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Swiss Agency for Development
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Project completion

Flood Risk Reduction Activities in Sunamganj (FRRAS) Phase-II



December 2006 to March 2010

ACRONYMS

BWDB: Bangladesh Water Development Board

BRDB : Bangladesh Rural Development Board

CBO : Community Based Organization

CC : Climate Change

CNRS: Center for Natural Resource Studies

CBRMP: CARE Bangladesh Road Maintenance Program

DC : Deputy Commissioner

DRR : Disaster Risk Reduction

DPHE : Department of Health and Engineering

FRRAS: Flood Risk Reduction Activities in Sunamganj

PIC : Project Implementation Committee

PRA : Participatory Rural Appraisal

SDC : Swiss Agency for Development and Cooperation

SHOUHARDO: Strengthening Household Abilities for Responding to Development Opportunities

SUS : Sabolombi Unnayan Sangstha

LGED : Local Government Engineering Department

UP : Union Parishaod

UDMC: Union Disaster Management Committee

UNO : Upazilla Nirbahi Officer

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1. Project Profile

- a) **Project Title:** Flood Risk Reduction Activities in Sunamganj (FRRAS), Phase -II
- b) **Project Duration:** December 2006 – 31 March 2010
- c) **Project Location:** Project has covered six sub-districts of the Sunamganj District namely Derai, Sulla, Jamalganj, Tahirpur, Dharmapasha and Daskin Sunamganj.

1.1 Project Goal & Objectives:

The overall goal of the project is to reduce the vulnerability to flash floods and improved food security for affected communities in Sunamganj.

The project objectives are the following:

1. Protect agricultural crops from flash flood by making technical and financial assistance available at the affected communities to undertake structural (e.g. building submersible embankments/re-excavation of canal/river) and non-structural (e.g., planting of swamp trees, i.e. **Hijol** and **koroch** saplings) measures.
2. Develop and put in place community-based systems and mechanisms involving communities and Union Parishads to ensure regular maintenance and durability of submersible embankments and tree plantation activities.

1.2 Targeted Output:

1. A total of 102 kilometer new submersible embankment built/canal&river re-excavated.
2. A total of 26 kilometer of submersible embankments maintained and kept operational.
3. Protection of standing crops of 260,000 acres of land from flash flood.
4. As many as 30,000 saplings of *Koroch* & *Hijol* transplanted and taken care of.
5. A total of 45 community groups comprising women & men formed.

6. A total of 30 union parishads will contribute towards operation & maintenance of the submersible embankments and take care of plantation activities in association with the community groups.

1.3 Project management & steering:

CARE took the responsibility for overall management of the project. Providing strategic guidance, identifying purposeful interventions, preparing detail action plan and budget were the basic responsibilities of CARE to achieve stated goals and objectives of the project. The project was implemented in partnership with a local NGO namely Center for Natural Resource Studies (CNRS). CNRS was responsible for initiating community consultation for identification & selection of scheme, carrying out pre-survey, design & estimate of embankments or re-excavation work, organization of CBOs, formation of Project Implementation Committees (PIC), realization of community contribution and so on. The other major important responsibility of CARE was to carry out progress monitoring, financial progress monitoring, providing guidance to the field staff of CNRS in carrying out social mobilization activities, conflict resolution, hands on training on using leveling machine for survey work, development of training modules & communication materials. CARE was also responsible for quality control of both civil engineering works and institutional development and linkage activities.

At the field level, one Project Coordinator and an Assistant Project Coordinator of CARE part are responsible for field level management. And they are assisted by a Finance Officer. Besides, there were six Monitoring Officers, each for one sub-district. The Monitoring Officers were attached to a team office of CNRS for continuous oversight, quality control, guidance and in some cases supervision of project activities. The Project had been over sighted by Emergency Response and Preparedness Coordinator as a part of senior management of headquarters. Assistant Country Director was responsible for tracking the strategic issues and achievements of the project.

2. Executive Summary

Sunamganj District in the Haor region is a highly disaster prone area due to its geological location and geographic formation in particular to flashflood. FRRAS started after the devastating flood of 2004, to build submersible embankment as a disaster mitigation measure to protect crops from flash floods. FRRAS Phase-I initiated community participation approach that was continued under the second phase of FRRAS. The project facilitated the formation of Community Based Organization and built their capacity to create greater ownership and responsiveness for the flood control structures. Also, initiatives were taken for more involvement of other stakeholders BWDB, Local Government and local administration to establish a functional coordinated and collaborative approach with CBOs for establish sustainable disaster risk reduction system.

