WORKSHOP ON IMPLEMENTATION STRATEGIES FOR PILOTING FLOOD INDEX INSURANCE FOR AGRICULTURAL DEVELOPMENT IN BANGLADESH

Hosted by International Water Management Institute (IWMI, Sri Lanka) and Institute of Water Modeling (IWM), Dhaka

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1. Project Background

Global efforts are underway to reduce the risk posed by extreme weather events by increasing the resilience and coping capacity of vulnerable population and vital economic assets. Although national governmental organizations are better placed with the mandate to undertake measures to reduce the risk posed by extreme events, they lack reliable tools / methods which are robust to withstand the uncertainty posed by the climate change. The scenario in developing economies like India and Bangladesh are further complicated by the need to sustain economic growth with large section of agrarian population while maintaining environmental status quo in exploiting natural resources like land and water. Growing concerns increasingly evident impacts about the negative impacts of climate change on agriculture, adaptation to the changes becomes increasingly urgent and important. Climate change is deepening the risks already faced by the poor and vulnerable people in rural areas in developing countries who are involved in agriculture and allied climate-sensitive sectors for their livelihoods. Owing to the location of Bangladesh in the deltaic region of two large rivers in the world Ganges and Brahmaputra, it is prone to recurrent flooding imparting widespread damages. While significant flood defense were built up over the years, extreme events continue to cause widespread damages to life and property. The rural population who are completely depended on agriculture for the livelihood were placed in perilous position from flood damages.

Agricultural insurance is considered to be an effective risk transfer mechanism to address moderate risk posed by extreme events such as floods, droughts, hailstorm, etc. The penetration of agricultural insurance scheme across developing countries varies widely. India currently implements one of the largest crop insurance coverage in the world in terms of covering small holder farmers while the penetration of the same in Bangladesh is less than 1%. Such myriad scenarios pose varied challenges in successful implementation of the crop insurance schemes. But the crux of problem in traditional crop insurance scheme lies in high cost of verifying losses post the occurrence of flood events in large numbers of small landholdings. Traditional loss-based insurance is not viable for remote rural smallholders completely disconnected from the mainland. In this context, advances in satellite technology and data analysis can help avoid the pitfalls of high transaction costs and therefore expand the potential reach of insurance policies to rural areas previously considered uninsurable.

International Water Management Institute (IWMI) with the support from CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and Water, Land and Ecosystems (WLE) and Ministry of Agriculture, Forestry and Fisheries (MAFF, Japan), agreed to develop innovative financial risk transfer solutions particularly suitable for implementing in countries with large small holding farming communities against flood losses. IWMI along with the its partners has now developed an innovative Index-based flood insurance[1] (IBFI) scheme to be piloted in two countries Bangladesh and India to increase the short term coping capacity of small holding farmers against flood risk. Sirajganj in Bangladesh and Muzzafarpur district in India are selected for IBFI pilot. The current stage of IBFI[2] project requires additional efforts focusing on piloting the project in Bangladesh and India during the 2017 monsoon season. This innovative

[1] http://ibfi.iwmi.org
[2] https://www.youtube.com/watch?v=OcdEsbF3RFY

approach aims streamline and fasten effective insurance payouts, so that it money reaches affected farmers in timely manner. The project integrated advanced numerical modelling techniques for constructing long term flood patterns, high resolution remote sensing data and statistical models to predetermine flood thresholds, which could trigger speedy compensation payouts. Effective end-to-end solutions is being developed in collaboration with a range of organizations and experts from central and state government bodies, private insurance firms, community-based organizations (CBOs) and nongovernmental organizations (NGOs). The workshop is jointly organized by IWMI and IWM.

2. Objective and Scope of the Workshop

The overall objective of the workshop was to briefly present the IBFI project progress till date and discuss key challenges in product implementation for 2017 flood seasons in Bangladesh. The discussion in this workshop will ultimately be used to formulate a country specific implementation strategy.

