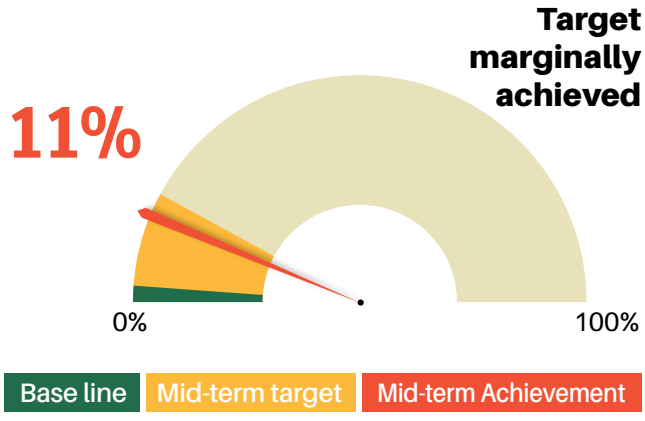
Indicator 1.3

The MTR found that 85% of total beneficiaries (6,000) grew saline tolerant tree species in their homestead, which is quite higher than the mid-term target of 50%. At the beginning of the project only 17.8% people had saline tolerant species in their home garden.



Indicator 1.4

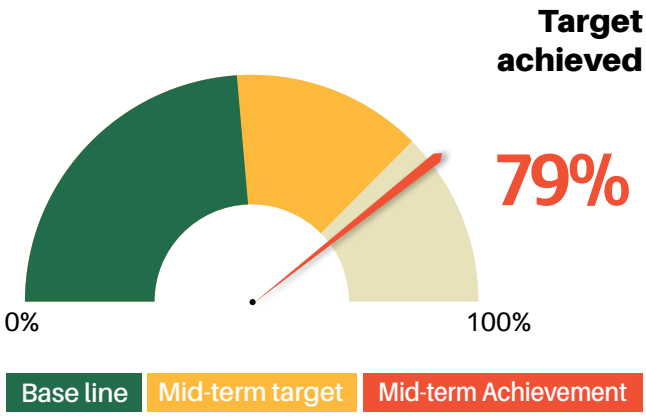
At the beginning of the project aimed for a 25% income increase across 100% of the targeted households through agricultural production and climate adaptive livelihood (CAL) interventions. Thus 12.5% of HH should have income increased from climate adaptive livelihood by the MTR. This study reveals about 11% increase of income from CAL, which a slight behind from the target. This objective should be monitored with a greater attention.



Indicator 1.5

Access to safe drinking water (SDW) is a great concern for the people in the area.

At the beginning of the project only 47% people informed of having access to safe drinking water. With a target of 100 coverage of safe drinking water, the mid-term target is 74%, whereas, the MTR found SDW coverage as 79%.



3.2 Achievements

3.2.1 Composite Farming

A total of 964 beneficiaries are practicing composite agriculture, although training of composite farming has been provided to a total of 1,022 participants. Rest of the people who received training are waiting to receive cash to go for operation. Rest of the target beneficiaries (478) will get training and fund in the second half of the project. About 43% of the responded informed about their practice of composite agriculture (Figure 5) , which was only 5.2% during the baseline survey conducted in November 2015, indicating that composite farming increased by about 38% compare to pre period of Resilience Project. As high as 62% of the people practicing composite agriculture did receive a cash grant of Tk. 9,927.00 from Resilience Project. This money was provided as seed money to prepare, vegetable beds, buy seeds and other supplies.

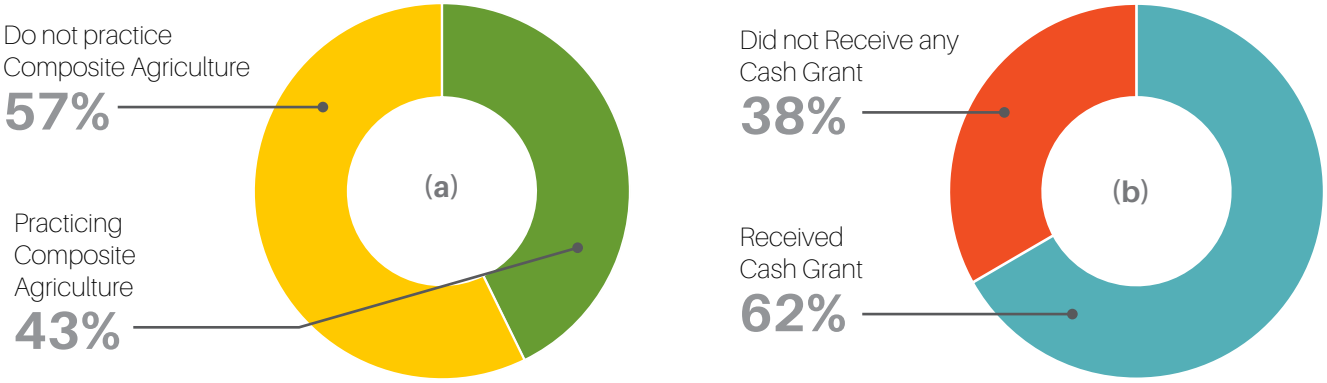


Figure 5: a) Practice of Composite Farming, b) Cash received by Composite Agriculture farmers

Figure 6: A composite farm.

Composite farming is integrated farming of rice, fish and vegetable in a small piece of land (Figure 6). However, two-thirds of the people who are involved in composite farming are involved in the production of these three type of production (Figure 7). People involved in fish and vegetable; rice and vegetable; rice and fish and only vegetables are 13%, 12%, 5% and 4%, respectively. Land shortage is a major cause for not having fish farming in all HHs. Additionally, some species cannot be grown in all places because of salinity variation in different parts of the project. Soil salinity is a key cause for not being able to cultivate vegetables or rice in some parts of the project area.

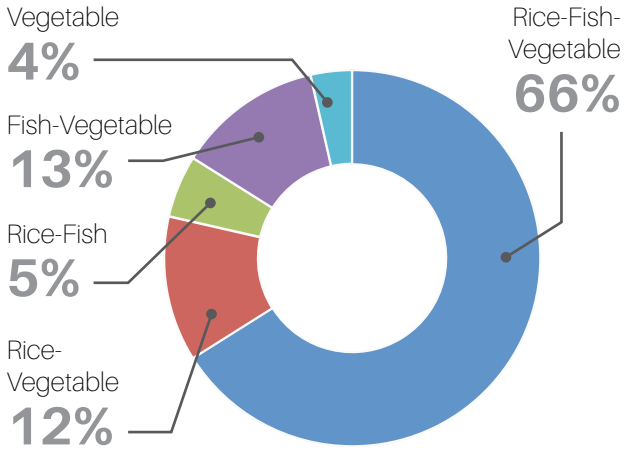


Figure 7: Type of Composite Farming

3.2.2 Income Increased

Income of the respondents has increased substantially because of the project intervention. Field data suggests that income of the project beneficiaries has been increased by 56% (Figure 8). However, income of males increased slightly higher than that of females. The rate of increase in income of female members is expected to be higher than present value by the end of the project. Because, by the end of the project, the composite farming will achieve maturity and women's increase will increase.

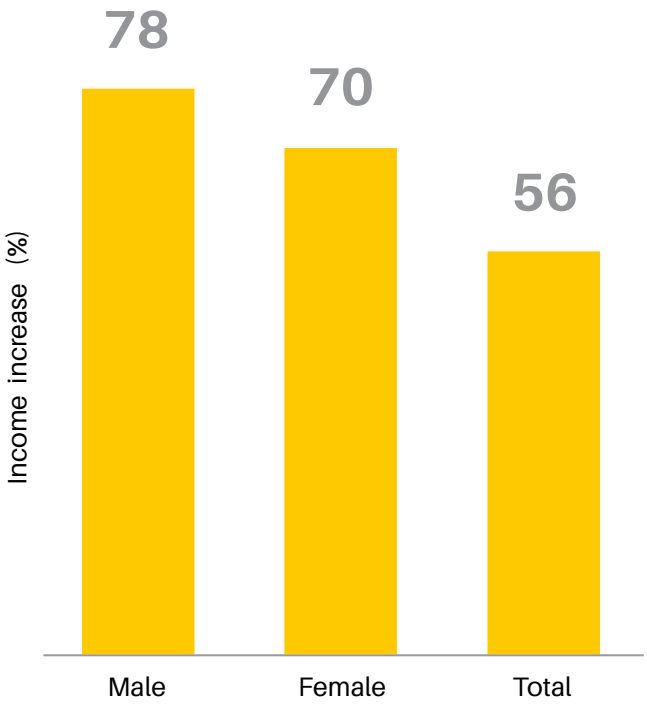


Figure 8: Rate of increase of income

3.2.3 Rain Water Harvesting (RWH) System

Collecting rainwater and preserving it for use in the dry season is good way of arranging access to freshwater in very water scarce areas. Out of the respondents who addressed the question about rain water, 59% were practicing rainwater harvesting (Figure 9). After having training on RWH, households received a big water tank (Figure 10) of 1500 litres which was installed by the wall of the house to

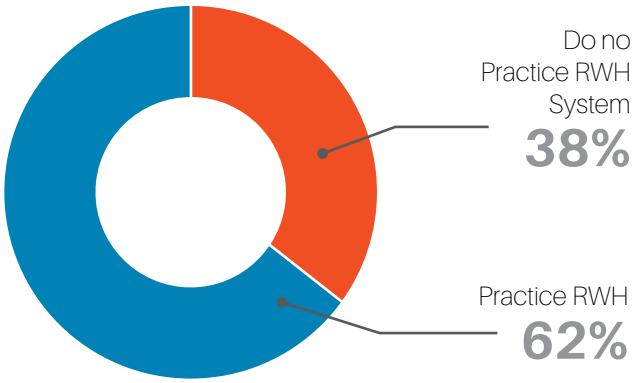


Figure 9: Respondents practicing RWH

receive and store water from the roof of the house. Financial support for the installation of water tank was equivalent to Tk.13,745. A few of the RWH users also informed us that a portion of the collected rain water was used for vegetable growing that enabled them to earn an extra income. The additional income generated from collected rainwater ranged from Tk. 250.00 to Tk. 1,000.00 in various household.

Figure 10: Water tank supplied by Resilience Project

3.2.4 Saline Tolerant Tree Species

A huge number (85%) of project beneficiaries have planted saline tolerant tree species in their homestead (Figure 11). By the end of the project 100% of 6049 community people will have their own garden with saline tolerant trees. However, people having saline tolerant tree species on their embankment is 46%. This proportion of people is quite high compared to earlier stage, as baseline survey indicates only 17.8% of people having saline tolerant species planted in homestead or embankments.

