



# Half-Yearly Report on Regenerative Agriculture and Sustainable Livelihood for Vulnerable Ecosystems (RESOLVE)

*(July – December, 2011)*



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### Acknowledgement

The Half-Yearly Report on Regenerative Agriculture and Sustainable Livelihood for Vulnerable Ecosystems (RESOLVE) is an update of activities carried out by the Unnayan Onneshan during the period of July - December, 2011. The report is prepared by Unnayan Onneshan RESOLVE team. We thank GKS, GUK, SDS and Oxfam Novib for their constant support over the programme period and beyond.

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## CHAPTER 1: INTRODUCTION TO RESOLVE

### 1.1 Background

Climate change is a real concern for the sustainable development both globally and locally. Agriculture which is highly dependent on climate factors such as heat, sunlight and water, is a complex and highly evolved sector in Bangladesh. While some aspects of climate change such as longer growing seasons and warmer temperatures may bring benefits, there will also be a range of adverse impacts, including reduced water availability and more frequent extreme weather. Moreover, different climate change impacts such as recurring floods, river bank erosion, drought in dry season, salinity increase as a result of back water effect, downing ground water level have been contributing to augment the vulnerability of food security and livelihood of the country.

Considering the experiences on local context, three Non-Government Development Organizations (Gana Unnayan Kendra (GUK) in Gaibandha, Gono Kalyan Sangstha (GKS) in Sirajgonj, and Shariatpur Development Society (SDS) in Shariatpur), one research organization (Unnayan Onneshan) and Oxfam Novib grouped together to implement the project, Regenerative Agriculture and Sustainable Livelihood for Vulnerable Ecosystems (RESOLVE) through two years pilot phase with the goal of making communities more resilient to climate change and ensuring food security. This report presents first the six months' activity status of Unnayan Onneshan under RESOLVE.

### 1.2 Rationale

The RESOLVE programme has been designed to achieve the goal of making community more resilient to climate shocks while ensuring food security through a combination of intervention strategies: direct poverty reduction through practicing adaptive agriculture techniques and technologies; diversifying livelihoods (on-firm, off-firm and non-firm) of the rural poor; working with grassroots involving civil society; research based lobby and advocacy at various strategic levels (national, regional and global); knowledge and information management; maintaining and/or creating linkages to foster cross-scale learning are there. Other than segregate action, the proposed project is being used as an integrated approach that includes field intervention, capacity building, and advocacy initiatives, with strong cross-cutting concerns for gender equity and of raising the voices of the most vulnerable households. The project purposively targets the poorest segment of the society, more particularly poorest village community, considering their grave vulnerability to climate change. However, the proposed REOLVE project is unlike others both in approach and operationalization. Having ultimate goal of sustainable development, the project has kept the provision of establishing community food bank, seed bank.

### 1.3 Project Objectives

***Main Goal:***

- To make communities more resilient towards adverse impacts of climate change and increasing food security

***Specific Objectives:***

1. To demonstrate food secured adaptive agriculture to climate change
2. To diversify livelihood options for reduction poverty of the climate vulnerables giving more emphasis on women-headed households
3. To strengthen community resilience to absorb, recover and reorganize to, and from, climatic shocks
4. To increase pro-poor and pro-development responsiveness of the government to the climate change
5. To amplify linkages, learning through research based advocacy on cross boarder (regional and international) actions for reduction of impacts of climate change, and low carbon development pathways

***Cross cutting objective:***

- To establish adaptive management through learning by doing for scaling up (practicing resilience theory)



The progress and status of activities, which have been planned under the six objectives of RESOLVE, are shown in summarized format (Table 1).

**Table 1: Objective wise progress of planned activities at a glance**

Serial No.	Project objective	Planned activities at a glance	Status
1	<b>Objective 1-</b> Demonstration of Food secured Adaptive Agriculture to climate change	Research on choice of climate adaptation techniques and technologies (identify available adaptation techniques, innovate new techniques, cost benefit analysis of the techniques and technologies)	This research activity has been completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event named: Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia.
2	<b>Objective 2-</b> Diversifying livelihood options to reduce poverty (emphasis on women headed households)	State of livelihood measurement Periodical data collection, validation, enumeration and data analysis (longitudinal monitoring)	Two research reports (two quarterly reports) for the period of July to December have been completed and shared with implementing partners.
3	<b>Objective 3-</b> To strengthen community resilience to absorb, recover and reorganize to, and from, climatic shocks	Develop Community Resilience Practitioners Manual	The draft Community Resilience Practitioners manual has been completed. The manual will be finalised by 2012 after field testing
		Develop practitioner manual and operational guideline for community seed bank	The draft Practitioner manual and operational guideline for community seed bank and food bank are completed. Two manuals will be finalised by 2012 after field testing
		Develop practitioner manual and operational guideline for community food bank	
4	<b>Objective 4-</b> To increase the pro-poor and pro-development responsiveness of the government to the climate change	Reckoning Climate Change: Local Peoples' Perception on the Impacts of Climate Change on Agriculture of South-Central and Northern Bangladesh	This report has been completed.
		Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh	Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh has been completed.
		Accounting Climate Induced Displacement in Bangladesh: An exploratory GIS based study	The research report is completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event named: Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia.