An external evaluation found FRRAS 1 had “very good initial impact and local benefits”. Crop protection increased incomes and improved food security situation for farmers and many poor and functionally landless families who have small pieces of land, owned or leased, inside the protected areas. The project created an institutional arrangement forming 42 Community Based Organizations (CBOs). CBOs were represented by poor, non-poor, male and female. Further, the structural measures (e.g. submersible) embankment, and tree plantation are in line with climate change adaptation measures.

The Project achieving its targeted objectives like constructing and maintaining the submergible embankments, re-excavation of rivers/canals, construction of cross drainage structures, plantation of swamp trees, capacity building of UP and CBO in managing DRR mitigation measures, promoting UP led development, promoting synergic approach in implementing project interventions, awareness raising among community people on disaster preparedness, gender equity, HIV/AIDS were the major component of the project interventions. Project staffs were found quite capable in managing and implementing the above stated project interventions in the challenging Haor context (very remote, isolated and disaster prone areas).

23,313 Poor people are directly benefited from generating 341,209 person-days employment opportunities with an average wage of 140 Taka per day. Considering the cost benefit assessment, apart from the employment opportunity of the poor, roughly, 1 Taka input cost of the project created a benefit of 25 Taka through rice cultivation.

Promoting UP led development approach was the underlying embedded approach of the project in every step of identification, prioritization, selection, implementation and monitoring of the project interventions. In some cases UP was in the driving seat for managing whole process of building submergible embankment. Project provided technical support to UP in preparing annual budget, in particular addressing the disaster mitigation options. As pilot basis, project played a leading role in facilitating UP for coordination of GO-NGO meeting in its few working area, which was found very encouraging response.

Project facilitated to formation of 42 CBOs from 62 PIC groups as per plan for creating greater community ownership and active participation in operation and maintenance of the disaster mitigation measures. CBOs were gradually emerging as a grass root popular community institution where a sense of united strength developing for achieving the overall wellbeing of the community. Already 5.5 km of submersible embankment was repaired by CBO’s own resources.. Other noteworthy initiatives of CBO were: i) Raising of fund for future disaster risk reduction intervention, ii) Establishing linkage with concern duty bearer, iii) Regularly participating in monthly UP coordination meeting, iv) Becoming member of different standing committees of UP, v) Participating in total sanitation

program with distributing sanitary latrines etc. All CBOs are not matured enough to run as an institution. Still there is a room for capacity building in the area of leadership, technical and financial management.

In enhancing greater awareness and preparedness for disaster risk reduction, project arranged diversified initiatives for mass community like rally, discussion session, art competition, folk song and staging popular drama. The outcome of the initiatives were remarkable, community people are becoming more conscious in quality work, raising fund for future and gradually emerging as a bargaining agent for the greater responsiveness or accountability of the government.

Coordination, collaboration and coherent initiatives for creating greater synergic approach among all SDC and CARE supported projects; FRRAS played a responsive role throughout this phase. Many UPs were allocated budget for future maintenance of project implemented embankment, many CBO members have received life skill training, and many project implementation committees have been formed from the group members of different project groups as an outcome of synergic approach. FRRAS is also actively contributing in mainstreaming DRR in other projects.

At the end of the project (March 2010), two lesson-learned workshops were conducted as part of advocacy work, one was in district and the other was in national level. Both workshops were very successful as government and other stakeholders committed to carry forward its lessons in futures (see annexes I and II)

CARE and partners have learnt from experience that taking structural measures mainly submersible embankments with ensuring proper design reduced the damage of Boro crop by retarding flash flood at least two weeks through ensuring safe harvest. Project has gained the skill for ensuring UP and community participation in identification, ranking, selection, implementing and monitoring of schemes with maintaining quality.

The institutional development activities are at a very early stage and still require significant efforts to make the CBOs institutionally sustainable for operation and maintenance of risk reduction structures. More facilitation and persuasion is required towards BWDB in mobilizing community for implementation and maintenance of embankment, involving community in operating water control structures (Sluice gate), creating community ownership and protecting embankment from unplanned cutting.

Further, there are huge unmet needs for expanding the construction activities in the Sunamganj region, one of the poorest and environmentally fragile districts of Bangladesh.