- To present the overall project progress and current status in Bangladesh pilot
- To present the flood modelling activities in Bangladesh by IWM
- To briefly give an overview of IBFI product design and pricing details for Bangladesh.
- To discuss strategies for implementation in 2017 monsoon in pilot villages
- To discuss key challenges expected to be encountered during the implementation phase.

Participants

IBFI project partners invited relevant stakeholders from wide range of organizations and disciplines in Bangladesh. Participants from key agencies include Ministry of Disaster Management and Bangladesh Water Development Board (Government organizations), Pragathi and Green Delta (insurance companies), PKSF, MMS, Oxfam and CARE Bangladesh (NGOs and developmental organization).

3. Project presentation and discussions

3.1 Welcome remarks by Dr. M. Monowar Hossain, Executive director, Institute of Water Modelling, Bangladesh

Welcoming participants, Dr. Monowar Hossain highlighted the seriousness of flood risk face by Bangladesh and need for innovative tools such as IBFI to address the recurrent problem. He mentioned the current flood situation in North-eastern Bangladesh from unseasonal rainfall causing havoc on lives and livelihoods. Dr. Hossain recognized the impact of recurrent flood events causing huge agricultural damage and thereby economic losses which cripples the rural economy. He emphasized that developmental pilot projects such as IBFI are current need of the hour to improve and fine tune our responses to extremes influenced by climate change. He further stressed on the importance of sharing lessons, knowledge and experiences by the participants in the workshop to devise suitable strategy for the implementation in Bangladesh. He concluded stressing that projects such as IBFI are vital to Bangladesh efforts to dampen flood damages.

3.2 Workshop Context, Purpose and Overview by Dr Karthikeyan Matheswaran, Postdoctoral fellow, IBFI Team, IWMI

Karthikeyan started the presentation describing the overall context of IBFI project in Bangladesh and India. He highlighted the IWMI's efforts to develop risk transfer tools to address agricultural flood risk in South Asia as the main motivation behind the project. The main difference between traditional indemnity based insurance and index based insurance schemes were described. A brief description on the methodology tested to select pilot areas in Bangladesh and India were presented to the participants. Various methodological steps in creating an IBFI product was described in brief along with the project timeline. The key difference between the previous Oxfam led index based flood insurance scheme and the current IBFI were highlighted. The role of IWM in creating the flood hazard model and extracting the flood parameter for creation of the insurance product was presented. The IBFI product created by Swiss Re based on the flood data shared by IWM for Bangladesh pilot area was described to the participants. The insurance product was field tested in pilot areas in India and has undergone multiple iterations and transformation for effectively representing flood losses.

He mentioned that the IBFI product is at the stage where it is ready for pilot and emphasized the need for participation of government organizations, insurance companies and NGOs in implementation to pilot test the product and assess its effectiveness in addressing the short term financial need of farmers post flood losses. Finally Karthikeyan described the difference in challenges faced in Bangladesh and India in creating and piloting the product where the key challenges in Bangladesh stem from implementation and low exposure to crop insurance while the challenges in India were from data availability and access. He further described the focused efforts from IWMI in developing a sustainable business model for IBFI to make it an integral solution to agricultural flood risk problems. He concluded emphasizing the major role Bangladesh government needs to play to subsidize new risk transfer approaches like current IBFI pilot to improve, customize and integrate it as part of overall risk management strategy for operational use.

3.3 IBFI product design by Mangesh Niranjan Patankar, Senior Underwriter Agriculture, Swiss Reinsurance Company Ltd

Mangesh joined the workshop through teleconference to describe the key aspect of IBFI product developed for Bangladesh pilot area. He highlighted the main aspects of IBFI product such as creation of IBFI product from flood data, development of term sheets for the pilot villages which indicates likely payouts for the historical flood events, payout based on trigger level for each village and minimum return period of the flood events for which the product was designed. Mangesh briefly described the testing of these term sheets indicating historical payouts in Indian pilot villages, further evaluation and refinement. He emphasized the necessity of high quality datasets representing long term historical flood patterns for the development of IBFI, without which large amount of uncertainty may cascade from data to the insurance product. In South Asia countries, there is lack of historical data on flood damage at the village level, which hampers further validation of the IBFI product. In Bangladesh, there exists significant tax component levied on insurance policies which make event specific product like IBFI beyond the reach of large number of farmers.