		Salinity Intrusion in Interior Coast: A New Challenge to Agriculture in South central part of Bangladesh	The report “Salinity Intrusion in Interior Coast: A New Challenge to Agriculture in South Central part of Bangladesh” has been completed.
		New Innovative idea developed in RESOLVE field level: learning by doing (This research has been conducted instead of research work on Drought and moisture stress in Rajshahai, Barind tract)	The research report is completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event namely “Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia”
		Formation of legislative influencing group comprising parliamentarian	All dialogues and lobby meetings will be organised within 3 <sup>rd</sup> quarter, 2012 following completion of the research to share the findings to have an effective evidence based policy advocacy.
		Formation of journalist group for raising pressure of government to take actions on climate change impacts	
		Policy dialogue involving parliamentarian, ministers, senior journalist, development partners	
5	<b>Objective 5-</b> To amplify linkages, learning and advocacy on cross boarder (regional and international) actions for reduction of impacts of climate change, and low carbon development pathways	Participate in SAARC summit in Maldives to share evidences and foster learning among regional actors	Completed
		Participate and organize side event in COP17 at South Africa involving representative from each participating organisation to disseminate the outcome of RESOLVE pilot project (upscaling)	Side event namely “Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia” has been organised in COP 17
		Linkage with existing networks (SAWTEE, CANSA, INSA) and create new network	A documentary (Ruins and Resolve) has been presented about the new innovative ideas, which are being practised in field level at RESOLVE areas.  It is a continuing process. The Unnayan Onneshan has been elected as a member of the Board of CANSA.
6	<b>Objective 6-</b> To establish adaptive management through learning by doing for scaling up (practicing resilience theory)	Establish adaptive management throught the project operation	It is in a continuing process

## CHAPTER 2: PROJECT ACTIVITIES

### 2.1 Objective 1- Demonstration of Food Secured Adaptive Agriculture to Climate Change

Research on choice of climate adaptation techniques and technologies (identify available adaptation techniques, innovate new techniques, cost benefit analysis of the techniques and technologies) has been taken under project objective 1. The status of this activity is given below (Table 2).



**Table 2: Project objective-1: Activity and present status at a glance**

Serial No.	Activity at a glance	Status
1	Research on choice of climate adaptation techniques and technologies (identify available adaptation techniques, innovate new techniques, cost benefit analysis of the techniques and technologies)	This research activity has been completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event namely 'Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia'.

#### 2.1.1 Research on choice of climate adaptation techniques and technologies

Changes in the thermal climate due to inter-annual climatic variability can potentially modify existing cropping pattern by forcing farmers to rearrange transplanting and harvesting dates. Every crop requires certain amount of rainfall and temperature for different growth stages. Any deviation of rainfall and temperature may affect growth stages and consequently a total yield. Field observations suggest that farmers in rural Bangladesh are struggling to adapt with changing rainfall pattern and increasing daily average temperature.

#### Objective of the Study

- ✓ To identify and measure the impacts of climate change in different phases of crop and total yield
- ✓ To identify the suitability of particular adaptive crops for that particular agro-ecological zone
- ✓ To suggest the ways and means for the farmers to put that crop into practice.



## Key Findings of the Study

- *Temperature change during 1976 to 2008*

From the study, it was found that monthly average maximum temperature increased at the rate of 0.01<sup>0</sup>C, whereas monthly average minimum temperature increased at a rate of 0.04<sup>0</sup>C per year at Gaibandha. Similarly, yearly average maximum and minimum temperature increased at the rate of 0.03<sup>0</sup>C and 0.01<sup>0</sup>C respectively for the same region. In Sirajgonj, monthly maximum and minimum average temperature for the period of May to December increased by 0.018<sup>0</sup>C and 0.02<sup>0</sup>C per year respectively and yearly average maximum and minimum temperature increased in each year by 0.02<sup>0</sup>C and 0.01<sup>0</sup>C, respectively. Both monthly average maximum and minimum temperature increased at the rate of 0.015<sup>0</sup>C per year in Shariatpur, whereas yearly average maximum and minimum temperature increased at the rate of 0.02<sup>0</sup>C and 0.014<sup>0</sup>C respectively.

- *Rainfall change during 1976 to 2008*

Likewise temperature, rainfall in pre-monsoon (March to May), monsoon (June to September) and post-monsoon (October to November) increased at the rate of 0.42 mm, 6.45 mm and 5.56 mm per year respectively whereas in winter season (December to February) rainfall decreased at the rate of 0.2 mm per year in Gaibandha. In Sirajgonj, rainfall increased 2.1 mm in each year and 3.04 mm in monsoon and post-monsoon respectively. However, it decreased at the rate of 0.5 mm and 1.5 mm per year during winter and pre-monsoon respectively for the same region. Similarly, rainfall changes by 5.47 mm and 2.90 mm during monsoon and post monsoon season respectively are observed in Shariatpur while in winter and pre-monsoon, the decreasing rates of rainfall per year are 0.4 mm and 1.75 mm are witnessed respectively.