Summary Matrix Analysis

Indicator	Base line/Target	Status and Achievements	Analysis/Comments
1. Loss of crops caused by flash flood avoided, leading to improved food security of affected community.			
1.1 Land protected from structural & non-structural measures	260,000 acres of land will be protected from flash flood	317,000 acres of land has been protected	During the reporting period 317,000 acres of land has protected which contributed to 204061 MT Boro productions.
1.2. HHs benefited by increased crop production	75,000 HHs will be benefited by increased crop production	96,507 HHs have been benefited with increased production.	Within three years project period benefited 78732 HHs in terms of additional income of taka 3060 million, considering the market price of the additional production.
1.3. Improved food consumption for the participant household	Quality food item diversified with increasing quantity.	Intake of three times meal/day has increased to around 54% and 47% increment of vegetable intake in 4-5 days in a week among the participants.	After completion of year 2, 61 HHs were surveyed in 6 Upazilla for collecting sample basis data.
1.3.1 Improvement of income and employment opportunities	More income and employment opportunities will be increased.	38% HHs increased their income through Demmy paddy collection, average daily wage rate has increased 6% and employment opportunities have increased 14%.	After completion of year 3, 120 HHs were surveyed. Employment opportunities has increased through the following areas- paddy harvesting, processing, demy paddy collection etc.
1.4. Saplings survived and continued to grow	At least 50% of planted saplings will survive and continued to grow.	Around 70% of planted saplings are survived.	31,077 saplings are planted in this phase and 21,501 saplings are survived.
2. Improved capacity & ownership of communities, CBO & UP with regard to maintaining project risk reduction measures			
2.1 Community groups mobilized and utilized resources to maintain crop protection measures.	Community will contribute 5-50% contribution depending on the type of measures.	Community contributed Tk. 2,248,607 for construction of crop protection dyke which is around 6% of the total construction cost.	Community mobilized around Tk. 832,430 for future repair and maintenance of embankment. CBO have undertaken of 09 schemes through collecting additional community resource.
2.2 UPs contribute to operation & maintenance of embankments and taking care of plantation with gradual increase of financial contribution.	30 UPs will contribute in O&M of embankments. 50% of the O&M cost of embankment provided by UP at the end of the project.	UPs have undertaken the maintenance of 11 crop protection embankments. The maintenance of 05 dykes are done by through own fund of UP and 03 dykes repaired by UP through TR and rest are done by 100 days program.	During open budgeting 10 SHARIQUE supported UPs kept allocation for maintaining crop protection dykes. UP also involved in scheme selection, PIC formation, CBO formation, conflict resolution etc.

3. Background

3.1 Definition of flash flood

A flood, which is caused by heavy or excessive rainfall in a short period of time over a relatively small area, is referred to as flash flood. In flash flood, water level rises and falls quite rapidly with little or no advance weather forecast / warning. Typically, flash flood occurs in areas where the upstream basin topography is relatively steep and the concentration time of the basin is relatively short. In Bangladesh flash floods generally occurs in the north-east, south-east and Chittagong region. But devastating and extended flash flood is a recurrent phenomenon for the north-east region of Bangladesh. The extreme flashy character of the rivers and sudden excessive rainfall in the region causes frequent flash floods in the northeastern Haor areas. In the haor area, flash flood comes from the very steep uplands adjacent to the region in Assam and Meghalaya hills range in India causing immense damage to the standing Boro crops, lives and properties every year.

3.2 Characteristics of flash flood in north–east region of Bangladesh

Northeastern part of Bangladesh especially Sunamganj, Sylhet and Netrakona Districts are located in one of the depressed portion or low-lying area of the country. Most of the rivers in these areas are originated from nearby hilly area of neighboring country India. These rivers are extremely flashy that is characterized by sudden and wide variation in flow as a result of excessive rainfall. When heavy rainfall is occurred in the hilly region of India, water quickly moves towards the Haor area of Bangladesh through a number of rivers and canals. This floodwater not only carries the water but also carry a huge amount of sediment originated mainly from hill. Over the time this sediment has deposited on the rivers and canals bed and has reduced the conveyance capacity more or less all of the water resources system with in the Haor area. As a result, when flash flood due to sudden heavy rainfall creates pressure on the water resources system, water easily overtopped and creates breaching at several locations on the submersible embankment. Eventually water quickly enters into the haor. Most of the cases, flood water comes into the haor very early in the monsoon and farmers are not get sufficient time to harvest their standing Boro crop.

3.3 Impacts of flash flood

One of the functions of flash floodwater is to carry sediments, which are eroded from the hilly catchments area. During heavy rainfall in the hilly region, massive erosion is taken place on the exposed surface of the hill. If the high intensity rainfall is continued for certain period then coarser sediment such as big sized stone, boulder etc starts to erode and move along the rivers. Finally these sediments are deposited on the river bed, canals and agricultural land. During flash flood, sediment transport rates increase significantly of the rivers and hence major flood events make a disproportionate distribution of sediment and changes in channel size, shape and even location.

Over the years, sediment has been deposited mainly on the river bed and on depressed portion of the haor. According to the local people, in some places about 4 to 5 meter sediment has deposited on the river bed, which not only created obstruction for water flow but also hampered the navigation system in the north east region. Internal khals and canals have lost their carrying capacity due to deposition of sediment on the bed and in some cases created drainage problem for the haor area. Due to deposition of sediment, bed of beels has raised which ultimately hampered the fisheries and agricultural activities as a result of scarcity of water in dry season. Flash flood has another impact on the plan form of the rivers and canals in the north east haor area. Due to high magnitude flash flood, sometime severe erosion is occurred along the river bank causes not only a huge amount of national loss but also creates immense sufferings to the local people.