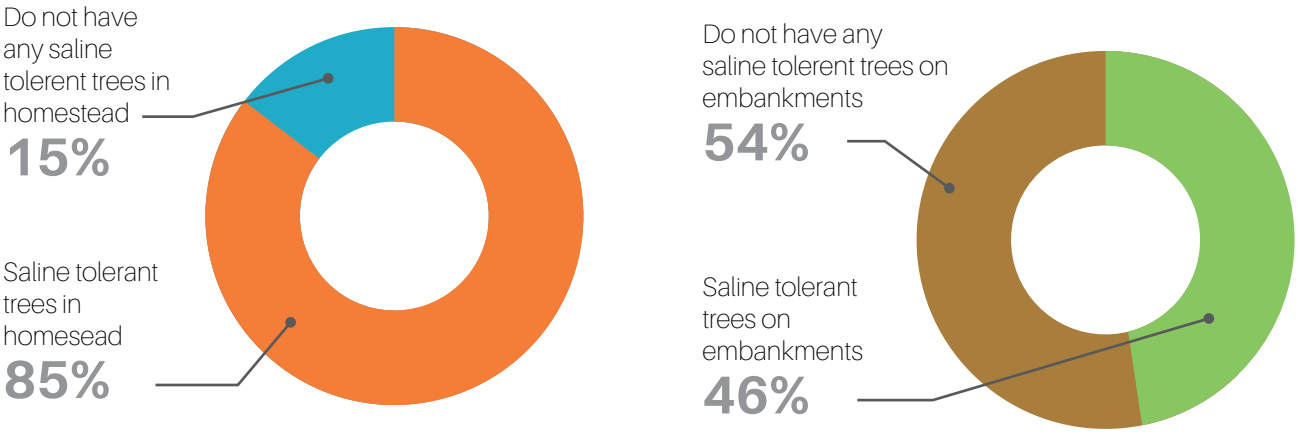


Figure 11: Respondents having saline tolerant species

Figure 12: Saplings of salinity tolerant species distributed among beneficiaries

The key objective of having saline tolerant species in the homestead or embankments is to protect communities from cyclones. Communities have been supported with saplings of saline tolerant species (Figure 12). Big trees around a house can protect it from being affected by strong winds. Saplings provided to communities have just been planted. They are too small at this stage to be considered as house protectors. Therefore, it is too early to look at this aspect, but certainly trees near houses and embankments will provide a first defence against strong wind and tidal surges. However, a small number of saplings have perished due to natural causes. Survival of some saplings has been found as a challenge of the project. Providing replacements of these dead plants is essential for the survival of target number of trees.

3.2.5 Safe Drinking Water

Drinking water scarcity is the greatest challenge for the people in the project area. After the project intervention , the source of drinking water sourcing in the area has changed visibly. Collecting water from ponds or open wells has reduced from 52% to 19% (Figure 13). Collecting water from deep tube wells and rainwater harvesting systems has increased by 27% and 9% respectively. The increased rate of water sourcing from rainwater was due to water tanks being supplied by the Resilience Project.

Notable reduction of unsafe water sourcing was possible because of peoples' awareness on health and sanitation.

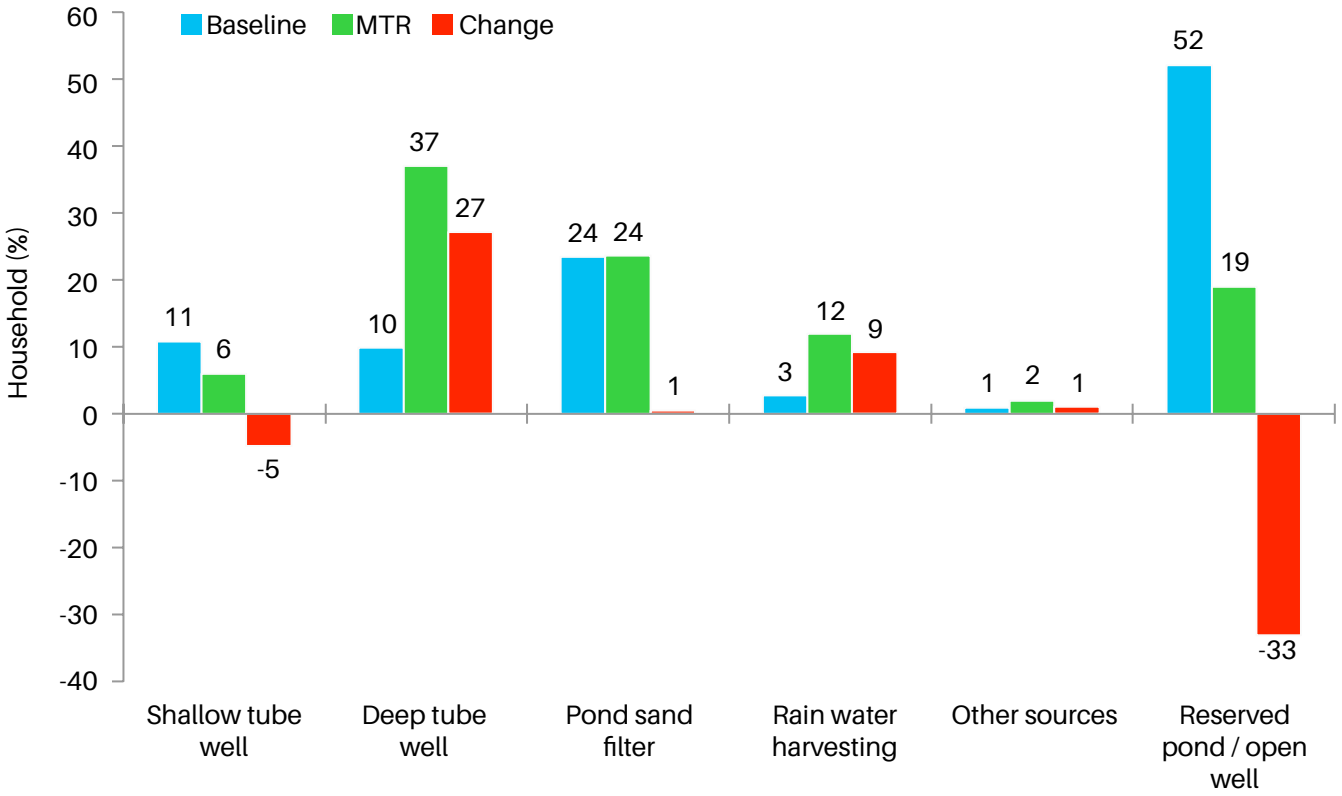


Figure 13: Change in access to drinking water

A total of 79% of community beneficiaries have access to safe drinking water. The percentage of people accessing drinking water from shallow tube wells, deep tube well, pond sand filter (PSF) and rain water harvesting systems are 6%, 37%, 24% and 12%, respectively (Figure 14). However, at least 21% of people (19% from pond and 2% from other sources) access their essential drinking water from unsafe sources. Only a very small portion of rainwater could be used for irrigation as the majority has to be used for drinking water.

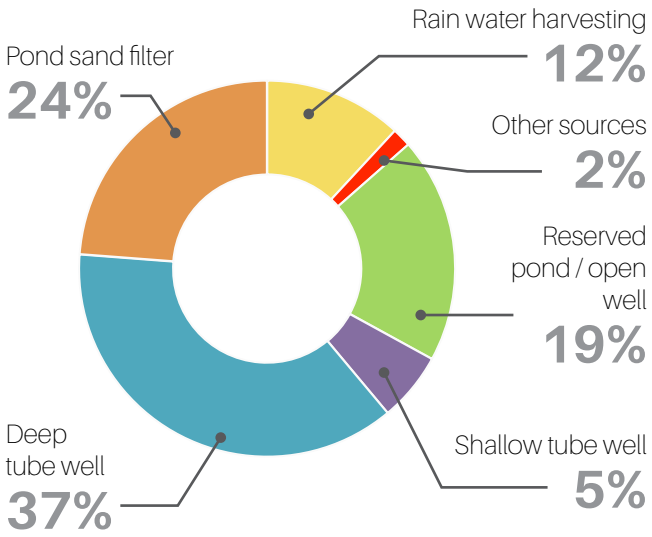


Figure 14: Drinking water access at the time of MTR

3.2.6 Dietary Diversity

Dietary diversity is an indicator showing the different types of food people wat in a 24 hour period (UNSCN 2008). Increased production of rice, vegetable and various species of fish in composite farm has enabled communities to have various types of food. Increased food production has offered people the option to have different types of food. Out of a total of 12 food groups, the dietary diversity of the people in the target area was 8.2 in the baseline study. The MTE has found it to be 9.4 in 2016 (Figure 15). Increased dietary diversity confirms people improvement in food consumption and nutritional intake.

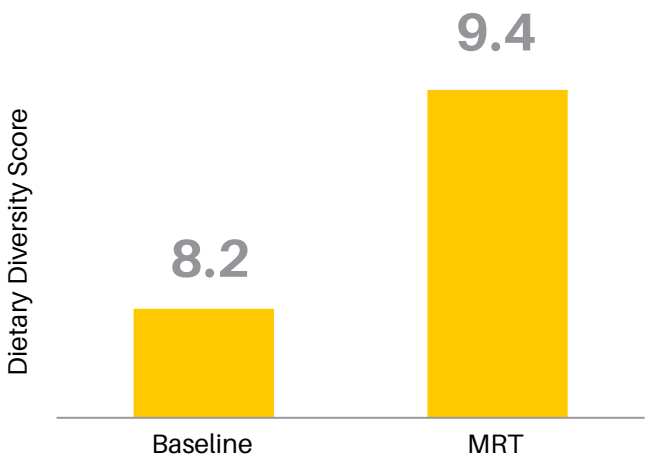


Figure 15: Dietary Diversity

3.3 Field Observation

1. Communities engaged in composite farming are very happy regarding their own production of fish and vegetables. They consume essential fish from their own pond. Daily needs of vegetables are also maintained from their own gardens. Thus, nutritional intake of household members has increased. Additional fish and vegetable are sold in the market which provides cash income to the household.
2. Composite agriculture seems very good in Shyamnagar, Assasuni, and Koyra and moderate in Dacope upazilas. However, composite agriculture in Mongla and Morrelganj upazilas is not as good as the other four upazilas. High salinity intrusion in water and soil could be the main cause behind it. Inadequate government initiatives in these two upazilas compared to other parts of the study area can be the main cause of reduced practice of saline tolerant species. Government officials and influential leaders need to be sensitised for location specific programme interventions.
3. Individual level plantation is going very well, except minor mortality rate. such plantation is taken care by individual community. However, community based group level social forestry on road side or in other common property area do not have sufficient safeguard or fence to protect from being destroyed by goat, cow, or human movement. People owning the nearby crop fields can be involved with the initiative, so that the plants are included in the fence set to protect crop. Fencing supports for roadside plantation will save the plants.