- *Implications of this study*

Considering the main climate induced changes, adaptation practices on cropping pattern, seed, irrigation management, crop intensification and selection of suitable date for rice transplantation have been suggested. These adaptation measures have been developed on the basis of local farmers' knowledge, field level data and information and field experiments.

Climate adaptive cropping pattern which is suggested in Gaibandha and Sirajgonj are wheat-mug dal (Pulse)-T.aman. Choice of seed like submerged tolerant rice varieties during Kharif season-BRRI dhan51, BRRI dhan 52 are also prescribed. The farmers are advocated to re-excavate ponds for supplemental irrigation, fish cultivation and integrated duck-fish-vegetables gardening for crop intensification. Transplantation of rice before 15 January is also encouraged as transplantation after the prescribed time might lead huge yield reduction.

Shairatpur witnesses salinity intrusion as a consequence of back water effect. Some climate adaptive practices have been suggested in this location including Boro rice-T.aman rice/Jute cropping pattern. Short duration and saline tolerant Boro rice varieties-BRRI dhan 47 and saline tolerant rice varieties during Kharif season-BRRI dhan40, BRRI dhan41, BRRI dhan53, and BRRI dhan54 have been introduced to the local farmers. For irrigation management, excavation of mini ponds and surface water harvesting for supplemental irrigation and integrated duck-fish-vegetables gardening for crop intensification are suggested. It is also prescribed to transplant T.aman rice by or before 1 June to minimise the yield drop.

## 2.2 Objective 2- Diversification Livelihood Options to Reduce Poverty (Emphasis on Women-headed Households)

State of livelihood measurement [Periodical data collection, validation, enumeration and data analysis (longitudinal monitoring)] has been taken under project objective 2. The present status of this activity is given below (Table 3).



**Table 3: Project objective-2: Activity and status at a glance**

Serial No.	Activity at a glance	Status
1	State of livelihood measurement [Periodical data collection, validation, enumeration and data analysis (longitudinal monitoring)]	Research reports for July to December have been completed

### 2.2.1 The State of Livelihood: Measuring Livelihood Status of Hard Core Poor in Hard to Reach Areas (Longitudinal Monitoring)

The study explores quarterly status of larger longitudinal livelihood monitoring through pre-tested indicators which is comparable to national statistics systems and also controlled and uncontrolled beneficiaries. Report on State of livelihood of July to December, 2011 has been completed.

#### Objective of the Study

- ✓ To draw a bigger picture of status of living condition for those who are poor and are really hard to reach in rural Bangladesh
- ✓ The study is also intended to provide an indication of the values of living condition through monthly monitoring of predefined set of livelihood indicators.
- ✓ The findings of the study have to be designed to compare with national statistics.

#### 2.2.1.1 Key findings of state of livelihood for July to September, 2011

- Per capita income is BDT 544.40.
- Percentage of the respondents belong to upper poverty (USD 1.25 per person per day) is 26.22 percent.
- Percentage of the respondents belong to lower poverty (USD 1 per person per day) is 53.33 percent.
- Average calorie intake is 2075 kcal per person per day.
- Percentage of expenditure for food in terms of income is 33.54 percent.
- Percentage of expenditure for cloth in terms of income is 10.2 percent.
- Percentage of expenditure for education in terms of income is 3.49 percent
- Percentage of members with education access is 39.11 percent.

- Percentage of drop out students at primary level is 0.78 percent.
- Percentage of expenditure for health in terms of income is 4.69 percent.
- Age vulnerability of illness is between 15 to 40 years.
- Percentage of the respondents of allopathic patient is 34.89 percent.
- Percentage of expenditure for housing in terms of income is 0.58 percent.
- Percentage of expenditure for miscellaneous in terms of income is 1.38 percent.
- Access of girls' education of the respondents is 25.78 percent.
- Obtaining highest degree as SSC or above (Percentage of female) is 0.78 percent.
- Decision taking power of the female is 17.78 percent.
- Using birth control method is 80 percent.

### ***2.2.1.2 Key findings of state of livelihood for October to December, 2011***

- Per capita income is BDT 550.39
- Percentage of the respondents belong to upper poverty (USD 1.25 per person per day) is 35.89 percent.
- Percentage of the respondents belong to lower poverty (USD 1 per person per day) is 47 percent.
- Average calorie intake is 2126 kcal per person per day.
- Percentage of expenditure for food in terms of income is 34.03 percent.
- Percentage of expenditure for cloth in terms of income is 8.49 percent.
- Percentage of expenditure for education in terms of income is 3.56 percent
- Percentage of members with education access is 41.44 percent.
- Percentage of drop out students at primary level is 0.44 percent.
- Percentage of expenditure for health in terms of income is 3.75 percent.
- Age vulnerability of illness is between 15 to 40 years.
- Percentage of the respondents of allopathic patient is 35.56 percent.
- Percentage of expenditure for housing in terms of income is 0.48 percent.
- Percentage of expenditure for miscellaneous in terms of income is 0.7 percent.
- Access of girls' education of the respondents is 28.11 percent.
- Obtaining highest degree as SSC or above (Percentage of female) is 0.22 percent.
- Decision taking power of the female is 19.33 percent.