Sand carpeting is another problem induced from flash flood. This problem is normally found in haor very adjacent to the hill such as Matian haor, Angurali haor, Karchar haor and Kalner haor under Sunamganj district.

Sunamganj is located at the foothills of the Indian State of Meghalaya. The topography of Sunamganj along with other north-eastern districts had undergone structural transformation creating depression in the remote past. The bowl shaped depression is popularly known as *Haor* and remains inundated for 6-7 months during the monsoon. Within the *Haor* there are perennial and seasonal water bodies which are abode of fishes. Due to monsoon inundation of only one cereal crop i.e rice cultivation is possible. Overwhelming majority of the population is dependent upon rice for food and other basic necessities of life. Although monsoon inundation provides a favorable ground for fish spawning and growth, the common people have no access to the huge resources. Rather it is controlled by a small powerful vested interest group of people. Therefore, crop failure has serious implication on livelihood of poor and extreme poor people.

Damage of standing crop by the onrush of the water from the mountain range in the month of late March or April takes place at regular interval pushing people in the hunger, indebtedness, distress sale of property and seasonal migration.

4. Project outcome

4.1 Community / CBO level outcome

FRRAS was a community demand driven project. In order to ensure the ownership on the project, community people were involved with every steps of Planning and implementation process. In this regard a lot of activities were accomplished from the project. From the inception of the project, community people were involved in following areas:

- ❖ Scheme selection along with project staff through applying PRA (Participatory Rural Appraisal) method.
- ❖ Assist conduction of pre-survey.
- ❖ Assist PIC (Project Implementation Committee) formation and endorse from UP chairmen.
- ❖ Assist to collect & provide community contribution.
- ❖ Assist to mitigate social conflict for land and soil collection of earth work.
- ❖ Assist & monitor the project activity during earth work.
- ❖ Assist in post survey conduction.

A total of 42 Community Based Organizations (CBOs) were formed for future operation & maintenance of the schemes through building linkage with different actors like BWDB, UP, SDC supported other projects and different stakeholders. For successful implementation of the project, there were several training conducted for community & CBO members. After getting different type of support from the project, it has been observed some outcomes those are as follows:

- ✓ Community people formed a total of 42 CBOs for future O&M of the FRRAS implemented schemes and other DRR measures activities.
- ✓ *Vati Unnayan* (name of one CBO) CBO of Sulla Upazila undertook a maintenance of 0.5 kilometer embankment through its own initiatives. They also re - excavated a canal of 0.5 km in length through effective communication with CBRMP. *Agai Gram Unnayan* CBO undertook maintenance of tube well through the assistance of LEAF Project.
- ✓ FRRAS CBO involved with tax collection process with the consultation of UP chairmen where the CBO collected taka 10000/= for Beheli UP of Jamalganj, a good number of union Parishad have incorporated FRRAS supported embankment in their annual development plan.
- ✓ CBOs pursued to union Parishad to undertake the maintenance work of embankments through 100 days employment scheme for poor and extreme poor. Thus, different Union Parishad under the six working Upazila took initiatives for maintenance of embankments.
- ✓ Dekhar haor CBO of South Sunamganj took initiative for construction of a bamboo bridge which connects hati (village) with the nearby School. CBO spent Taka 10000/- from their own fund. After completion of this bamboo bridge school going children have got easy access to their school.

- ✓ As per project requirement community people collected money as contribution. Besides these, they also contributed land, soil and moral support for smooth operation and successful implementation of the project.
- ✓ Community and PIC jointly made a discussion with different level stakeholders regarding maintenance and protect the embankment & saplings.
- ✓ CBO already generated three types of fund such as disaster fund, revolving fund and general fund for self development as well as of emergency responses related activities.
- ✓ CBO performed some social development activities for example financial support to pregnant women and sent to upazila hospital for safe delivery.
- ✓ To protect the embankment, CBO built bamboo barrier (fence) in consultation with community people to stop boat crossing, in addition, it was also discussed with fishermen as they can not cut the embankment during fishing.
- ✓ As a joint efforts of CBO & community, a few number of CBO members are included in existing UDMC (Union Disaster Management committee) as member.