3.4 Gaps

Some gaps have been identified in relation to the achievement of Result#1. Addressing the gaps may help in a better performance of the project:

1. The project covers livelihood activities through composite farming (rice-fish-vegetable), drinking water facility through rain water harvesting system and social forestry. These three components of direct help have three different, but unique aspects. Composite farming supports community with subsistence options. RWH arranges clean drinking water supply in the lean period. Social forestry is helpful for protection against tidal surges. Saline tolerant trees will also provide fruits, as most of the trees provided are fruit trees. All of these three component are very important from a resilience point of view. In order to achieve resilience amongst poor households, each household need supports from all three components.
2. Present water tanks can hold drinking water for a four member family for four months, but the drinking water scarcity period is more than five months. Water tanks provided at the present are not always big enough to support drinking water of a small family. Communities can be supported by a bigger tank of 2,000-3,000 litres depending on the number of family members /suitability of their home. On the other hand, people living in a smaller and lower houses prefer smaller tanks of 1,000 litres because of lower instalment and maintenance costs.

3. Strong houses are essential to collect rain water. In order to get the roofs ready for collecting rainwater, supports have been provided for strengthening roofs of houses. The efforts for providing RWH systems could not reach all of the ultra-poor, but, they have been supported for social forestry.
4. Some saline tolerant species have been distributed among a subset of the beneficiaries. A small portion of them informed of mortality of the saplings provided. Mortality of saplings is a natural process and cannot be stopped by human intervention. However, an increased number of saplings (~25%) can be provided so that targeted number of saplings may survive.

3.5 Conclusion

Identification of target beneficiaries, group formation having mostly women members and group leaders and providing training to the participants have played strong role in confidence building among climate vulnerable communities, especially in women. Bringing women out of the domestic roles is a great challenge in rural Bangladesh, especially in that particular area of Bangladesh. But Resilience Project has motivated them to be engaged in productive activities. Involvement this section of people in development process and including them in leadership process are key successes of the project.

Alternate income generation through composite farming has offered four-folds benefits for rural vulnerable people. First, it has offered an scope to convert unproductive fallow land into productive ground. Previously, this backyard land were kept unproductive but the Resilience Project has shown them how to get benefits out of this idle land. Second, it has helped them to have a higher rate of nutrient intake because community consumed more vegetables from their own field. Moreover, they had more protein intake from the fishes cultivated in the pond. Third, they could grow some of their required rice in the composite farming field. Fourth, they could sell their surplus vegetable and fish and earn cash, even after satisfying their domestic demand.

Rain Water Harvesting (RWH) training and subsequent technical and logistics supports is an immense assistance to fresh water scarce community. Community are highly happy to have a solution to their drinking water problem. However, community demand is slightly higher than the provided water tank size as they need it to support them for the entire 5 months of lean period. Presently, about one-third of the direct beneficiaries are supposed to have RWH systems support. Regardless of status, the rest of the beneficiaries expressed their interest about RWH support. The frequency and intensity of cyclone has increased along the Bangladesh coast in the recent past (Sarwar and Islam 2013). Sea-level rise (SLR) has also been evident in the region (Sarwar 2013). Cyclone and SLR will aggregate fresh water scarcity in the study areas. Therefore, supporting community with RWH system will solve their long standing problems.

Social forestry provide three-fold supports to the beneficiaries. First, it will act as first order defense against strong wind and tidal surge in extreme events. Second, it will provide fruits in a couple of years and community will have continuous benefits out of it. Third, community will be able to get timber after decadal scale of time. Thus social forestry will provide long term benefits to the community. The MTR concludes a satisfactory progress of Objective#1, but the success of the project will be more visible by the end of its implementation.

CASE STORY

MS. SAMIRA

Ms. Samira (32) is a successful beneficiary of the composite agriculture component of the resilience project from Botolbazar village in North Bedkashi Union in Koyra upazila. There are four family members, including her husband Md. Khorshed Ali and her two sons. Samira became a part of resilience project in March 2015 and received hands on training on composite farming and a financial aid worth 9,927 taka to start. They invested a total of Tk. 13,700 to process the land for production. Additional Tk. 3,773 was borrowed from friends and family. She need about 2 years to start making profits.

Her family has become fully dependent on the composite farming project for domestic demand of vegetables, since the first production and it has been saving them a lot of money on daily expense. Production of fish and vegetables in their own farm has caused an increased nutrition intake of the family members. Previously, they used to eat fish occasionally, but presently, they eat fish regularly. Samira's eldest son is in class 6 standard and he helps keeping all the financial records for her farm. She wishes to support his education on tertiary level and raise a well-mannered son.

CASE STORY

MS. GAURI RANI MAJUMDER

Mrs. Gauri Rani Majumder, a middle aged women is a beneficiary of Rain Water Harvesting (RWH) system of the Resilience Project. She received training on RWH and now has a tank full of drinking water. Gauri and her 10 years daughter used to collect drinking water from a pond located at 2.5 km away from their home. Nowadays she does not need to invest time for collecting water and can engage her time in productive activities. Water stored in their tank are also used in vegetable growing

Gouri has a small backyard, left unproductive because of water unavailability. With supports from the Resilience Project, she uses the backyard and grows various crops like tomato, bottle gourd, cauliflower, and other saline tolerant crops. This farm provides 8 months' worth vegetables and 6 months' worth drinking water for her family. Moreover, she sells around 3,000 taka worth vegetables per year after fulfilling the daily intake of her family.

Mr. Mrinal Kanti Majumder, her husband is an older man with very weak physic who is unable to work in the fields, but he is very supportive towards his wife's farm. After marrying off two daughters while they studying due to poverty, they now have a 10 year old daughter studying in standard 3 who is very interested in learning music. Gauri Rani and Mrinal Kanti are very proud of their youngest daughter and doing everything they can to fulfil her dreams. Small scale earning from their farm is a great support towards the study of her daughter.

Gauri has turned the poor condition of the family with determination and hard work.

DRR, CCA & EMERGENCY **RESPONSE PLANS**

(Objective-2)

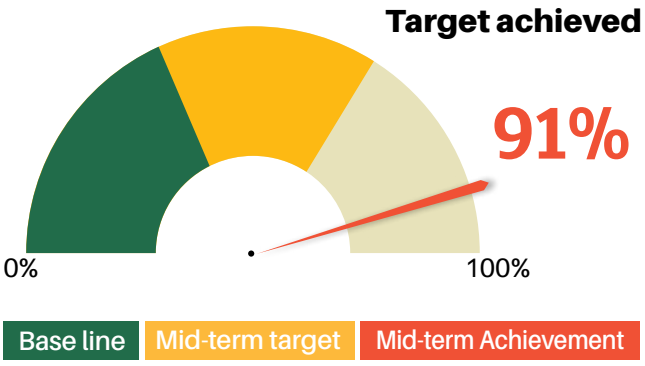
The second objective of the project is the development of Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA) and Emergency Response Plan (ERP) and implemented by the community and the disaster management committees of local governments.

A total of four indicators were targeted to check result 2 of the project. The MTE checked these indicators one by one. Achievements of the indicators are presented in brief, below:

4.1 Indicator Based Outcomes

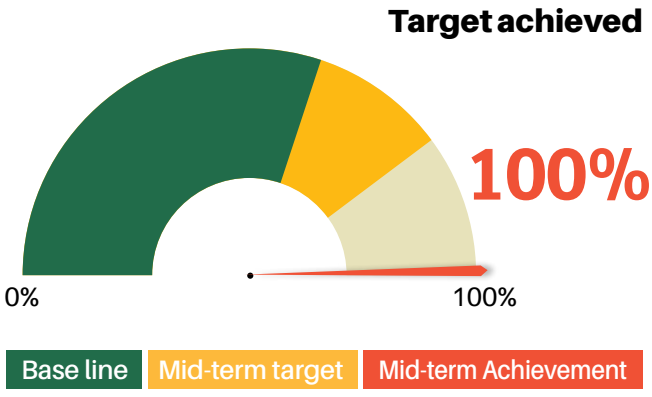
Indicator 2.1

Households have developed their own DRR and CCA plans. Proportion of the people having disaster preparedness plan is very high and much higher than mid-term target. The baseline value of CRVA knowledge was 36.6% and the mid term target is 50%. This MTR found 91% HH having CRVA.



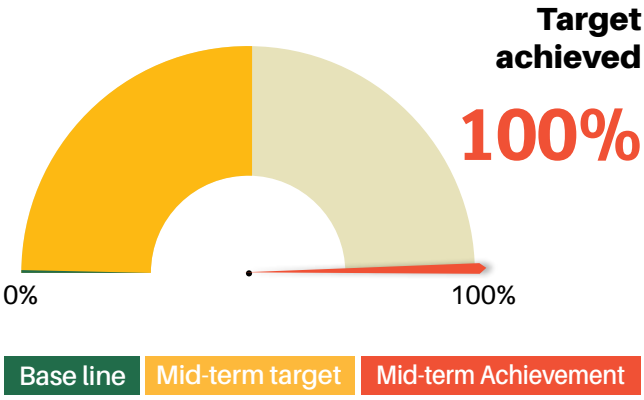
Indicator 2.2

Staffs of 2 partner NGOs and 18 DMCs were provided training on the legal and policy aspects of DRR and CCA in Bangladesh. Target for the entire duration of project was achieved by this MTR.



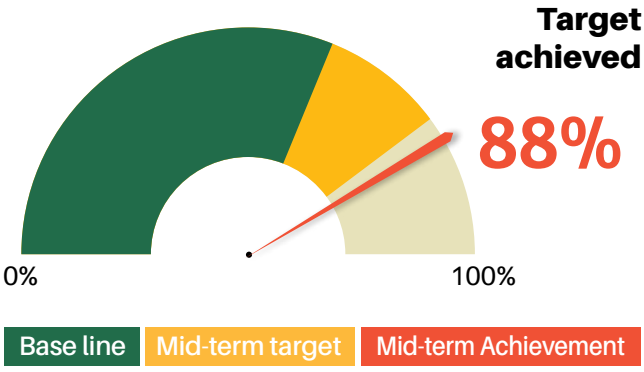
Indicator 2.3

All of the targeted 540 UDMC members and CPP volunteers were trained on the DRR, CCA and Response Plans. Thus, the project reached to its endline achievement by the MTR.