### **2.3 Objective 3- To Strengthen Community Resilience to Absorb, Recover and Reorganize to, and from, Climatic Shocks**

Develop Community Resilience Practitioners Manual; Develop Practitioner Manual and Operational guideline for Community Seed Bank and Develop Practitioner Manual and Operational guideline for Community Food Bank have been taken under project objective 3. The present status of those activities are shown here (Table 4).



**Table 4: Project objective-3: Activity and present status at a glance**

Serial No.	Activities at a glance	Status
1	Develop Community Resilience Practitioners Manual	The draft Community Resilience Practitioners manual has been completed. The manual will be finalised by 2012 after field testing
2	Develop Practitioner Manual and Operational guideline for Community Seed Bank	The draft Practitioner manual and operational guideline for community seed bank and food bank are completed. Two manuals will be finalised by 2012 after field testing
3	Develop Practitioner Manual and Operational guideline for Community Food Bank	

### **2.3.1 Resilience Manual: A practitioners' guide to disaster resilience**

Bangladesh has been affected with recurring disasters, where climate change is aggravating the situation. Even though the country has shown remarkable progress in disaster management, however, the intensity and frequency has been surpassing people's capacity to cope up with disasters. Unitary response may be effective for short term, but unable to fulfil multiple demands of the community in the long run. Making a disaster resilience community, therefore, is an important concern both in academia and practitioners' level.

#### **Objectives**

- ✓ Developing operational guidelines to make the communities resilient to social, ecological and economic shocks
- ✓ To enhance capacity of the development practitioners on disaster management
- ✓ To develop a model of resilient society

### **2.3.2 Preparation of Operational Manual for Community Seed Bank (CBS)**

A Community Seed Bank (CBS) stores seeds as a source for planting in case seed reserves elsewhere are destroyed. It is a type of gene bank. The seeds stored may be food crops, or those of rare species to protect biodiversity.

#### **Purposes of Seed Bank**

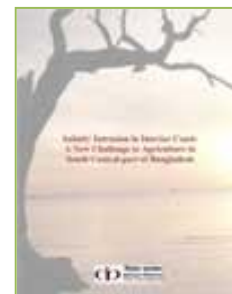
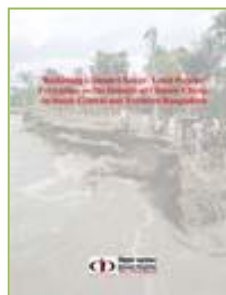
- To provide community quality seeds after disaster
- To provide community access to quality, local seeds
- To preserve local, heritage and heirloom seed varieties

- To promote seed saving
- To develop and distribute seeds those are optimum for local soils and climate
- To collect the social histories of the local seeds

## 2.4 Objective 4- To Increase the Pro-Poor and Pro-Development Responsiveness of the Government to the Climate Change

The activities planned for the objectives included:

- Research on ‘Reckoning Climate Change: Local peoples’ perception on the impacts of climate change on agriculture of South-central and Northern Bangladesh’,
- Research on ‘Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh’,
- Agricultural product market channel assessment for remote rural and char area,
- Salinity Intrusion in Interior Coast: A new challenge to agriculture in South-central part of Bangladesh
- Formation of legislative influencing group comprising parliamentarian
- Formation of journalist group for raising pressure of government to take actions on climate change impacts and
- Policy dialogue involving parliamentarian, ministers, senior journalist, development partners have been taken under project objective 4.



The present status of those activities are shown here (Table 5).

**Table 5: Project objective-4: Activity and present status at a glance**

Serial No.	Activities at a glance	Present Status
1	Reckoning Climate Change: Local Peoples’ Perception on the Impacts of Climate Change on Agriculture of South-Central and Northern Bangladesh	This research report has been completed.
2	Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh	Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh has been completed

3	Accounting Climate Induced Displacement in Bangladesh: An exploratory GIS based study (the research activity has been conducted instead of Agricultural Product Market Channel Assessment for Remote Rural and Char Area)	The research report is completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event namely 'Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia'.
4	Salinity Intrusion in Interior Coast: A New Challenge to Agriculture in South Central part of Bangladesh	The report "Salinity Intrusion in Interior Coast: A New Challenge to Agriculture in South Central part of Bangladesh" has been completed.
5	New Innovative idea developed in RESOLVE field level: Learning by Doing (This research has been conducted instead of research work on Drought and moisture stress in Rajshahai, Barind tract)	The research report is completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event namely 'Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia'.
6	Formation of legislative influencing group comprising parliamentarian	All dialogues and lobby meetings will be organised within 3 <sup>rd</sup> quarter, 2012 following completion of the research to share the findings of the research to have an effective evidence based policy advocacy.
7	Formation of journalist group for raising pressure of government to take actions on climate change impacts	
8	Policy dialogue involving parliamentarian, ministers, senior journalist, development partners	

### ***2.4.1 Reckoning Climate Change: Local Peoples' Perception on the Impacts of Climate Change on Agriculture of South-Central and Northern Bangladesh***

The agriculture in Bangladesh has been experiencing multifaceted problem both in dry and wet season due to change in water distribution and availability. Even though climate change affects different geographic locations, but charland is particularly vulnerable due to their geo-formation and lack of infrastructure to protect impacts of climate change. Sundorganj upazila of Gaibandha district, Kazipur upazila in Shariatpur district and Gosairhat upazila in Shariatpur district have been selected for this study. A mixture of qualitative and quantitative techniques was used to collect and analyze data. Total 900 interviews were taken from Gaibandha, Sirajgonj and Shariatpur district (300 from each area) by stratified sampling method through a predesigned



semi structured questionnaire containing questions regarding livelihood, agriculture, climate change impacts etc. The empirical data was accompanied by existing literature for analyzing and constructing rigorous evidence on the issue. The research report is already completed.