4.2 Capacity Strengthening of Union Parishad

Union Parishad is the lowest tire of local government and it is the most nearest of the community people. At the local level, UP has been playing coordinating role among different stakeholders. Considering the importance in context of sustainability, higher emphasis had been given on effective involvement of Union Parishad in FRRAS activities. In this regard, aiming to capacity building of Union Parishad (UP) and Union Disaster Management Committee (UDMC) some training were imparted from project in a view to enhance the skill and as such they will be able to actively assess, plan, estimate, execute and protect flood risk reduction activities. For successful implementation of the project, UPs have undertaken the major responsibilities of community mobilization in regard to the collection of Community Contribution, PIC formation & endorsement, labor engagement & management, conflict resolution for getting land and thereby soil. In the phase of FRRAS-II, 4 UPs had been given the responsibility of implementing some schemes as their direct engagement considering both SHARIQUE and LEAF project is ongoing within the same UP. During project implementation through partner or direct delivery, UP was involved in key decision making steps such as scheme selection, final list endorsement, resolving local conflicts and operation & maintenance of embankment.

4.3 Strengthening responsibility of Upazila Parishad/ Administration

Upazila Parishad /Administration were involved in FRRAS project activities implementation. Upazila administration has given approval of scheme ranking, PIC approval. FRRAS project arranged different type of meeting/ workshop like Upazila linkage development workshop, learning sharing workshop etc. Upazila Nirbahi Officer was in the chair and also attended other relevant government officials like PIO, Agriculture Officer, BRDB Officer, and Sub Assistance Engineer of LGED / DPHE etc. Different Upazila officials also attended in the UP level workshop like resource mobilization workshop and they gave us commitment that they will help to implement FRRAS activities at community level in future

Before paddy collection and CBO formation, Upazila level FRRAS staff took endorsement of UNO for the objectives of paddy collection and CBO formation and UNO showed his positive attitude towards this activities.

UNO of Sulla Upazila visited the Godi river re-excavation site then a plantation scheme. From this visit, he generated the idea for re-excavation of Darain River by knowing the multipurpose benefit of the scheme from communities. He had allotted 8 MT of rice as contribution for Darain river re-excavation. Then he also inaugurated the Re-excavation of Darain River. Upazila Nirbahi Officer of South Sunamganj, Tahirpur and Derai Upazila also visited the different project sites several times. They have also attended in different day observation (International Women's Day, National Disaster Preparedness Day) ceremony, learning sharing workshop etc. organized by FRRAS project.

Deputy Commissioner, Sunamganj District also visited several schemes of Derai, South Sunamganj & Jamalganj Upazila. He also gave suggestions and direction during District NGO coordination meeting.

District Chief of joint force (at the time of Caretaker Govt.) has instructed to BWDB and their contractors to follow the techniques of FRRAS project in embankment maintenance and construction.

Due to community mobilization and relation build up with UP and BWDB some schemes had also been repaired by BWDB and Union Parishad following the technical guidelines of FRRAS project.

Upazila Nirbahi Officer (UNO) of South Sunamganj visited the CBO meeting and awarded them on their activities. He also distributed the ring slab (latrines) among the marginalized poor which was an initiative of CBO member for ensuring proper sanitation. All of the Upazila Nirbahi Officers have received list of CBOs and embankment list, which were prepared by FRRAS project and they (UNOs) agreed to way forward FRRAS activities maintaining a close linkage with the CBO members.

Upazila Chairmen and Vice Chairmen are newly elected but they are also well aware about FRRAS project activities. They also visited the project sites in different Upazila, attended District & Upazila level workshops, and inaugurated the sessions of embankment construction. All showed their keen interest into FRRAS project activities and wanted to make proper initiatives to sustain the CBOs. They also expressed their positive intention to continue the maintenance of embankments for the betterment of the community people.

4.4 Collaboration with SDC and other donor supported projects

A coordination unit was formed with the other SDC funded projects (i.e , SHARIQUE and LEAF) and CARE's SHOUHARDO program at Sunamganj during the project implementation phase for better harmonization. For this purpose, a joint work plan was developed in order to ensure better use of resources and to avoid over lapping of the activities.

The coordination among FRRAS, LEAF, SHOUHARDO and SHARIQUE was translated into specific activities in supporting different Union Parishads to undertake repair and maintenance of embankments

For instance, FRRAS CBO members of Taila under South Sunamganj sub-district participated in cage culture in adjacent river (Mora Surma) with assistance of LEAF- ERA. Through this program CBO members received necessary training from LEAF. The cage culture grew interest among the community and it can create opportunities to earn additional income. They also received different information from information boat of SHOUHARDO program and it has a good coordination among CBO member and SHOUHARDO management. LEAF project staff and CBO members also assist and attend paddy collection for future operation and maintained (O&M) of FRRAS embankment at South Sunamganj.

Inter project coordination did yield benefits and was undoubtedly a step forward. It was engaged in developing and institutionalizing sustainable mechanisms to promote inter project coordination and collaboration.

