

**Bangladesh Academy for Climate Services (BACS)**

# **DATA FOR CLIMATE RISK INSURANCE WORKSHOP**

## **Workshop Report**

**03 November 2019**

**Golden Tulip Grandmark Hotel, Dhaka**

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International Centre for Climate Change and Development (ICCCAD)

**With contribution from**

International Research Institute for Climate and Society (IRI) at Columbia University

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## Workshop Report

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The Data for Climate Risk Insurance Workshop was held on 03 November 2019 from 09:00 am – 05:00 pm at Golden Tulip Grandmark Hotel, Dhaka. This aim of the workshop was to gather key stakeholders of the climate risk insurance community in Bangladesh to discuss and gain a better understanding of the data challenges, especially the weather and climate related data faced by the insurance community and identify opportunities and pathways to jointly address the challenges. The event was jointly organized by the International Research Institute for Climate and Society (IRI) as part of the Adapting Agriculture to Climate Today for Tomorrow (ACToday) project and the International Centre for Climate Change and Development (ICCCAD), under the Bangladesh Academy for Climate Services (BACS) initiative.

### WELCOME REMARKS

**Ms. Mélody Braun**, Senior Staff Associate, Financial Instrument Sector team, IRI, Columbia University inaugurated the workshop with a brief description of the ACToday project and research activities of IRI at Columbia University. She highlighted the opportunities and challenges in working with climate data in Bangladesh. The International Research Institute for Climate and Society (IRI), the Bangladesh Meteorological Department (BMD), the International Centre for Climate Change and Development (ICCCAD) and the International Maize and Wheat Improvement Center (CIMMYT) have cofounded BACS and been collaboratively working to produce or generate climate data, translate them into sector specific needs and enhance capacity building of the users to utilize them at field level.

Following that, **Dr. Saleemul Huq**, Director, ICCCAD highlighted the need for insurance schemes as part of the loss and damage and adaptation practices to address climate change in Bangladesh. He pointed out the upcoming revision of the work of the Warsaw International Mechanism on loss and damage at COP 25 that explores insurance modalities in the loss and damage discussions. Hence, it is important to understand the overall landscape of insurance, and to explore mechanisms to reach poorer vulnerable communities who cannot afford to pay the premium. Dr Huq mentioned an upcoming two-year project from the Ministry of Disaster Management and Relief (MoDMR) aiming at developing a framework for a National Mechanism for Loss and Damage in Bangladesh. Insurance can become one of the tools contributing to set up a financial mechanism. However so far, insurance has been more supply driven rather demand driven. Hence, subsidizing insurance can be linked with the global financial mechanism of loss and damage in order to expand this sector to mitigate climate risks.

After that, **Dr. Daniel Edward Osgood**, Research Scientist, Financial Instruments Sector Team emphasized the need to understand the risks and fundamentals of insurance and adapting it accordingly as one part of the needed solution but not as a stand-alone product. Often, entities

working on insurance face challenges regarding data availability. However, it is important for the design of effective insurance schemes and the identification of appropriate data to engage with and understand the need of the farmers. There should be a mutual effort among different stakeholders to work together with science, creativity and data towards a shared vision of risk. Lastly, it is important to explore the potential of insurance to unlock productive opportunities in Bangladesh to contribute to climate adaptation.

### CHALLENGES FACED BY STAKEHOLDERS

Participants identified the main challenges they face in the development of the insurance sector in Bangladesh. In the table below, those challenges were reorganized by themes along the four pillars of climate services (generation, translation, transfer and use of climate data and information) and the need for capacity building. The original table is available in Annex III.