### **Objective of the Study**

- To address the challenges posed by climate change and find out sustainable solution in agriculture and livelihood of Northern and South-central Bangladesh
- To explore the magnitude and impacts of different natural hazards namely flood, riverbank erosion, salinity intrusion, water scarcity in livelihood system, more particularly agriculture

### **Key Findings of the Study**

- Flood, more specifically river flood, is the most severe natural hazard for agriculture production in Sundargonj upazila of Gaibandha district.
- Though Sirajgonj is prone to flood, however, river bank erosion, flood induced river bank erosion in particular, are the prevalent natural hazards in Kazipur upazial under Sirajgonj District.
- In Sirajgonj 80 percent people states that river bank erosion is the main problem. On the other hand, 39 percent people of Gaibandha identify this problem for crop production. Whereas, 41percent people of Shariatpur are forced to change their crop variety due to climate change.

#### ***2.4.2 Effect of Riverbank Erosion on Livelihood in Central and Northern Bangladesh***

Riverbank erosion is a devastating hazard in Bangladesh that permanently displaces and impoverishes many people. The floodplain of the Teesta and Brahmaputra River covers most of the Northern part of Bangladesh. Gaibandha and Sirajgonj are the erosion prone areas and frequent erosion makes people to move from this area to distinct places which put extra pressure on their livelihood. Frequent erosion makes the people to move from this area to distant places which put extra pressure on their livelihood. For this study, data have been collected from the selected study areas using both qualitative (Case Study and Key Informant Interview) and quantitative data. Data has been collected from the respondents of the study area using purposive random sampling technique where sampling size was 22. In addition, two cases and one key informant were interviewed.

### **Objective of the Study**

The present study aims to know the impact of riverbank erosion on the state of livelihood of the surveyed area. Other specific objectives are:

- To understand the local peoples' perception on the causes of riverbank erosion

- To know in what extent the inhabitant incurred loss due to bank erosion and the way they cope up
- To trail the migration pattern of that locality
- To elucidate different livelihood option of the study area

#### ***2.4.3 Accounting Climate Induced Displacement in Bangladesh: An Exploratory GIS Based Study***

This paper aims at estimating the number of climate induced migrants in Bangladesh with specific reference to riverbank erosion, drought and sea level rise. The study has used Kazipur upazila of Sirajganj for riverbank erosion, which is already identified as the most erosion prone area in Bangladesh; Sundarganj upazila of Gaibandha for drought and Gosairhat upazila for anticipated sea level rise as reference points to draw an overall migration scenario for Bangladesh.

#### **Objective of the Study**

- Knowing what type of migration occur due to climate change with the support of local people perception
- Identifying and calculating the entire penetrated area due to sea level rise and relation to the migration
- Problem identification within the areas and counting the rate of migration
- Mapping and analyzing the current situation on the basis of rate of migration

#### **Key Findings of the Study**

- The rigorous effects of riverbank erosion in Bangladesh - 1, 29,853 people are displaced yearly.
- The rate of temporary or seasonal migration in Bangladesh is about 5, 98,450 people in 2011.
- In the perspective of Bangladesh, there are approximately 31 million people likely to be migrated permanently from the southern part of Bangladesh within 21<sup>st</sup> century.

#### ***2.4.4 Salinity Intrusion in Interior Coast: A New Challenge to Agriculture in South-central Part of Bangladesh***

Salinity intrusion is an increasing problem in the coastal zone of Bangladesh. It has been found that salinity is a predominating hazard for the crop production in Gosairhat, an upazila under Shariatpur district. During dry season, the farmers are experiencing a significant yield loss over

the couple of years. Under the circumstances, the study intended to measure the present level of salinity, surface water salinity in more particular, and its impact on agricultural production and also predict the future scenario in terms of salinity level and its potential impact. The study used a mixture of primary data and secondary source of literature to meet the objective of the study; however, the study focuses more on primary intervention which has been done through FGD, key informants interview, case study, household interview, personal observation and the laboratory report. The secondary literature has been sorted out through assessing a number of scientific, policy study and conference and workshop report.

### Objective of the Study

- Explore the causes of salinity intrusion in the area adjacent to the lower Meghna.
- To measure the present level of surface water salinity
- To assess and quantify the impact on agriculture
- To identify the solution to address the problem associated with salinity ingression

### Key Findings of the Study

- The principal obstacle for crop production during dry season is salinity in the soil and surface water along with the other obstacles like cold wave, pest invasion, and industrial pollution from brick field, tornado etc. in the study area.
- The study found that the present salinity level in surface water is 1.3 dS/m ( from empirical study) and soil salinity is <4dS/m (from secondary study)
- Most of the Robi crops are sensitive to this salinity level and therefore,experiencing a significant yield loss in the study area.
- Local variety seems more sensitive to salinity than that of hybrid variety.