3.4 Discussion on IBFI implementation strategy in Bangladesh

After the presentations, the workshop was opened to the participants to convey their views on project activities, key challenges expected in the implementation phase and any other suggestion. Salient points from the discussion session are summarized below.

- Unlike India, agricultural insurance penetration in Bangladesh is less than 1%. So the opportunities for the private sector insurance companies are currently in emerging stage with higher risk.
- There is an ongoing pilot of index based weather insurance scheme funded by ADB and implemented across Bangladesh. New weather stations are installed by Meteorological department for this pilot from project funds.
- The main hindrance to the sustainability of agricultural insurance schemes in Bangladesh is due to lack of inclusion at the policy level as a core component of disaster management. Current emphasis is mainly devoted to short term relief measures. Participants suggested that IBFI pilot should also focus on increasing awareness at higher level in government to include it in the disaster management policy.
- In addition to the Ministry of Disaster Management, the main stakeholders include Ministry of Agriculture and Ministry of Finance. There exists ambiguity among the departments and ministries about the mandate of provision of agricultural insurance.
- There are ongoing pilot schemes insurance schemes targeting livestock and crop specific schemes (Tomato and Cassava).
- Participants stressed that the project partners should address the viability of scheme from insurance company perspective. The current pilot villages in Sirajganj are mostly under high risk category which may result in yearly payout.
- Participants from IWMI side stressed that beyond the pilot the idea is to spread the risk across large area.
- Workshop participants emphasized the need for longer pilot time period (years) to chalk out and assess its overall effectiveness. One or even two year implementation may be a short time to evaluate a product designed for addressing moderate flood risk event.

- Also the participants from insurance companies stressed the need for keeping IDRA and Ministry of disaster management in loop, informing them about the forthcoming pilot.
- IWMI team put forth the implementation strategy to be followed in India where the IBFI product will be partially subsidized from the government funding.
- Feasibility of following a similar approach in Bangladesh was discussed. Getting a government subsidy in Bangladesh for IBFI may take time and involve discussing the project and benefits at the top level in Ministry.
- Unlike in Indian scenario where insurance company possess large ground support for implementation owing to the market size, in Bangladesh Micro-Finance Institutions (MFIs) are better equipped to handle connectivity at the ground level with the farmers.
- However NGOs and MFIs felt that there exists some element of risk in piloting such new insurance schemes. The primary among them are the lack of awareness among farmers and rural households on agricultural insurance.
- It may be difficult to convey to the farmers exactly what a specialized product such as IBFI represents and the scenarios in which the farmer may or may not get the payouts. Example being associating the payout with a minimum return period floods.
- The IBFI product is too complex to be understood by the farmer and the participants felt sustained, long term efforts are needed in awareness creation, conveying the working of insurance schemes to rural households.
- In the previous flood insurance project in Bangladesh, there were cases of villages actually flooded but not predicted by the model. Since the payout is based on the model generated values, some villages affected by the flooding did not receive payouts.
- Occurrence of multiple flood events may increase the time to issue payouts as was the case in previous pilot.
- IWMI team detailed the efforts taken to address such situation like use of model and remote sensing tools for addressing payouts.
- Participants emphasized about the requirement to tailor the product and policy conditions to suit the needs of pilot villages.
- Identifying right institutions with deep connections and reach to the local population in Sirajganj area.