<p><b>Pillar 1 (generation of climate data)</b></p>	<ul style="list-style-type: none"> <li>• Lack of data <i>availability</i></li> <li>• Absence of <i>high quality and real time data</i></li> <li>• <i>Backward and poor quality data</i></li> <li>• <i>High quality data</i> for compensation</li> <li>• Lack of <i>reliable</i> data source and data authentication</li> <li>• Limited spatial coverage of BMD data</li> <li>• Lack of support from BMD to establish <i>new weather station</i></li> <li>• Poor <i>maintenance</i> of the weather stations</li> <li>• Lack of proper climate data analysis</li> </ul>
<p><b>Pillar 2 (translation of climate data)</b> (Here we include the translation of data into an insurance product, as well as the need to use appropriate language to communicate insurance)</p>	<ul style="list-style-type: none"> <li>• Complexities of data <i>translation and transfer</i> to the users</li> <li>• Absence of <i>usable format</i> of data</li> <li>• <i>Designing</i> of the effective insurance products</li> <li>• Innovative and cost-effective <i>product design</i></li> <li>• Identifying <i>basic risk</i> is a problem</li> <li>• <i>Awareness</i> building of farmers</li> <li>• Higher focus on the <i>interest gain</i> by the insurer</li> <li>• More focus on long term pay off rather short term pay-off</li> <li>•</li> </ul>
<p><b>Pillar 3 (transfer of climate information)</b> (Here we include the distribution of the product to users)</p>	<ul style="list-style-type: none"> <li>• Complexities of data <i>translation and transfer</i> to the users</li> <li>• Strengthening the <i>distribution channel</i> of insurance</li> <li>• <i>Lack of accessibility</i> of the insurance companies to remote areas</li> <li>• Lack of capacity and willingness of the procurer and re-insurer to work in Household level</li> <li>• Inclusion of microfinance institutions</li> </ul>
<p><b>Pillar 4 (use of climate information)</b> (Here we include factors allowing/preventing use of the insurance product, beyond the data challenges)</p>	<ul style="list-style-type: none"> <li>• Concept of climate insurance is a new concept in Bangladesh</li> <li>• Shortage of <i>confidence</i> on the data by the communities</li> <li>• Insurance is <i>not popular</i> among mass population</li> <li>• <i>High premium</i> for the farmers</li> <li>• Proper infrastructure and project viability</li> <li>• Inclusion of microfinance institutions</li> </ul>
<p><b>Capacity building</b></p>	<ul style="list-style-type: none"> <li>• Concept of climate insurance is a new concept in Bangladesh</li> <li>• Need to enhance the <i>capacity</i> of data collector</li> <li>• <i>Sensitization</i> of government and non-government officials</li> <li>• <i>Awareness</i> building of farmers</li> <li>• <i>Understanding the insurance mechanism</i> at individual level</li> <li>• <i>Designing</i> of the effective insurance products</li> <li>• Innovative and cost-effective <i>product design</i></li> <li>• Identifying <i>basic risk</i> is a problem</li> <li>• Lack of proper climate data analysis</li> </ul>

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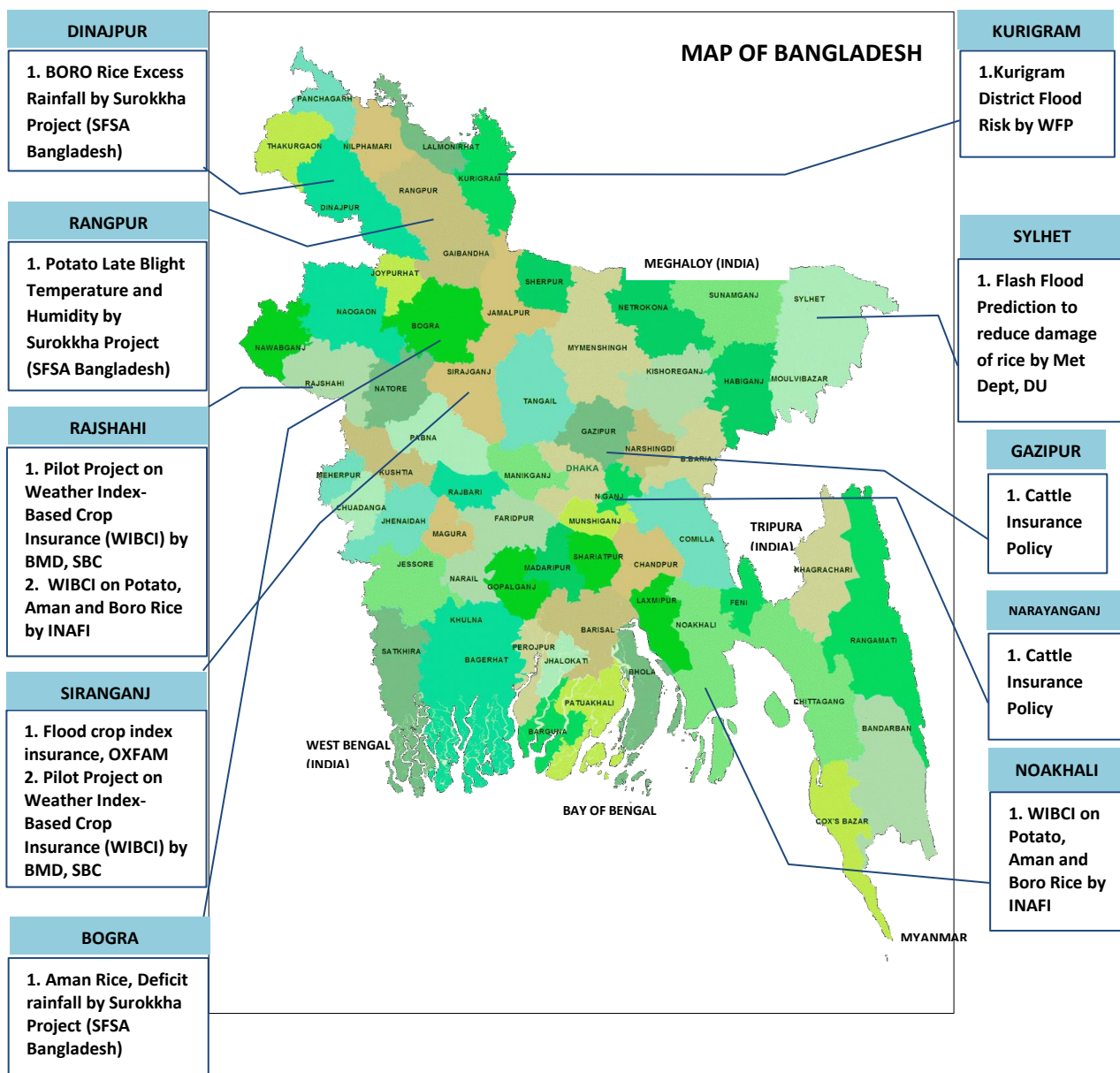
## **SESSION: NO DATASET IS PERFECT: TOWARDS A SHARED VISION OF RISK**