### 2.5 Objective 5- To Amplify Linkages, Learning and Advocacy on Cross Boarder (Regional And International) Actions for Reduction of Impacts of Climate Change, and Low Carbon Development Pathway

The activities which have been planned under the project objective 5, and their present status are given here (Table 6).

**Table 6: Project objective-5: Activity and present status at a glance**

Serial No.	Activities at a glance	Status
1	Participate in SAARC summit in Maldives to share evidences and foster learning among regional actors	Completed



2	Participate and organize side event in COP17 at South Africa involving representative from each participating organisation to disseminate the outcome of RESOLVE pilot project (up scaling)	Application has been made to hold two side events in COP 17 in South Africa in December 2011 to disseminate the outcome of RESOLVE pilot project
		A documentary (Ruins and Resolve) has been presented about the new innovative ideas, which are being practised in field level at RESOLVE areas.
3	Linkage with existing networks (SAWTEE, CANSA, INSA) and create new network	The Unnayan Onneshan has been elected as a Member to the Board of the CANSA. It is a continuing process

## 2.6 Objective 6- To Establish Adaptive Management through Learning by Doing for Scaling Up (Practicing Resilience Theory)

**Table 7: Project objective-6: Activity and present status at a glance**

Serial No.	Activities at a glance	Status
1	Establish adaptive management through the project operation	It is a continuing process. The Steering Committee has been proactive.

## 2.7: Project Related Other Activities

**Table 8: Project development other activities**

Serial No.	Activities at a glance	Status
1	Impacts of Changing Climatic Condition and Increasing Population on Food Security in South Asia: Based on Different Scenarios	The research report is completed and presented in International Conference on United Nations Framework Convention on Climate Change (UNFCCC), Durban Exhibition Centre, Durban, COP 17, South Africa. Side event named: Implications of Different Negotiated Outcomes on Life and Livelihood of the People in South Asia.
2	Terms of Reference of Research on State of Livelihood (Longitudinal Monitoring)	ToR on State of livelihood has been completed and sent to partners for their comments
3	Terms of Reference of Research on Adaptive Techniques in Agriculture	ToR on Adaptive Techniques in Agriculture has been completed and sent to partners for their comments
4	External funding for RESOLVE (CIDA proposal) and proposal development	Submitted to ON
5	External funding proposal for EU and other donors	Draft submitted to ON
6	Multiannual Budget (2012-2015)	First Draft submitted to ON and final draft will be submitted on 15 October
7	Baseline Survey Report	Completed on July, 2011
8	LOG IN DIARY	Completed on 14 May 2011

## CHAPTER 3: PROGRAMME MANAGEMENT, DEVELOPMENT AND SECRETARIAT

Besides planned research and technical advisory, Unnayan Onneshan contributed significantly on programme development in the first half of the first pilot year of RESOLVE. In the first half, most of the programme development activities were related to development of ToR of the researches, preparing proposal for external funding and preparing multiannual budget etc.

Meanwhile, in collaboration with other partners UO lead the tasks of developing external funding proposal for CIDA, External funding proposal for EU or other large donors and Multiannual budget for 2012-2015.

**Secretariat:** Since the planning phase of RESOLVE pilot project, Unnayan Onneshan has been providing all the technical services to partners in developing joint proposal, setting activities and developing operational guidelines. In addition, since inception of the project Unnayan Onneshan has been serving as Secretariat of RESOLVE and managing all tasks related to programme development, developing operational guideline, setting strategic direction and organising Steering committee meeting. Positioned centrally at Dhaka, well developed infrastructure and modern digital communication infrastructure makes UO favourable to the partners to choose it as Secretariat and in the last half (July to December, 2012) UO arranged 1 steering committee meeting, 1 teleconference and many other informal gatherings of RESOLVE.

ToR of Secretariat attached in Annex 1 (The ToR was developed by GKS)

### **Mid Team Review, 30 October - 1 November, 2011**

The first Mid Team Review was held on 30 October to 1 November, 2011 at Dhaka. The discussed issues of the meeting was related to the progress of RESOLVE, strategies to accomplish rest of the activities within planned schedule. Head of organizations as well as project managers from the RESOLVE partners and Nienke Smidman, Fe Loreli Cajegas and Susan from Oxfam Novib participated in this meeting. The issues come out from the meeting with a constructive discussion are:(1) approval process 2012 proposal and budget, (2) Light Review of activities and progress of implementation (3) Review of existing Operational Mechanism/Structure (and Visioning Exercise), (4) Discussion on draft 2012 Proposal & Operational Structure, (5) Discussion on minimum requirements for full programme review/mid-term evaluation of Pilot Phase. The issues raised from the meeting were very helpful to look forward the RESOLVE activities efficiently.

### **Skype Teleconference, 18 August 2011**

Action points & decisions in the last teleconference:

#### ***a) Mid Term Review:***

- The MTR will be planned during the first week of November in Dhaka (Aristocrat Inn). The exact dates still need to decide upon.