Indicator 2.4

Community contingency plan was developed by the target beneficiaries. The contingency plan was a combination of early warning system and response according to the extent of disaster.



4.2 Achievements

1. Community has prepared their DRR and CCA plans. Beneficiaries of all of 120 villages have participated in CRVA sessions. They have developed village level vulnerability maps and household level DRR plan. Checklist of resources, defined role of each member of the household, disaster warning following and evacuation plan are included in household disaster preparedness plan.

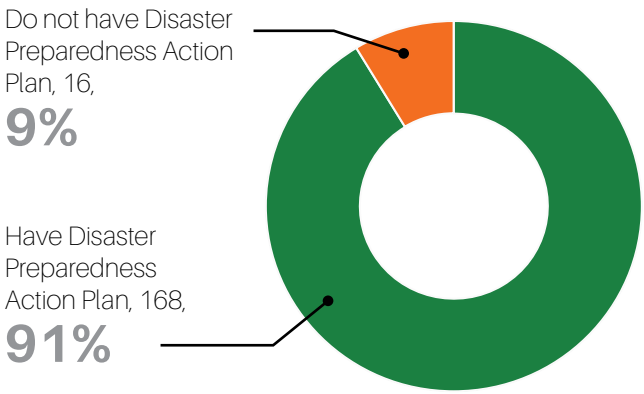


Figure 16: Disaster preparedness action plan

2. Disaster Preparedness Action Plan is a key target of the project. A significant part of the project beneficiaries have prepared Disaster Preparedness Action Plan (Figure 16)
3. Community have developed their own Contingency Plan (CP) for disaster, especially for an emergency event of cyclone (Figure 17). Storage of dry food and drinking water, storage of valuable materials, taking cattle to a safer place, moving to cyclone shelters are some of planned activities of their contingency plan. In case of cyclone signal (warning), people acts differently in different situation. For signal number 1-4 people stay at home with an alert for any necessity of further action. For fignal number 5-7, people get their home organized with storage of dry food and ready to move to Cyclone Shelter Centre (CSC) at any point. They follow cyclone warning and act accordingly. For signal number 7-10, people move to CSC instantly. A Contingency Plan helps to have instant decision in facing a disaster.

Box 1: Different types of plan

- **CCA and DRR action plan:** It is for community level and this climate change adaptation and disaster risk reduction plan is for the entire community people. Through CRVA process this CCA and DRR action plan is developed.
- **Community contingency plan:** The community contingency plan is a customized copy of community level CCA and DRR action plan focusing more on the activities and actions that have focus on disaster risk reduction and emergency response.
- **Household level preparedness plan:** It is individual household based plan focusing individual household won adaptation and risk reduction plan. The staffs facilitate individual household to prepare her/his own plan.
- **Union level development plan:** This plan is prepared by the Union Parishad (local government) through following community consultation process. Necessary budget allocation is made from local government own fund, government allocation and another NGO support. Then Union Parishad prepares the union development budget with list of activities for a year. This plan is also called local development action plan.

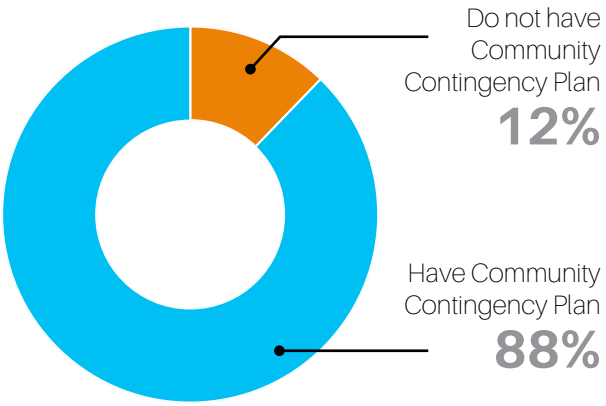


Figure 17: Community Contingency Plan

4. A total of 18 Disaster Management Committees (DMC) have been supported with DRR training. The capacity of DMCs were increased by supporting them with regularization of meeting and providing training on CRVA and legal aspects of disasters. Capacity of DMC have increased compare to pre Resilience Project period. Therefore, the DMCs are more capable to support community in the time of disaster event.
5. Members of Task Force Committee (TFCs) were supported with mobile phones and Radio units. TFC members also attend various disaster forums at upazila and union levels and communicate their local problems to broader stakeholders. Emergency Response Committee (ERC) has been emerged to lead zero hour response after a disaster event.
6. The UDMCs were supported with early dissemination tools like mega phone, torch, mobile phone, raincoats, etc.
7. Disaster awareness was enhanced by means of several activities. Simulations mock drill on DRR and CCA were conducted in the project area. Additionally, mass awareness was raised by arranging public gathering, pot songs, cultural programmes and day observation.

4.3 Field Observation

1. Community also developed temporal vulnerability maps and identified seasonal vulnerabilities (Figure 18a).
2. FGD sessions explored that community participated in CRVA sessions arranged by the project. They have recognized CC and disaster vulnerabilities and risks and identified response measures. Their group works have been presented in the form of Community vulnerability map. (Figure 18b)
3. Digital Early Warning System (EWS) was developed for community members. Taskforce members were provided with radio and mobile phones. The mobile phone is used to disseminate early warning received in the radio. Facebook Groups were created to disseminate disaster forecasts and other emergencies through this group. Government Officials are also member in this social media group and community can communicate emergency news and needs to respective offices through social media network. Task force members can also communicate local resilience issues to higher authority of government.

Figure 18a: Community developed Vulnerability Calendar

4.4 Gaps

1. CRVA developed by community can be printed in a larger size board (Mini billboard) and displayed in a higher pedestrian area. The billboard can be developed in Bengali so that all type of local people of all ages can read and understand the message. It will help community to see the preparedness message frequently and remember relevant vulnerabilities and response measures.
2. The project area does not have household level disaster preparedness plans. Concern Worldwide has implemented SUNDARI in Khulna and Satkhira districts, where household level disaster management plans were a successful example of community level disaster management initiatives (Sarwar and Sanyal 2013). Similar household level disaster plans can be developed in the target areas.
3. The project should strengthen its effort to foster community led initiatives to disaster risk mitigation.

4.5 Conclusion

Community Risk and Vulnerabilities Assessment(CRVA) is a major activity performed by the Resilience Project. TFC members have received training on CRVA and through them, all 6,000 beneficiaries have received the same training on CRVA approach. Community have discussed disaster in terms of its impacts at local level. Community has assessed the risk and vulnerability of specific disaster in their locality. Taking part in CRVA session has enabled community to understand a disaster and its effective response mechanism. Based on their own vulnerability and risk assessment, community is able to take protective measures to reduce disaster risk. Having CRVA training community demonstrated have demonstrated how they have assessed their own risk. Based on disaster risk, they have developed their own response plan

for each disaster. Community have also developed disaster calendar.

Task Force Groups are engaged in disaster preparedness and early warning dissemination works. UDMC and CPP volunteers are also engaged in similar tasks. Instead of forming groups for repeating tasks, they can be used beyond disaster. These groups can be organized for the achievement of community resilience. Task Force Groups can be renamed as Community Resilience Group, with a formal interactions with similar groups in the area.

Legal arrangement for these groups will help to attain sustainability.

Contingency plan developed by community has opened an opportunity to have better insight of disaster. Active participation of DMCs and staffs from 2 partner NGOs offered a good opportunity for their intellectual capacity building. The second objective of the project is greatly achieved.