4.5 Community Capacity building on DRR & Climate Change

Through the FRRAS project we facilitated session at the CBO level to provide knowledge on disaster risk reduction and climate change-mitigation and adaptation. This knowledge is very important for the people of Sunamganj who faced different types of natural calamities for preparing and sustains themselves and taking corrective measures. As a development actor the CBO members would work as a resource person, who will contribute for overcoming the

challenge of negative effects of climate change by taking proper mitigation and adaptation measures involving other community people.

Now the CBO members are capacitated and they are aware on what is disaster, risk, hazard, vulnerability, climate change and their roles at preparedness period, during disaster and after disaster. Many CBO representatives are active member of Union Disaster Management Committee (UDMC) and they are able to influence Union Parishad for taking appropriate initiatives on different situation of disaster, like – pre, during and post. They have made an action plan considering local disaster occurred and impact of climate change visible and also incorporated indigenous and improved adaptation measures. CBO members are also trying to make link with other development organization to assist them further in this areas.

Major adaptation measures in haor areas considering climate change:

- Cultivating shorter duration rice varieties (like Govt. approved new variety *BRRl Dhan 45*) including non- cereal crops that need less irrigation.
 - Bringing fallow land (kanda) to under cultivation by the landless Poor people.
 - Introducing hydroponics and improved cook stoves.
 - Facilitating transfer of state-owned lands (khash) to landless poor.
 - Providing education and health support to poor households.
- Building local capacity to access, plan and implement adaptation (climate change) interventions.

5. Benefit generated by the project

The greatest achievement of the project was found in safeguarding the only crop *Boro* of the local community by protecting land from the damage of flashflood. During this phase project build 95.24 km of new embankment and repaired 30.024 km of submersible embankment. Alongside with building submersible embankment project re-excavated 7.88 km of rivers. In total, 78,732 families are benefited in protecting their 317,000 acres of land from devastating flashflood through project build submergible embankments. Around 204,061 MT additional productions were achieved and which has the market value about taka 3,060 million.

Table 1: Benefits generated from schemes

Year	# of scheme	# of Village protected	# of HH covered	Area of Land protected (Acres)
Year-1	31	77	37853	98800
Year-2	28	90	26599	176600
Year-3	09	69	14280	41600
Total	68	236	78732	317000

5.1 Creating opportunity for employment and income generation

The diversity of livelihood and opportunity of employment is quite constrained in Sunamganj. Lean period started from mid November and continued till harvesting of *Boro*, i.e. around mid March. Project earthwork for building embankment and river re-excavation commenced with coinciding the beginning of the lean period which in turn creating significant impact to the poor community through providing income and employment generation opportunity. A total of 23,313 people (20,234 male and 3,079 female) got employment during lean period which created work for 341,209 person days where each person earned an average tk 140 per day.

Table-2: Employment generation

Year	# of Scheme	Labor employed			Person days		
		M	F	Total	M	F	Total
Year-1	31	10620	1256	11876	148450	16457	164907
Year-2	28	7023	1360	8383	102803	19078	121881
Year-3	9	2591	463	3054	44293	10128	54,421
Total	68	20234	3079	23313	295546	45663	341209

A significant number of female laborers joined in the earthwork. Separate latrine and sheds were built in the scheme site. Moreover, community ensured their security in traveling to and from their homes. Moreover, temporary shed also erected for laborers and their children to take rest. .

5.2 Creating community ownership and active participation

Project was well balanced in combination of hardware and software activities. In order to develop a sense of greater ownership and active participation in implementing project interventions, matching fund towards project grant had been incorporated as mandatory from the phase-II of FRRAS. Different awareness and sharing sessions were conducted among the community people. The response was encouraging and in some cases community contribution achieved which was beyond the expectation. Community contribution amounting to Taka 224, 8607/- had been realized against estimated 262, 8347/-. Overall rate of realization is 85.55% and highest 102% has been realized from Sulla Upazila. The remaining amount was collected by 1st April, 2009. PICs and rural elites also played an important role in collecting community contribution.

Table-3: Status of collection of contribution (in Taka)

Year	Estimated contribution	Total contribution realized	% of contribution realized against the target
Year-1	111,1537.00	810,310.00	72.90%
Year-2	976,772.00	919,663.00	94.15%
Year-3	540,038.00	518,634.00	96.04%
Total	262,8347.00	224,8607.00	85.55%

5.3 Encouraging initiatives from UP and CBO in maintenance of project executed embankments

BWDB is struggling with only maintaining the risk points of embankments as a routine operation with their limited resources. While a huge length of protective dyke need to be rebuild and regularly maintenance for ensuring their effectiveness / functionality. In this crucial situation, UP and CBO initiative is essential for ensuring the regular operation and maintenance of the crop protection dykes. Project facilitated to orient on financial & technical management to CBO and UP by which they (CBO and UP) can able to take responsibilities after FRRAS phasing out. For instance, a total of 11 schemes were repaired by UP and 09 schemes were repaired by CBO with their own initiatives and resources. Those are as follows;