- Terms of Reference: Deadline draft ToR 22 August - by ON. Comments on the draft by 5 September. Final ToR by 9 September - by ON.
- Steering Committee Members as well as Programme Managers will be part of the review.
- The objective of the MTR is to 1) review the work of last year: what has been achieved, what were problems we encountered, what was the impact, which adaptive techniques & strategies were useful, 2) review the process (role and task division, especially of the SC, ON, UO/ technical partner, and the purpose and role of the secretariat 3) Planning of the second year of the pilot phase (discussion on draft proposal and budget) + developing a campaign strategy.

***b) Pending Action Points from Last RESOLVE Partners Meeting (27-04-2011):***

- Login diaries: the template is being used at the moment and will be reflected in the MTR
- RESOLVE brochure: by ON - first sample by the end of September
- RESOLVE website: by UO - framework and structure is done
- ToR secretariat; By GKS - 30 July
- Field visit schedule is done
- RESOLVE logo - by GUK - next SC meeting
- Gender policy - by GUK - Lucky shared a draft policy. Gender indicators were developed and send by Lucky on 4-8-2011.
- ToR COP - submitted to ON by UO
- Registration to COP 17 - by UO - in August
- Developing format for Right Holders Identification Number (RIN) - by UO - in August

***c) Approval Process Second Pilot Year and***

***d) Learning Diaries***

## CHAPTER 4: CONCLUSION

RESOLVE is indeed innovative in its approach, as it has been applying a contextual ecosystem approach in its operationalization. It has used an integrated approach that includes field intervention, capacity building, and advocacy initiatives, with strong crosscutting concerns for gender equity and of raising the voices of the most vulnerable households. It tries to improve the resilience to current climate variability and future climate change of food insecure households by developing and supporting cost-effective strategies at the household and community level, and advocating for policies and measures at the local, national and regional levels, that will improve food security in the context of climate change.

To fulfil the objectives of the RESOLVE, the Unnayan Onneshan has initially planned 17 activities; of which six of them may have been completed and the rest others are now under process for finalisation, giving a strong signal that all envisaged activities would be completed within stipulated time.

The RESOLVE has purposively targeted the poorest segment of the society, more particularly the poorest village community, considering their grave vulnerability to climate change and the activities are directly related focusing their condition.

The REOLVE is unlike other organization both in approach and operationalization. Having ultimate goal of sustainable development, it has kept the provision of establishing community food bank, seed bank, besides addressing innovative adaptive techniques to address the shocks associated with climate change. Community level food bank and seed banks' manual have been prepared in this phase to make an ease to the practioners in the second phase. This demonstrates the programme's continuity and unique sequencing of the activities.

The Unnayan Onneshan as a technical partner has taken innovation as a key component. Location-wise climatic hazards have been found out in this phase and the Unnayan Onneshan will provide a series of possible adaption options in this phase. Based upon these, rigorous processes will be practised in the next year and cost benefit analysis will be also carried out.

The proposed project has also attempted to adopt Resilience Approach with the aim of increasing the capacity of the right holders both at household and community level to absorb; or to cover; and if necessary, to reorganize during and after any disaster hits. The Unnayan Onneshan has prepared resilience manual which will help to make the communities resilient to social, ecological and economic shocks.

The Unnayan Onneshan as a technical partner and a secretariat, in its every action, has been practising participatory adaptive management through learning by doing. This strategy of the project implementation is being carried out as RESOLVE which is new of its kind in terms of finding solutions to climatic variabilities in the field to develop effective, demonstrable, replicable and appropriate adaptation model. The model of programme management is also new as it provides equal share to each of the partners.

The Unnayan Onneshan also takes a unique challenge in the policy advocacy by shifting to an evidence-based advocacy from the conventional human story telling. Thus, it has been pursuing



a three-pronged strategy: (a) the research agenda set through consultation with the affected people (b) rigorous-science led research to make credible argument, and (c) policy influencing through evidence. An interactive dissemination channel is being also developed to make all information accessible to wide array of people including local rural communities, government structures, and donor agencies.

**RESOLVE Activity in Action**



## Annex 1

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### Terms of Reference for Secretariat

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#### Background

Representative from three implementing organizations (GKS, GUK and SDS), technical support organization (Unnayan Onneshan) and funding organization (Oxfam Novib) have formed a Steering Committee under RESOLVE. Being a member of the Committee, GKS is implementing RESOLVE in Sirjaganj, GUK in Gaibandha, SDS in Shariatpur district and Unnayan Onneshan providing necessary technical supports among the implementing organizations.

Since the Steering Committee is considered as the strategic body and guiding authority of the RESOLVE programme, the committee members established a Dhaka based secretariat for performing secretarial task of the program effectively and smoothly. Considering their volume of engagement in RESOLVE programme, decision has been taken to establish the secretariat at Unnayan Onneshan as it is positioned at city centre, accessible to any corner of Dhaka and they have well developed infrastructure and communication system. It is expected that the secretariat will play a productive role in achieving RESOLVE objectives.

#### Objective

- To provide necessary secretarial assistance to perform the task of the Steering Committee effectively and smoothly.