4. Workshop outcomes

The workshop concluded by agreeing that consistent efforts are needed to convince government stakeholders involved in policy formulation for disaster management to include agricultural insurance as an integral part of increasing resilience against recurrent flood events. The project team agreed to share the IBFI policy document with all relevant stakeholders for their views. For the implementation phase, identifying local organization with strong connect with the small holder farmers is mandatory for successful pilot. Number of MFIs operating at the local level are better equipped to handle such new pilot projects. During the forthcoming monsoon season, in addition to piloting the project, efforts will focused on awareness campaign in collaboration with local partners to disseminate the workings of agricultural insurance scheme among the selected pilot villages.

5. Field visit to Sirajganj

IWMI team consisting of Karthikeyan Matheswaran and Mohammed Aheeyar visited IBFI pilot villages in Sirajganj district in Bangladesh. The field visit were organized through the support of MMS (Manab Mukti Sangstha) based in Sirajgani. The main objective of the field visit is to discuss with the end beneficiaries such as farmers and laborers about various aspects related to perceived flood risk, coping mechanism, awareness of agricultural insurance, socio-economic condition, gender and inclusiveness, etc. IWMI team visited five villages which are given below having varying flood exposure. A detailed survey questionnaire was constructed by IWMI's team to be used in farmers focus group discussion which covers wide range of topics such as demographics, socio-economic, physiological characteristics, crop patterns, disaster risk, mitigation and adaptation measures, agricultural insurance and willingness to pay. Farmer focus group discussion were held in all five villages based on the constructed questionnaire. Most of the farming communities were not aware of existence of agricultural insurance schemes. A brief overview of agricultural insurance schemes and IBFI in particular were given to the participants in focus group discussion. Short term relief provided by government and other organizations along with migration were told as the most common form of post-flood management measures done by the rural farming communities in pilot villages.

Table 1 List of IBFI pilot villages visited during the field visit.

Cluster Name	**Flood Exposure**
Char Haripur	Low
Chuniahati	High
Uttar Porabari	Low
Dakshin Porabari	Medium
Kanaganti Part	High

Photos of farmer focus group discussions taken during IWMI's field visit to IBFI pilot villages in Sirajganj district, Bangladesh

ANNEX 1: WORKSHOP AGENDA

Workshop on Implementation strategies for piloting Flood Index Insurance for Agricultural Development in Bangladesh

Institute of Water Modelling (IWM), Dhaka, Bangladesh
May 3rd, 2017

With growing concerns about the negative impacts of climate change on agriculture, adaptation to the changes becomes increasingly urgent and important. Climate change is deepening the risks already faced by the poor and vulnerable people in rural areas in developing countries who are involved in agriculture and allied climate-sensitive sectors for their livelihoods. Because of the high cost of verifying losses on large numbers of small landholdings, traditional loss-based insurance is not viable for remote rural smallholders. In this context, advances in satellite technology and data analysis help avoid the pitfalls of high transaction costs and therefore expand the potential reach of insurance policies to rural areas previously considered uninsurable.

Index-based flood insurance (IBFI) is an innovative approach to developing effective payout schemes for low-income, flood-prone communities. This project aims to integrate hi-tech modelling and satellite imagery with other data to predetermine flood thresholds, which could trigger speedy compensation payouts. Effective end-to-end solutions is being developed in collaboration with a range of organizations and experts from central and state government bodies, private insurance firms, community-based organizations (CBOs) and nongovernmental organizations (NGOs). The project is being piloted in selected locations of India and Bangladesh, making it the first attempt to develop IBFI at a large scale.