- i) During 3rd year 05 dykes maintained by UP solely and 03 dykes repaired by UP through 100 days program (cash for work program run by the local government).
- ii) One CBO of Sulla Upazila namely “*Vati Bangla Unnayan Sangstha*” carried out maintenance work of an embankment from *Sreehail to Joaria* without any external assistance. Required resources for the work were mobilized from the community.
- iii) Similarly, maintenance work of the embankment from *Ghungiargaon Kheyaghat to Anandapur, Kandakhala to Pratappur and Jungle bundh* were carried out by community people. There was some degree of support from the Union Parishad for a scheme.
- iv) ‘*Taila Bohumukhi Duryog Mokabila Sangathan*’ has taken initiative to carry out maintenance work of the embankment from Taila to Thakurvog involving Union

Parishad. They also communicated with Sabalamby Unnayan Samity (SUS) (a partner of SHOUHARDO program of CARE - B to undertake a maintenance work of a village road from Taila Primary school to Eidgah road. The CBO has also established linkage with the CARE's satellite clinic. The community peoples are getting usual treatment from the floating health clinic.

5.4 Mobilization of resources for regular Operation & Maintenance of embankments and future disaster response fund:

Project facilitated various mass community awareness initiatives for the preparedness of disaster risk reduction measures and regular operation and maintenance of existing mitigation options. From the second year of this phase, resource mobilization drive was launched following the harvest of paddy in April-May. Community organizations led the drive by charging 2 kilograms of paddy per 30 decimals of land. The drive collected paddy worth Taka 832,430 and the amount has been deposited in bank in the name of community organizations, which they term as disaster fund. CBO also created savings fund and general fund alongside the disaster fund. Savings fund is the initiative of CBO members from their regular savings while general fund is accumulation of contribution from local elites. Both funds are created in a vision of common well being of the community. Such drive would be carried out every year. Status of Sub-district wise different funds generated is shown in Table-4.

Table-4: Status of the sub-district wise community generated various funds

Upazila	Disaster fund		Savings fund		General fund	
	Total collection	Deposited at Bank	Total collection	Deposited at Bank	Total collection	Deposited at Bank
S. Sunamganj	86,685	80,000	23,940	23,940	3,920	1,384
Derai	1,71,716	1,56,091	25,680	25,680	5,180	2,482
Sulla	128,947	1,28,947	15,730	15,730	11,640	3,710
Dharmapasha	1,31,258	1,20,478	35,743	35,743	2028	1,928
Tahirpur	1,95,199	1,79,915	39,465	39,465	6,360	4,246
Jamalganj	1,18,625	1,18,625	48,010	46510	34110	2430
Total	832,430	784,056	188,568	187,068	27,616	19,708

5.5 Multiple benefit from river re-excavation and swamp tree plantation

Upcoming water from the mountainous area naturally carries enormous amount of silt and its quantity is gradually increasing due to reducing vegetation coverage and increasing establishment of new settlement in hilly region. Our state concern department, BWDB, with its limited resources is just playing the role of observer in this regard. This huge sedimentation in our drainage rivers and its tributaries is drastically reducing their conveyance capacity.



Drain, River re-excavated by FRRAS

Which interns is increasing the damaging magnitude of flashflood. Project manually re-excavated 7.5 km of two community demanding rivers with their active participation and the outcomes of this initiative are manifold.

Major outcomes of re-excavating rivers are as follows:

- Reducing the problem of water logging and farmer can plant & harvest paddy timely and effective manner.
- Increasing the conveyance capacity of drainage channels, elongate the time of flood and also reducing the magnitude of flashflood.
- Increasing surface irrigation area coverage and reducing area of fellow land around 2000 acres.
- Establishing the communication routes for round the year, price of essential commodities are reduced at remote locations by around 15%.
- Facilitating fish migration, fish spawning and creating opportunity for livelihood on particularly fishing.

Haor was previously full of numerous natural bushes and water tolerant tress which was act as the habitat of wide variety of species and served as fence to protect the homestead from huge wave erosion action. Project planted around 31000 of swamp trees alongside the embankment and as bush in the bank of river. The benefits of this initiative are in many ways like; it reduces the erosion of embankment slope, habitat for species and ecological development with future source of income for poor community.