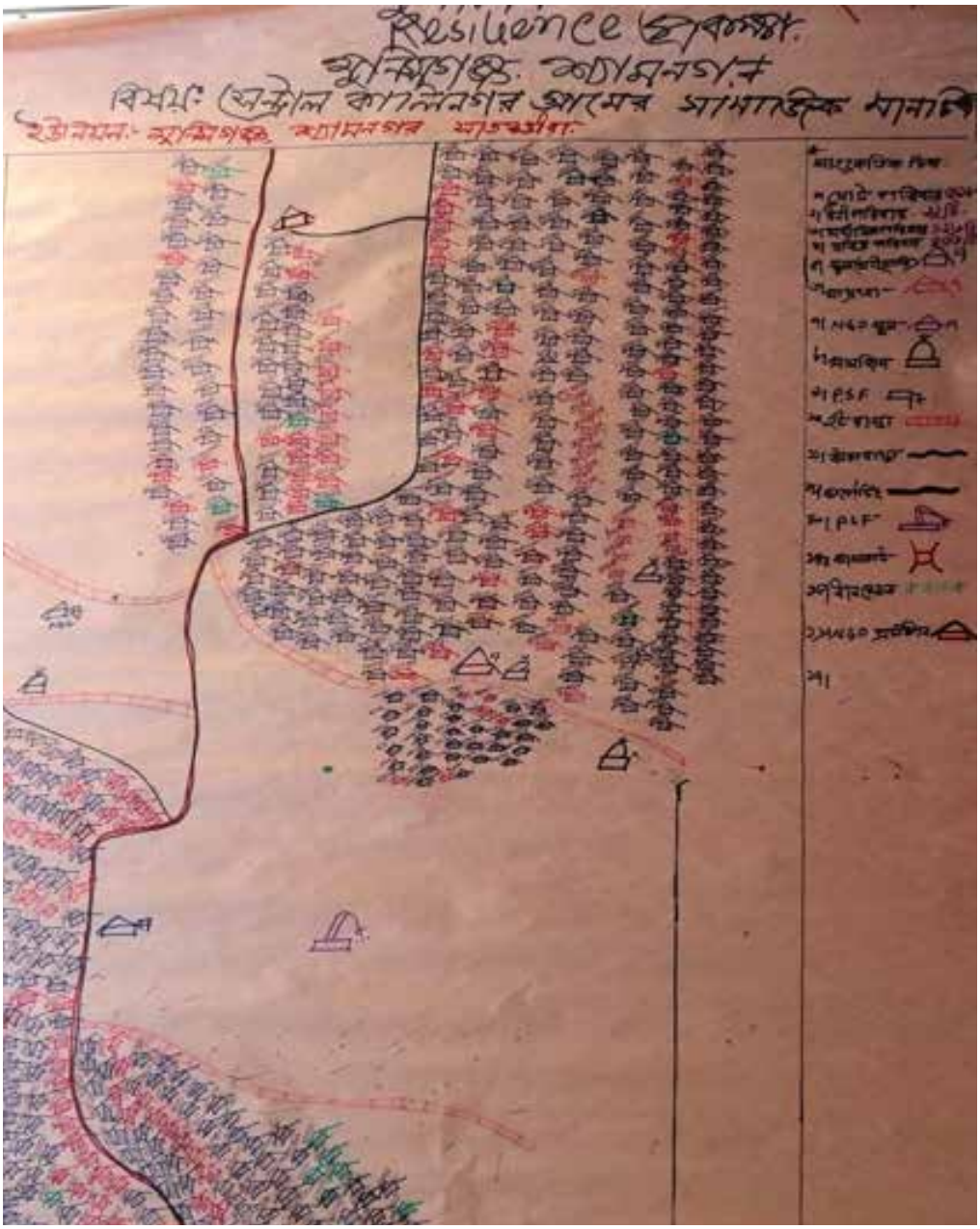


Figure 18b: Community developed Vulnerability map

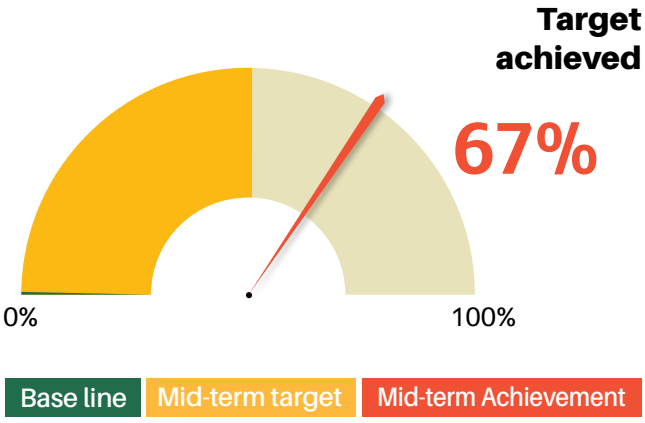
COORDINATION

(Objective-3)

5.1 Indicator Based Outcomes

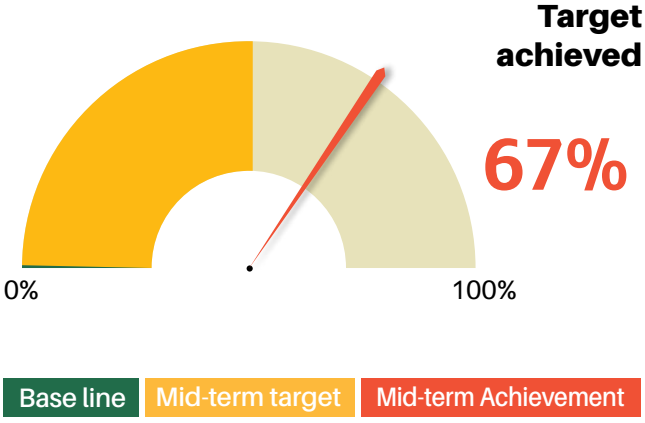
Indicator 3.1

The project provided training to disaster management committees in target areas on the legal aspects of disasters in Bangladesh. The training also focused on relevant Acts, policies and strategies. The project supported disaster management committees to arrange regular and timely meetings.



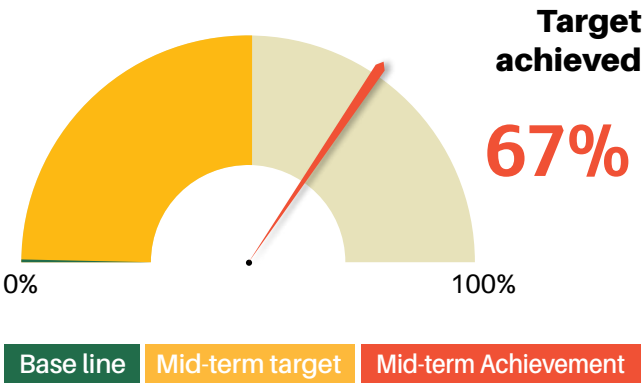
Indicator 3.2

Training on BBR e-learning course was provided to key stakeholders, including. but not limited to government officers, UN officers, NGO/INGOs personnel, members from DeSHARI/ NARRI consortium, Red Crescent staffs, CPP volunteers, members of UDMC, UP chairmen.



Indicator 3.3

Regional workshops on e-learning for BBR certification were arranged for the improvement of intellectual capacity of key-stakeholders of the study area.



5.2 Achievements

1. Government officials and local leaders have been trained on Climate Change Adaptation, Disaster Risk Reduction and legal instruments of Disasters in the country (Figure 19).
2. Improved coordination among the local government and civil society organisation evident though regular meetings of the DMCs. A total of 18 UDMCs have been supported for a better coordination with CSOs (Figure 20). The DMCs have been supported in conducting their regular meeting.
3. The capacity of DMCs have been developed by supporting them with regularization of meeting and providing training on disaster legal aspects of disasters in Bangladesh. The main sessions of the training have been covered the basic on CCA and DRR, standing order on disaster, community risk assessment and planning process. The interactive training got priority on discussion how

Figure 19: DRR and CCA Training

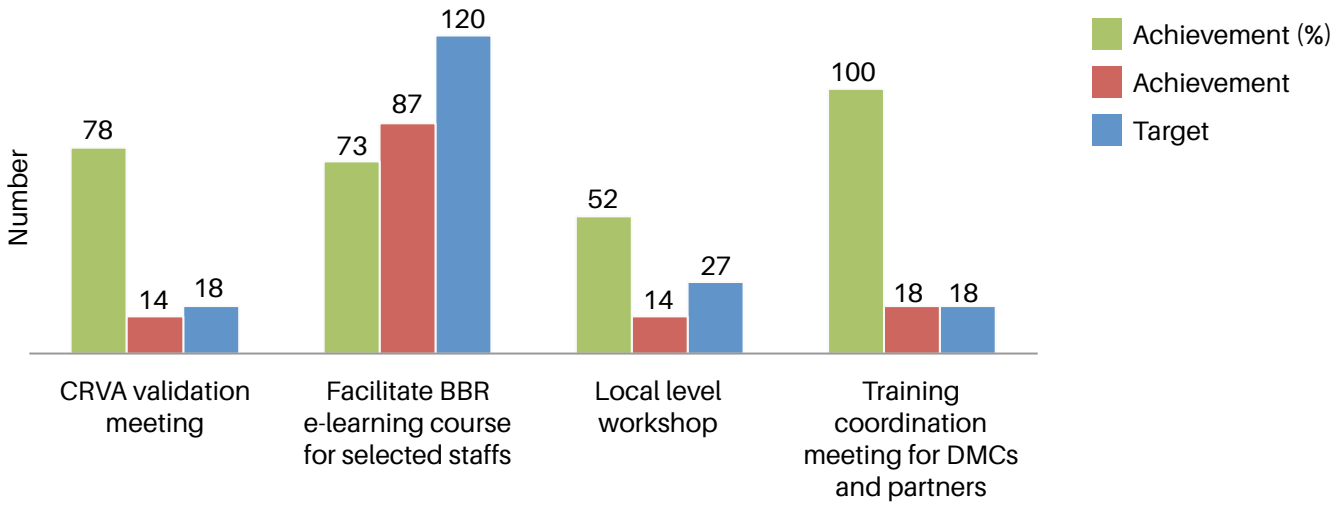


Figure 20: Progress of Objective 3

this risk assessment process are in practices at local government level and how the community issues could be feed with development process. The training also included the legal aspects of disasters in Bangladesh including but not limited to fundamentals of climate change, National Adaptation Plan of Action (NAPA), Bangladesh Climate Chanhge Action Plan (BCCSAP), National Disaster Management Policy 2015. This training helped in a better understanding of Standing order on Disaster (SoD) and other rules and regulations of the sector in Bangladesh Government.

4. Local key stakeholders have been supported with Building Better Response (BBR) online learning. A total of 87 staffs representing government office, UN, INGOs, NGOs, CSOs and press have been supported with online training on humanitarian principles, international humanitarian architecture and cluster approaches.

5. Three regional workshops on BBR have been targeted at the beginning of the project, and total of two workshops have already been conducted that facilitated a total of 67 participants to qualify for Building Better Response (BBR) e-learning course. A total of 17 stakeholders have qualified this prestigious course offered by Humanitarian Academy at Harvard. Contents of the e-learning course are i) CC and DRR, ii) Humanitarian principles, and iii) International humanitarian architecture.

6. All meetings (CRVA validation, local level workshops) were conducted timely, and in advance in some instances.

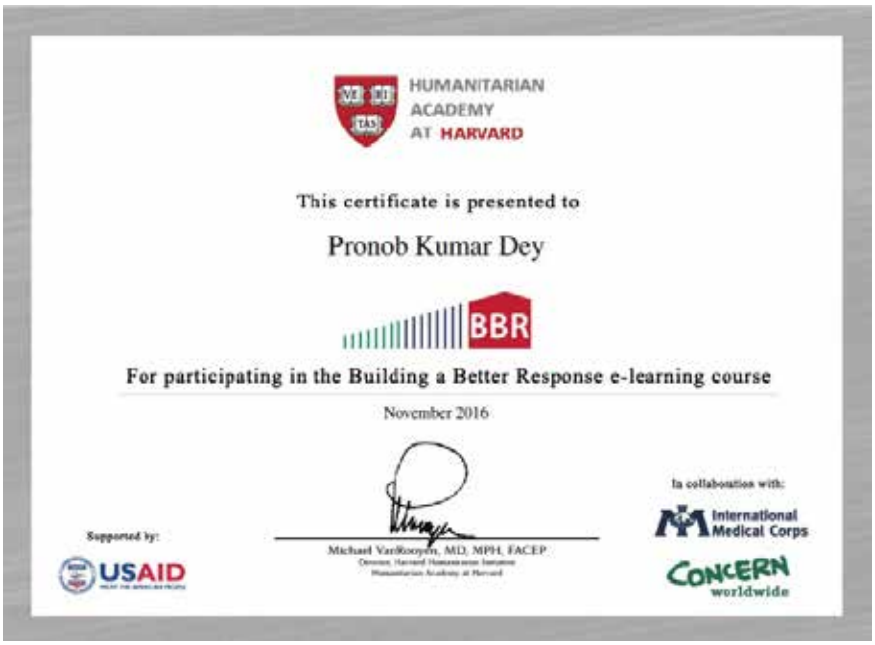


Figure 21: Certification by Humanitarian Academy at Harvard, earned by a course participants

5.3 Field Observation

1. Stakeholder mobilization was a key component of the objective #3. People engaged in disaster management, especially, members of disaster management committee were trained and sensitized for a better understanding of and according to a disastrous event.