The aim of the workshop is to briefly present the project progress till date including the pilot area selection, flood modelling, flood data that (re)insurance companies utilized in product design and insurance premium, and discuss key challenges in product implementation for 2017 flood seasons in Bangladesh. Specific questions for discussion will include:

The main purpose of the workshop is to:

- *Present the overall project progress*
- *Present modelling activities in Bangladesh by IWMI*
- *Results of IBFI product development in Bangladesh*
- *Discuss strategies for implementation in 2017 monsoon*
- *What are the other key challenges in the utilization of these technologies?*
- *What steps need to be taken in the coming year to make sure that responses to CC are risk-informed and that Bangladesh is better prepared for flood risk financing?*

Program Outline

Time	Program	Resource Persons
09:00 – 09:30	Registration	IWM
Session 1: Inauguration ceremony		
09:30 – 10:00	Welcome Remarks	IWM, Bangladesh
	Workshop Introduction	Karthikeyan Matheswaran, IWMI HQ
Session 2: Update on Project Results		
10:00 – 10:15	Project Overview, results and status	Karthikeyan Matheswaran, IWMI HQ
10.15 – 10:30	Flood hazard modelling	IWM, Bangladesh
10:30 – 11:00	Tea break	
11:00 – 11:15	IBFI product design	Mangesh, Swiss Re
11:15 – 11:30	Gender and inclusiveness in IBFI	M.Aheeyar, IWMI HQ
Session 3: Group Discussion on IBFI Implementation Strategy and Outreach **Duration: 11:30 – 13:00**		
This session will briefly discuss plans for implementation and opportunities for collaboration in scaling up and sustainability aspects. There will be a group discussion on 3 – 4 potential topics highlighted below and follow up presentation will be provided by individual group moderator. • *What are the implementation challenges facing IBFI in Bangladesh and how this could be addressed based on the lessons learnt from previous projects?* • *How NGO's, Microfinance institutions and other relevant networks can contribute to improve farmers familiarity with IBFI product, improve IBFI reach and faster adoption?* • *It is established that ability of the smallholding, vulnerable farmers to pay full-premium is limited. How to make IBFI a cost-effective proposition so that adoption rate is fastened? Government, reduced taxes on IBFI products or any other methods?* • *What are the key policy challenges facing future integration of IBFI with other agricultural insurance?* • *How active and sustained cooperation between different stakeholders (IWMI, Government departments, insurance industry, MFIs, etc) of IBFI can be maintained to manage flood risks in agriculture?* • *What role does the disaster management authorities take forward the DRF and DRM and the opportunities they see in flood insurance programme?* • *Finally, how to address Farmers barriers in adoption of IBFI such as equity issues, liquidity constraints, limited financial literacy, and inadequate trust?*		
13:00- 14:00	***Lunch***	
Session 4: Stakeholder survey on IBFI implementation in Bangladesh (Equity issues) **Duration: 14:00 – 14:45** Co-coordinator: Sanjiv De Silva and Mohamed Aheeyar (IWMI HQ)		
Recent year has witnessed increased use of weather index insurance projects across South Asia. This session will attempt to elucidate responses from the workshop participants dealing with various aspects of IBFI implementation in Bangladesh based on survey form.		
14:45 – 15:15	Recommendations & Closing remarks	
15:15- 15:30	*Tea break*	

ANNEX 2: LIST OF PARTICIPANTS

Sl. No	Name	Organization
1	Md. Shafiqur Rahman	CARE Bangladesh
2	G.M. Abdul Quader	Dty Secretary, Ministry of Disaster Mgt
3	Md. Hasan Khaled	PKSF
4	Md. Mamunul Hasan	Pragati insurance
5	Kaiser Rahman	Pragati insurance
6	Syed Forhad Abbas Hussain	Green Delta insurance
7	Saif Isker	CARE Bangladesh
8	Habibullah Bahar	MMS
9	Anisur Rahman Chowdhury	Oxfam
10	Sazzad Hossain	BWDB
11	Md. Saiful Hossain	BWDB
12	Habibullah Bahar	MMS Sirajganj
13	Md. Tohidul Islam	IWM
14	Dr. Monawar Hossain	IWM
15	Md. Shoel Masud	IWM
16	Md. Yousuf Mamum	IWM
17	Mohamed Aheeyar	IWMI
18	Karthikeyan Matheswaran	IWMI