6. Major lessons learned & challenges

The project experienced a number of challenges and learned a number of lessons during phase-II of the project. The important challenges & lesson learned which are stated as follows:

- Earthwork for construction of embankment usually starts in January and need to be completed within March (i.e. before the advent of rainfall). Finishing of embankment construction work within this short period remains as a challenge. In last two years, we found flood water receded slowly and make the earthwork time span narrower. Moreover, the timing of traditional flash flood is gradually advancing 5-10 days from last 10-15 years.
- The river and channel beds are silting up reducing water holding capacities considerably. In the absence of proper drainage systems this calls for more and more re-excavation of rivers and channels to let excess water drain out. This causes water logging and delays Boro planting. Late planting of Boro make it more vulnerable to flash floods. Therefore alongside building of flood protection embankments are needed, adequate emphasis need to be given on re-excavation of rivers and canals. It is worth mentioning here that river and canals re-excavations tend to require more resources (financial and human) as well as greater community participation.
- In order to make embankments locally suitable, there is a need of adequate cross drainage structures like box culvert, pipe culvert, or U-drain for easy passing of water. Potential breach points also deserve special attention at design stage. Suggested design options at breach points are CC block, Rip-rap, RCC protection wall, Brick Protection Wall. Adequate budget and extended support from BWDB is required for piloting and replicating those measures.
- The survival rate of Koroch (under water survival tree) saplings largely depends on timely (in the month of November) plantation of healthy saplings from natural resources rather than commercial nurseries. Putting effective community based systems to take care of saplings is crucial for ensuring better survival. Through introducing suitable benefit sharing agreement could make the people interested in effective community management.
- Capacity building of CBO members need to be enhanced through their organizational development as well as providing opportunities for sustainable livelihoods. CBOs had started accumulating savings to form their capital to run economic activities. Positive response from the community is already visible. Linkage with the local service providers to be established ensuring their access to the local resources and other services. CBOs need to be more accountable and transparent in their financial management.
- BWDB is only the concern responsible government department to construct and O&M of submersible embankment. Due to shortage of

adequate resources both manpower & financial allocation, BWDB did not served as per requirement. Besides this, BWDB formalities regarding project implementation is very time consuming and absence of enough people's involvement. As a result no such rules and regulations were strictly followed by the BWDB where FRRAS project followed. As per community opinion, to avoid such type of irregularities need of strong advocacy with BWDB and concern ministry to reform existing policy with timely and adequate allocation where the community people could easily participate in the implementation process.

- As the crop protection submersible embankment is made of mud, goes under water every year and have suffered a lot due to wave erosion. So, it needs regular maintenance. In case of minor repair and maintenance, CBO and UP can play a vital role for this. A modality for establishing regular maintenance system can be developed among CBO and UP in collaboration with BWDB. CBO could also play an important role in regular operation of water control structures, i.e. sluice gates. Adequate capacity building of CBO and UP in the area of technical and financial management is required in this regard.
- Community involvement with project activity, technical & financial transparency and community contribution system was highly appreciated from all level stakeholders which makes them owner of the project. Community people also opined that saplings plantation is very much essential at both side of embankment for embankment protection. There is also a need of formal agreement for plantation benefit sharing between the CBO & UP.
- In order to ensure quality of embankments, FRRAS project introduced some technical measures such as proper designing, keeping slopes, intensive compaction, cleaning-benching, vetiver/grass turfing and planting tress that was not followed by BWDB. In this regard, community people opined that FRRAS project activities are remains an example in their life. They would follow the every steps which the FRRAS project taught to them.

7. Budget & expenditure

Project found very satisfactory in achieving its objectives the burn rate was 99% against the approved budget. Based on the project needs the budget was revised twice and utilized the entire budget amount at the optimum level. External audit reports are duly submitted to SDC as per contract agreement. The details budget and expenditure is shown in the annexes III.

8. Conclusion

Project successfully accomplished all its proposed interventions in terms of quality, quantity and efficiency along with generating the expected outcomes. Project was able to address the priority development issue of the local context and meaningfully contributed the vulnerable community in focusing the income and employment opportunities. Community people, local administration, local government and concern duty bearers are purposefully facilitated for being more responsive in targeting disaster risk mitigation measures. Project initiatives have duly recognized and appreciated from the every stratum of the major stakeholders. FRRAS has emerged as a very popular and demanding development entity in its working area and in particular to the poor vulnerable community.

With the view of disaster proneness and its vulnerability to the poor community people, Sunamganj is still a far away for ensuring the resilience for disaster vulnerability, effective and community centered disaster management system. In addition, the visible impact of the climate change is already started multiplying the challenges of the distress people in their livelihood and income. The modality for coordinated approach among the major stakeholders in implementing and maintaining the disaster mitigation measures is absent. Lack of adequate resource, timely fund disbursement, planning and implementation of DRR measures without community participation of BWDB seeks adequate attention and appropriate advocacy. The effort for mainstreaming DRR in every aspect of Sunamganj development initiatives is now become a crucial agenda.

Attachments

- 1. National level lessons learn workshop note**
- 2. District level workshops note**
- 3. Financial report**
- 4. Furniture and fixture list (CNRS)**
- 5. Furniture and Fixtures (CARE)**