2. Intellectual capacity of key-stakeholders were enhanced through BBR e-learning course. As part of BBR e-learning training participants received online classes on humanitarian technology, vulnerable populations, women in war, implementation science, humanitarian coordination, disaster resilience, climate change and urbanization. Some of the course participants also qualified themselves and passed in the certification exam offered by Humanitarian Academy at Harvard (Figure 21).

5.4 Gaps

1. The BBR e-learning course has been offered mostly to officers of various organizations representing government or non-government organizations. These service holders generally come from a different location and transfer to other places after a certain period of time. They will move to a different area after being transferred by higher authority. A small number of local people, such as UDMC member and UP chairman have been provided with the training. More local participants (i.e. educated youths, teachers of local educational institutes) can be included in BBR learning activities.

2. An overseas BBR e-learning training of 2 staff members remained unspent because of unavailability of the same course in English in past year of the project.

5.5 Conclusion

The project interventions developed the capacity of disaster management committees to conduct regular meetings, thereby enabling better functioning of DMCs. Members of the Task Force Committee were supported with EWS Dissemination tools such as cell phones and radio units. After receiving disaster warnings by radio, the TFC disseminate the message among their communities using the mobile phone, and by posting on social media platforms. Key stakeholders received BBR e-learning training to develop their knowledge and capacity on the issue. However, providing BBR learning to qualified local residents is more useful because government officers and NGO staffs are not likely to remain in the official positions for a long period of time. Reasonably, learning and knowledge acquired from the e-learning course will also be transferred to another place.

The overall outcomes of Objective 3 has been achieved.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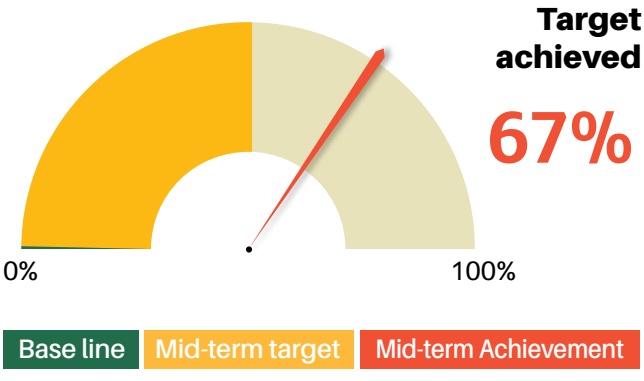
DOCUMENTATION & **DISSEMINATION**

(Objective-4)

6.1 Indicator Based Outcomes

Indicator 4.1

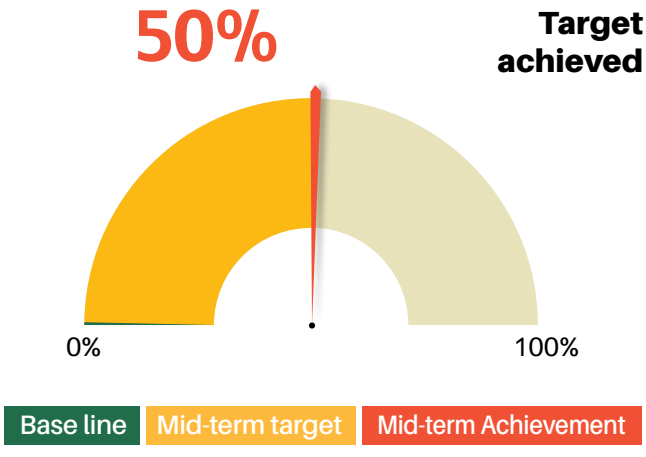
Lessons learnt and best practices on climate resilience have been documented. A total of 16 case studies of success stories have been prepared. Furthermore, 1 learning document on climate adaptive agriculture and 1 learning document on the works and initiatives of TFC members have been prepared and shared with seven government offices (Agriculture, Fisheries, DPHE, DRR, FD, SRDI, BARI) and INGOs (World Vision Bangladesh, Winrock International, Worldfish, Save The Children, Caritas), academic (KU, KUET), local NGOs (Sushilan, JJS, Nabolok, Uttoran, Rupantar, Pradipan, Ashroy Foundation), and media outlets (print and electronic).



Indicator 4.2

Independent evaluation of a project is important to understand the level of its target achievement. Present study is the Mid-Term Evaluation of the project and the final evaluation will be conducted by the end of term.

Same minded NGO have been inspired to implement resilience in their activities. Government organizations have been involved to disseminate the idea and replicate project activities. Private sectors i.e. Gazi Tank and Madina Tank partners are searching for partners to sell the tanks.



Indicator 4.3

Establishment of sharing and learning platforms at regional and national level to influence the scale up and allocation for resilience is the last activity of Objective#4.

Resilience Project has participated in CBA Workshop of ARCAB and attend climate change meetings of Gobeshona. The project has also been part of National Water Logging Platform of NARRI consortium. Local level disaster form has also been participated.

Target achieved

6.2 Achievements

1. Best practices and lessons learnt have been shared with key stakeholders through arranging regional workshops. A total of 3 workshops were targeted, and out of that, 2 workshops have been completed by October 2016. These workshops had a special focus on documentation of best practices and lessonlearnt.2. NGOs working in the region have been inspired to have a special focus on resilience through their different activities. Government organizations, especially BARI, have been involved in disseminating composite agriculture.

3. Private sectors have been involved in the project activities, especially in RWH systems. Gazi Tank and Madina Tank companies are searching for partners to sell the tanks. They have improved marketing strategies in the area, and as a results, the communities now have easy options of purchasing tanks. Observing successes of the project, Micro Finance Lending Organizations (MFLOs) are now offering loan services to the community.

4. The project is supposed to have terminal evaluation to gauge the progress and to evaluate if all achievements are on track. This MTE is part of the evaluation process and a final evaluation is due by the end of the project.

5. The third indicator of the fourth objective is establishing effective sharing and learning platforms through the facilitation of a Regional Meeting in the South Western Coastal region. It might be too early to arrange such a meeting, as participation may be low at this stage. However, a regional Conference on Community Resilience is due at the end of the project.

6.3 Field Observation

1. Documentation of best practices and lesson learnt was evident. These documents have been shared with government offices, local NGOs and media.

2. The project activities have been replicated by other agencies. A similar project, especially having provision of drinking water, has been implemented by WaterAid.

6.4 Gaps

1. Knowledge exchange visits can be conducted for with similar projects implemented in different parts of the country.

2. A publication can be developed with a view to highlight and disseminate the successes and learning of the project.

3. A coastal convention can be arranged, so that sectorial research and project lessons can be shared with top political leaders. Currently, these leader often remain unaware about the successes of similar good projects due to a lack of visibility activities.

6.5 Conclusion and Recommendations

The project is highly successful in involving private sectors for the availability of water tank in the area. Community now have easy access to purchase water tanks. Being convinced by good example of RWH systems, INGOs are undertaking similar programmes in the area. Local NGOs are also undertaking similar components. An important aspect of Resilience Project is the implementation of similar activities, especially CF in the activities of government organizations. Microfinance Institutes have extended their activities in the region. The initiatives of Resilience Project is a takeoff of regional resilience that will be moved forward by other actors in the southwest part of Bangladesh.

RESILIENCE PROJECT UNDER **THE LENS OF DAC CRITERIA**

Organisation for Economic Co-operation and Development (OECD) has developed an evaluation criteria to analyse Relevance, Effectiveness, Efficiency, Impact and Sustainability of a development project (OECD 1991). After having overall assessment of Mid Term Evaluation of Resilience Project, these criteria have been checked thoroughly. Additionally, other cross cutting issues have also been focused.

7.1 Relevance

SUNDARI was a pilot project on composite agriculture, and was greatly appreciated in the final evaluation of the SUNDARI project. Additionally, the Mid Term Review of the Paribartan Project indicated details about composite farming. Drinking water scarcity was highlighted in the MTR of the SUNDARI and Paribartan projects and also in the Final Evaluation of the SUNDARI Project.

The study area is one of the poverty prevailing area of the country. The coastal area is frequently affected by natural disasters, which further perpetuates the poverty of the inhabitants. Additionally, among all the parts of the country, this is the region where drinking water is the most scarce resource. So, composite agriculture and RWH system have been identified as the most suitable option for this region. Freshwater scarcity was mentioned in previous studies of SUNDARI (Sarwar and Sanyal 2013) and Resilience Project. Therefore, addressing water scarcity has been prioritised. A total of 19 indicators have been included in the baseline study that cover all aspects of activities and assess progress of the project. There has been satisfactory progress for most of the indicators. The risks of the project were assessed in the formulating stage of the project.

7.2 Effectiveness

The objectives of increasing the income and improving the nutritional status of target community have been achieved, as demonstrated by field data. Community capacity building in terms of promoting rural production, women leadership, and group formation have been visible by this short study. No unplanned effect has been observed in the study. From the very start of the Resilience Project, all stakeholders have been involved in work agenda. Relevant stakeholders of the area were also involved in various activities of training, coordination and learning sharing.

The project activities are almost same in various parts of working area. Composite farming, RWH systems and social forestry are three components of the project where technical aspects have been emphasised. Although there is no hard core technical aspect in the project, local agriculture officers have been involved in designing composite farming. However, composite agriculture have been finalised after consulting local community and relevant government officials, e.g. agriculture officer.

7.3 Efficiency

Objective 1 was achieved in a timely manner. Outcome 4 has also been achieved as per the planned timeline. In addition, delivery of objective 2 and 3 has been achieved in advance, allowing a full follow up of achievements before the conclusion of the project. Community members greatly appreciated the seeds that they were provided for composite farming. However, very small portion of sapling provided for social forestry have been reported of survival failure.

Considering environmental, ecological and socioeconomic settings of the area, the methodology of project implementation has been considered as an appropriate option. Community support in project implementation has been considered as an added advantage. The project has been implemented with close cooperation from local government (Union and Upazila Parishads). Two partner NGOs (Sushilan and JJS) have always maintained a strong relationship with the local government authorities of the area. Local leaders have a very positive impression about the project. Leaders, especially UP chairmen and members were happy to be able to closely observe the project activities. They are grateful to the Resilience Project as it helped poor people of their villages or unions. Outputs of the project have been achieved almost fully for most of the indicators. In spite of having slight delay in achieving a few activities, most of the indicators in objective 3 and 4 have been achieved 100% by this MTE study.