#### Responsibilities

- To organize and coordinate regular/special meeting
- To provide required space for conducting regular meeting/task.
- To provide food & accommodation (if required) during the meeting.
- To ensure required logistic support
- To prepare and circulate promptly the minutes of the committee meeting to all members.
- To take initiative for solving common problems that hampers proper implementation of the total programme.
- To organize cross/exposure visit, learning events home and abroad
- To organize and coordinate national level event for RESOLVE Programme
- To take initiative to mobilize funds for scale up
- To maintain liaison with government and other national and international level actors

#### Frequency of the Meeting

The secretariat will call regular meeting in quarterly basis. In case of emergency, special meeting will be conducted when needed.

## **Notice of the Meeting**

The secretariat on behalf of Chairperson of the Steering Committee will send the notice with draft agenda of the meeting at least, one week before the scheduled meeting date. In case of emergency, special meeting notice should be sent at least 24 hours before.

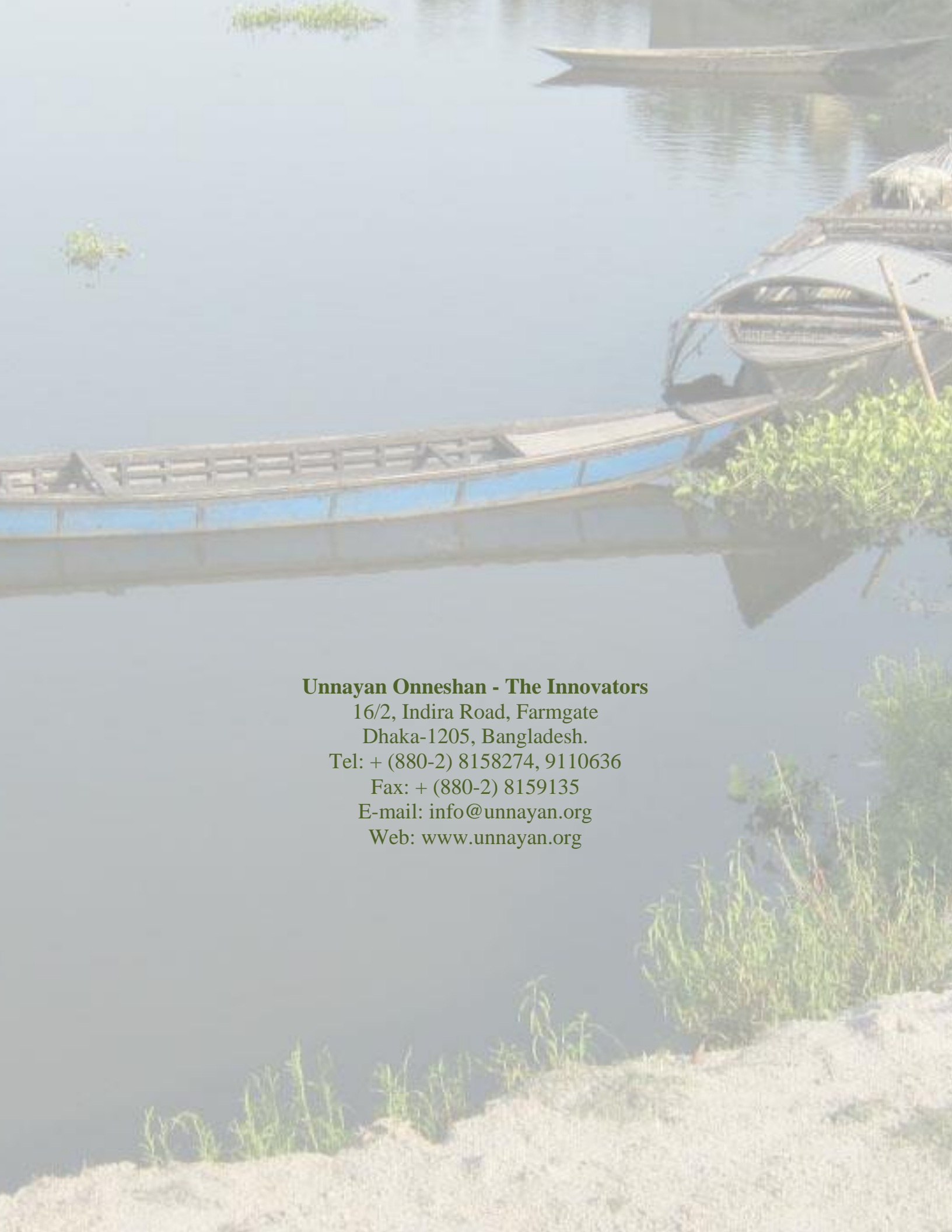
## **Minutes of Meetings**

The secretary shall minute the proceedings and resolutions of all Steering Committee meetings, including the names of those present and in attendance. Minutes of Committee meetings shall be circulated to all members of the committee within next 7 days.

## **Others**

- The secretariat may appoint support staff on part time basis.
- The secretariat may charge the rent of space and other running cost (Utilities).
- Refreshment, food & accommodation cost also may charge
- The Terms of Reference (ToR) will be updated in regular basis if required.





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