7.4 Impacts

Composite farming has offered them an opportunity to grow necessary fish and vegetables in their own farm, established in their backyard. As a result, people had higher intake of nutrition compared to pre Resilience Project period. Supports in the form of training and material supply for rain water harvesting have enabled them to store drinking water for lean period. It has saved hours of time that women wasted to fetch water from a distance of 1-5 kilometres. Water borne diseases were also reduced because of having safe drinking water. The impacts cause by social forestry may not be visible right at the time of this report; however, it will have long term impacts on the lives of the beneficiaries. Training was provided for local leaders, i.e. UP chairmen and members. These local leaders and members of UDMCs were supported with intellectual capacity building by incorporating acts, rules, policies and strategies in the field of disaster and development. However, it appears that staff members of local NGOs are more knowledgeable than local leaders.

Arranging extensive training for local leaders can minimize that knowledge gap. People are engaged with training and farming thereafter, and intensive involvement with vegetable gardening, fish production and rice cultivation has taken most of their time. Thus, the beneficiaries do not have much time for involvement with outside activities. The project has made significant improvements in the lives and livelihoods of local communities. People's income and expenditure has increased compared to baseline findings. Additionally, CRVA formulation, community contingency plan development, capacity of local leaders and UDMCs, coordination among local government institutions and NGOs, all improved compared to baseline values of the indicators.

7.5 Sustainability

Composite farming is a self-sustaining concept, having all three components of sustainable agriculture, i.e. i) economic profitability, ii) environmental-health, and iii) social and economic equity (Figure 22; Davis 2016). Its economic profitability has been observed through field study and recorded in case stories. Participants do not use any chemical fertilizers; this keeps the environment safe and food produced in the farm remains organic and healthy. The farm has offered the chance to improve their income sustainably.

Composite farming offers an additional income to community. It helps to grow their food. Nutrient intake of community increases because of consumption of own-grown food. Money saved from the selling of surplus fish and vegetable can be reinvested for

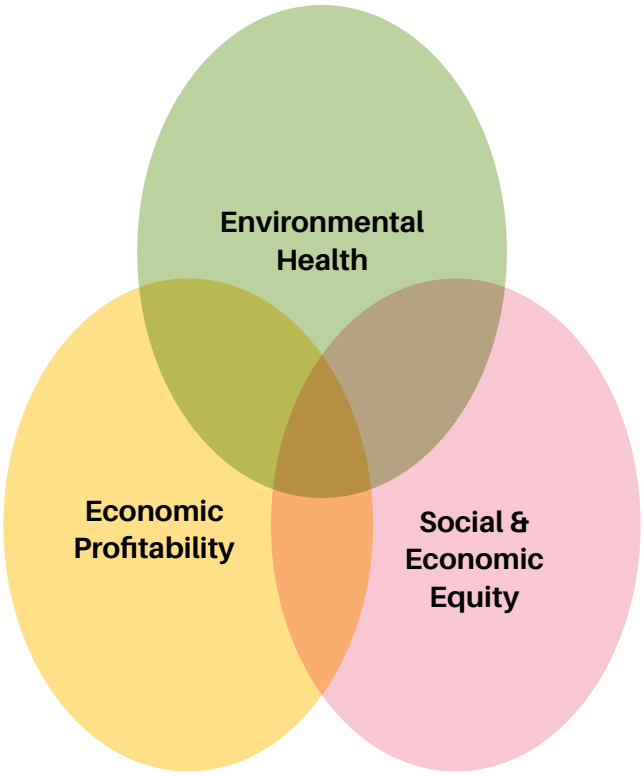


Figure 22: Sustainable agriculture (Davis 2016)

the next cycle of production. However, careful steps should be taken, so that community members do not spend the money before the start of next cycle of production. Community members can be guided to open bank accounts, where they can save their surplus money. A group account can be maintained, in case single person or household does not have sufficient money to run an account.

Direct food production can help to ensure sustainability of the project. Neighbouring communities have started to implement the same through their own initiatives. Thus, sustainability of the project is already visible. Women are already motivated by training and farm management. They work in the pond and vegetable garden themselves. They take their own decision in managing composite farm, social forestry sites and RWH systems.

It might be too early to have an exit plan of the project. However, there should be a clearly defined exit plan ready by the end of the project.

7.6 Cross Cutting Issues

In addition to livelihood option and drinking water supply, the project worked for women empowerment, community development and enhanced interaction among community and Local Government Institutions (LGI) and capacity development of local level disaster management bodies.

A total of 6,049 HH were direct beneficiaries of the programme, who were directly involved in the project activities. Additionally, there were 21,769 indirect beneficiaries who were involved with the activities remotely. Seeing their success, neighbours of composite agriculture practitioners have also become inspired and started composite agriculture using their own resources. In all steps of beneficiary selection, the most marginalised households, especially the female headed households, were prioritised. Moreover, those who were indigenous or from other socially excluded or minority group, extreme poor, or land less were prioritised. For the beneficiary selection, the project also focused on those who had land ownership of less than 50 decimals, monthly average income less than BDT 6,000 and drinking water scarcity.

The programme has motivated women to be involved with production system of the country. It has helped women in raising their voice and becoming involved in community leadership initiatives. Initial involvement with the leadership of community groups will ultimately open the door of formal leadership.

CONCLUSION AND **RECOMMENDATIONS**

The Resilience Project has offered better livelihood options and safe drinking water options for targeted 6,049 households in 12 unions of 6 upazilas in Bagerhat, Khulna and Satkhira districts. Composite agriculture is an innovative approach of using fallow land in the back yards that yield fish, vegetable and rice, offering community a better scope of nutrition intake. Rainwater harvesting has been helping community member by increasing the supply of drinking water, limited irrigation in winter season vegetables and importantly, it has saved time and labour of rural women who usually collected water from a long distance of 2-5 km. It may be too early to have the result of social forestry in the near future, but it will be yielding slow and steady delivery of food in the long run over the next 5 years, or more.

Resilience is a broad term and it may not be possible to achieve community resilience based on a single activity of the project. However, supporting a household with all of the three activities of composite farming, rain water harvesting and tree plantation will help to achieve resilience of the households. At the beginning of the project, only a total of 1,500 households have been targeted for CF and RWH, each. Additional funds will certainly be required in order to incorporate unaddressed 3,049 HH in the CF and RWH. An appeal for integrated support can be made to the donors.

In addition to livelihood, community empowerment is another mentionable achievement of the project. It has helped to empower rural and conservative women and bring them to the fore. Rural women have formed groups and selected leaders among their peers. Therefore, the economic empowerment has greatly helped to reduce inequality. Involving rural women in the production system will not only contribute to their own income, but also in national GDP. Task Force Group is a use concept of involving communities in disaster risk reduction initiatives.

Water crisis in the target area is acute and access to fresh water is very difficult as the resources are very limited. Only some specific ponds and tube wells have water with drinking quality, which is not accessible to all. Moreover, these sources are far away from some places like north Bajikarkhonda and north Bedkashi area has no fresh water source within 2-5km radius. In addition, water from these sources is not free of cost. Though the price varies place to place but, on average, people pay 1 tk for 1 litre of fresh water which is very expensive for the targeted beneficiaries. Hence, among all the services, provided by the resilience project, the demand for rain water harvesting tank was the highest .

The financial allowance for the composite agriculture (9,927 tk) by the resilience project was not enough to sustain the whole setup in most of the cases. However, people have invested their own funds to complete the setup and started farming according to the training provided. The additional money has been arranged by them by mainly borrowing funds from wealthy relatives, at high amount of interests. Some people had their own savings and some arranged the money by taking loans from local financial organisations. On average, the total cost for composite agriculture was 13,000-17,000 taka, depending on the amount of land, soil quality, and

availability of water sources. Community can be supported with additional resources to cover any financial gaps from the seed money.

The resilience project is working to bring some additional benefits for the beneficiaries apart from the fresh drinking water and food production. Households with access to rainwater harvesting tank have demonstrated better health conditions, in terms of regarding blood pressure (BP), and sodium and iodine content in their body. Previously, the community members used to drink saline water occasionally causing high blood pressure and low nutrient content. Drinking freshwater have definitely lowered their BP. This health aspect can be monitored and documentary can be developed as evidence of such change. On the other hand, composite agriculture bring about a lot more effective health and dietary improvements. Households with composite agriculture now have access to fresh vegetables and fishes which has increased the nutritional value of their diets. Moreover, the production from the farm is not only sufficient for the daily intake of the family, but money can also be earned by selling the selling the fresh produce in the market.

Developing women leadership has been observed as a key achievement of the project. The project has been successful in empowering women, who have previously focused only on household works are now participating in CRVA sessions and attending upazila or district level workshop. They are leading community groups formed by themselves. Involvement with community leadership helps in building confidence of formal leadership.

Resilience Project can be explained using a Causal Loop Diagram (CLD). Positive (+) Arrow indicates head and tail go to the same direction and a negative(-) Arrow indicates head and tail go to opposite direction (please see Kiani et al. 2009). For example, Disaster Preparedness increases, if Stakeholder's Capacity is increased. On the other hand, if Disaster Preparedness increases, Disaster Impacts decreases (Figure 23). The project area is affected by climate change induced disasters, including salinity intrusion. Salinity affects drinking water and also agricultural production. Resilience Project offers RWH systems, enabling community to store drinking water for the lean period. Availability of drinking water has increased resilience capacity of climate change affected people. Some of the water stored in the RWH systems have also been used for irrigation. On the other hand, composite farming has played key roles for an increased production of rice, fish and vegetables. Providing salinity tolerant tree species to the community has also increased production. An increased production has increased community resilience.

An increase in climate change induced disaster increases disaster impacts, but the loss from disasters can be significantly reduced by community's capacity development. Workshops, training and e-learning on DRR and CCA increase disaster preparedness, resulting in a reduced disaster loss. Reduced disaster impacts indicate an improved community resilience. Thus, each and every component of Resilience Project contributes in achieving community resilience.

The project has motivated local people for practicing Composite Agriculture. Same minded NGOs have been inspired to implement resilience in their activities. Government organizations have been involved to disseminate the idea and replicate project activities. Private sectors farms (Gazi Tank and Madina Tank) are searching for partners to sell the tanks. Observing success cases of the project, Micro Finance Lending Organizations (MFLOs) are offering loan services to the community. Key successes of Resilience Project and similar successes hardly reach to the top policy makers of the country. In order to draw the attention of policymakers, some organized initiatives might be taken. A national level coastal network would be helpful in attracting political attention. A national level coastal convention can be organised in the second half of the project to gather successes stories and learning. Sectorial research and project lessons can be approached to political leaders through the Coastal Convention. Key Achievements and Recommendations of the study are as follows:

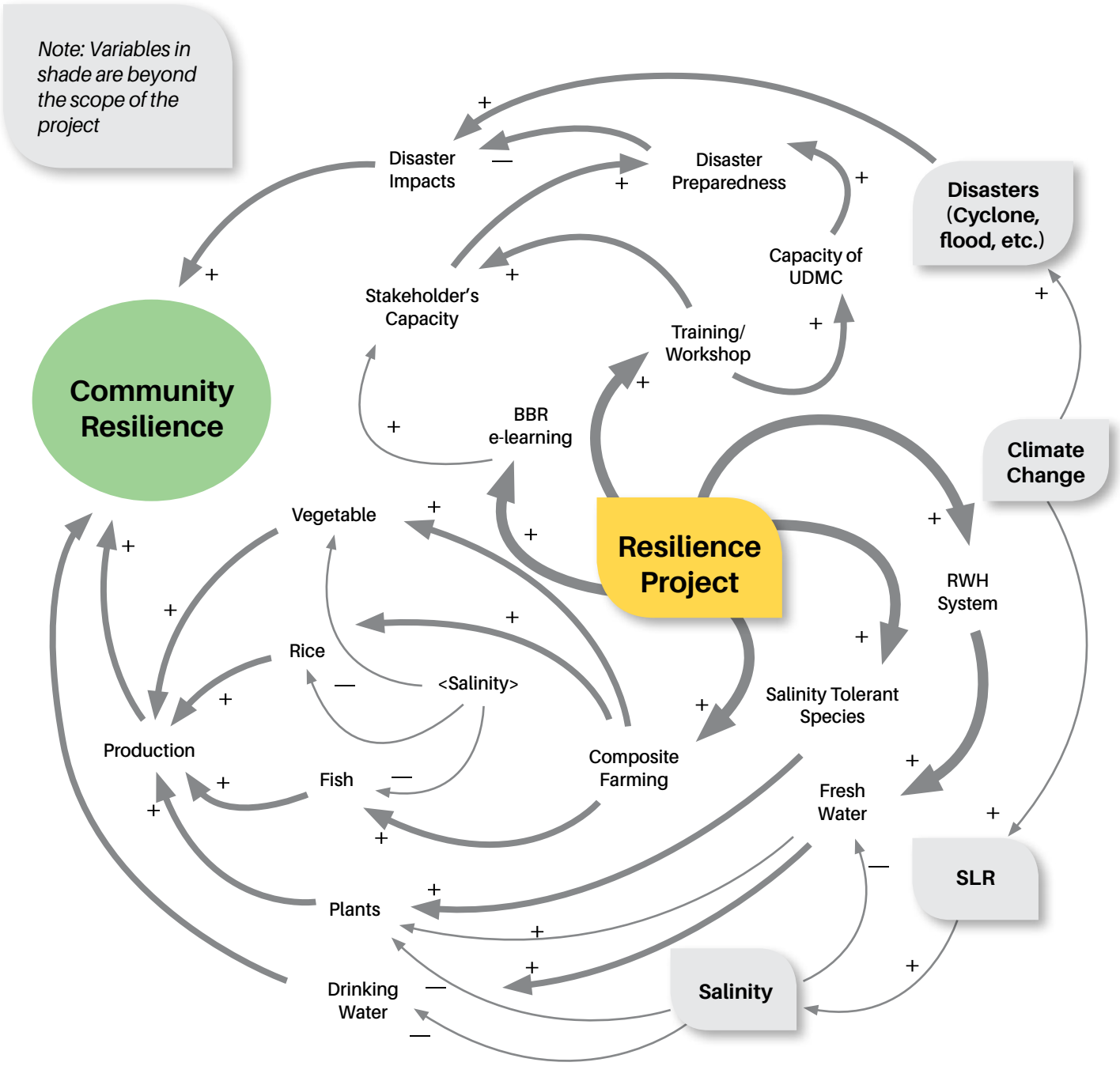


Figure 23: Causal Loop Diagram of Resilience Project.

8.1 Key Achievements

i. Increased food production with the introduction of composite farming. Communities have been trained and supported to grow rice, vegetable and fish through an integrated production system, offering a greater scope for the optimum use of abundant land or backyard of a household. It is contributing positively in the food security of rural poor household.

ii. Safe drinking water has been arranged for the lean period. RWH system has been found as an innovative way of solving the problem of drinking water scarcity. It has also been found to save time and labor of rural women who used to fetch water from a distance of 2-5 kilometers.

iii. Community level social forestry has been introduced. Social forestry is serving as a first order defense against strong winds. Additionally, community will have long term benefits from the fruit trees planted under the component of social forestry.

iv. Technological capacity of community has been improved. Resilience Project has developed technological guidelines for composite farming and RWH system in cooperation with Bangladesh Agriculture Research Institute (BARI).

v. Women leadership has been developed. Women, who were previously engaged only in domestic activity, have now formed groups and are actively participating in the development and production system.

vi. Capacity of local government institutes have been improved. Meetings of UDMCs have been regularized. Project support for disaster management committee has helped them for regular arrangement of meetings. Unions have started to have their own budget, with an increased allocation.

vii. Capacity of local level disaster managers has been improved. Members of UDMCs have been provided training on various aspects of DRR and CCA, including disaster related policies, strategies, acts and rules.

viii. Project activities have been replicated by community. Neighbours of community beneficiaries appreciated the benefits of composite farming and started to practice CF by themselves. They have also started to plant salinity tolerant varieties by themselves. There is thus visible replication of composite farming and rain water harvesting by community.

ix. Community leadership has been developed in the area.

x. Task Force Groups (TFG) have been formed. Community level task force groups have been formed with a view to serve multipurpose duties in DRR and CCA areas. Members of these groups have been trained on vulnerability evaluation, early warning dissemination, post rescue and rehabilitation. They work closely with CPP volunteers. They will act to promote community resilience.

xi. Digital Early Warning Systems (EWS) has been developed. An application has been developed for the dissemination of early warning for disasters. Members of TFG spread disaster warning, emergency and other important messages to key stakeholders, including but not limited to, government agencies through this app.

xii. Intellectual capacity building has been supported. Key stakeholders were supported with e-learning session on Building Better Response. Having lessons on BBR, educated stakeholders have qualified themselves and passed in the certification exam offered by Humanitarian Academy at Harvard. BBR e-learning has helped in building intellectual capacity of key stakeholders.

xiii. Project success and learning have been shared with spatially different stakeholders. Learning sharing workshop has been organized with key stakeholders from government, non-government, private sectors and media. It not only helped to share project progress, lesson learned, best practices and constraints but also created a scope of advocacy to influence policy decisions.

xiv. Private sectors have extended their activities in the area, offering easy availability of water tank in the region.

xv. NGOs working in the region have started to work on CF and RWH systems. INGOs have taken similar initiatives of providing drinking water by trapping rain water.

8.2 Recommendations

1. Community can be supported with three components of project activities, i.e. i) Composite agriculture, ii) RWH, and iii) Social Forestry. Providing integrated support to the same beneficiary will help to attain true sustainability.
2. Community members appreciated RWH units the most, and expressed high demands for a greater coverage of the RWH system. Expanding this component of the project can be considered, should there be any scope.
3. Rainwater Harvesting Systems (RHS) are specially designed for people having a strong house with a

stable roof, leaving highly vulnerable people living in small hut off from drinking water component of the program. This group of ultra-poor people can be included in the programme by either allocating them stronger rooftops or by tagging with a family of stronger house.

4. Vulnerability map as an outcome of CRVA is a good tool for DRR planning. In addition to CRVA, community led and managed DRR implementation plan should be operationalised.
5. Community level disaster management plan could be scaled down to family scale. Household level disaster preparedness and management plan will identify a clear role of each member of a particular HH. Each HH can develop its own disaster preparedness plan and display it in a visible place of the house, so that each family member can be reminded of their individual roles in case of any emergency.
6. Household level climate change adaptation plan can be developed.
7. Social Forestry will offer long term benefit to the community. Plants are living organisms and may fail to survive for many natural reasons. In case of natural mortality during project period, the saplings should be replaced with new plants.
8. Terms of Reference (ToR) of Task Force Group is blurry, and can be developed a clearly defined Scope of Work (SoW).
9. Task Force Groups can be renamed as Community Resilience Group, with a formal interactions with similar groups in the area. There are UDMCs and CPP volunteers to work for DRR activities. Task Force Groups can move a step forward and incorporate resilience in their work agenda. Legal arrangement for these groups will help to attain sustainability.
10. Better visibility for project activities can be achieved by developing a quality communication book and uploading the same d to various international electronic platforms, such as, Preventweb, etc. Production of a short audio-visual documentary can also be a useful dissemination mode of learning. A short documentary (<2 minutes) can be produced and disseminate good practice through social or video sharing media.
11. People living on the embankments should be addressed in the project. Embankment dwellers are land less people living on the embankments built on river banks. These people are left off the project activities because of not having entitlement to any land. They should be included in the project activities by leasing land from richer community members.
12. Establishing a Coastal Network will help in setting an effective network of the sector, exchange views with fellow development practitioners, and have an organised platform to work for the development of the entire coastal zone.
13. Emerging of community leadership in the form of Task Force Group and Women Group Leaders can be nurtured to integrate them in formal leadership and involve them in broader perspectives of development.
14. A Coastal Convention can be arranged to convey project successes and voices from other parts of the coastal zone to national level. Community leadership can be encouraged by involving them in decision making process of the convention.
15. Community level disaster contingency plan should be tested periodically through Mock Drill.
16. Coverage of the project can be expanded to the neighbouring areas. People in other upazilas in Khulna, Bagerhat and Satkhira districts can be brought into coverage by exploring fresh funds.

8.3 Concluding Remarks

This evaluation concludes that the project is right on track. Coverage of 'Community Resilience Activities' (CRAs) can be extended to the neighbouring upazilas in Khulna, Bagerhat and Satkhira districts, possibly by exploring funding opportunities for this project, or approaching other donors for a replication project. This project, especially Composite Farming can be replicated, not only in other parts of coastal zone, but also in various agro-ecological zones (e.g. Haor, Char, Barind area) of the country.

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