**Dr. Daniel Edward Osgood** Research Scientist, Financial Instruments Sector Team, Columbia University

In this session, **Dr. Daniel Edward Osgood** mentioned that the key factor regarding insurance is to identify where the actual value for it lies. Insurance can help farmers to improve their livelihoods and thus enable them to pay for the premium, ensuring sustainability. Data availability has often been seen as one of the biggest challenges. Subsidizing data availability (rather than directly subsidizing premium) may help to reduce the price of data collection and thus decrease the overburdened price of premium for the farmers. When designing insurance product, it is important to have fundamental understanding of the situation at field level. For example – women integration must be ensured to have a comprehensive idea of the differentiated needs of target audience. To do that, effective engagement of farmers in the different phases of the project cycle and co-production of the index product are crucial. Furthermore, Mr Osgood highlighted the importance of comparing various datasets, such as satellites and weather stations. It is important to design and formulate data strategically as small errors can lead to important differences in insurance payouts. Thus, field level data need to be compared with other sources of data to validate payouts. Finally, he mentioned that to instigate insurance facilities in mitigating climate risks, mutual efforts of different parties are needed.

## **EXERCISE: MAPPING INSURANCE PROJECTS IN BANGLADESH BY PARTICIPANTS**

In this session, participants were asked to list down their projects related to insurance/ climate in different areas of Bangladesh. The map is available on the next page.



## SESSION: PRESENTATION OF WEATHER AND CLIMATE DATA

**Dr. Abdul Mannan, Meteorologist, Bangladesh Meteorological Department (BMD)**

**Dr. Abdul Mannan**, Meteorologist, BMD presented available weather and climate data and ENACTS Maproom in his session. He briefly described the observational facilities given by BMD and limitation of satellite images and remote sensing. To reduce this limitation, ENACTS dataset merges satellite and station data to provide a gridded dataset over the entire country. ENACTS is the first quality-controlled merged gridded dataset in Asia and generates high quality climate data. Mr Mannan described the three components of the ENACTS maproom, which are Climate Analysis (Past data), Climate Monitoring (Present data) and Climate Forecast (Future data). Lastly, he stated the importance of collecting reliable data from BMD and using them to formulate effective products for the greater benefit of the people.

After the session, the floor was opened for wider discussion. Topics brought up included the usage of The Bangabandhu Satellite-1 to collect climate data, acceptability of ENACTS data in insurance for

flooding, application of ENACTS in designing insurance products, cost-effectiveness, integration of local knowledge etc.

Dr. Mannan mentioned that the current Bangabandhu Satellite-1 has been only used for communication purpose. ENACTS has coverage for precipitation and temperature over the whole country. BMD has also ensured to maintain the quality of data. However, a strong emphasis was put on the importance of validating any dataset against impact observations in the field to ensure that the selected datasets respond to the identified needs of the users and allows to limit basis risk. It was noted that indigenous knowledge has not been incorporated in the maproom yet, but this can be explored in the future.

#### **SESSION: PRESENTATION OF FLOOD DATA**

**Sarder Uday Raihan, Sub-Divisional Engineer, Bangladesh Water Development Board (BWDB)**

In this session, **Mr. Sarder Uday Raihan**, Sub-Divisional Engineer, BWDB presented flood forecasting methods used by BWDB. People living in Bangladesh are prone to riverbank erosion. There are mainly four types of flood, the most well-known being monsoon river flooding. Other types of floods include flash floods (hilly region), coastal flooding and urban flooding due to water congestion. Mr Sarder showed a chart of livelihood and resources damages by historical floods in Bangladesh. There are around 350 stations that generated data but many of them are not available due to lack of maintenance. As flooding is a slow rising phenomenon, collecting data from major river points gives a good estimate of flood extent. Lastly, Mr Sarder explained the mechanisms in place to disseminate flood information to local areas.

#### **SESSION: DISCUSSION ON DATASETS AND EXPERTISE**

**Ms. Beth Tellman, Post-Doctoral Scientist, IRI, Columbia University**

**Ms. Beth Tellman, Post-Doctoral Scientist**, IRI, Columbia University displayed various types of satellite images allowing to gather data on rainfall, temperatures, vegetation, soil moisture etc. Satellite images can be used for validation of flood index insurance. However, the cost of satellite images varies depending on their resolutions, area coverage and quality. She mentioned about free imagery from Landsat 5-8 and also about MODIS, SENTINEL-1, PLANET, SKYSET and ICEYE. However, in Bangladesh where flood is a major problem, satellite image cannot detect the depth of the flood. It is important to explore available options and analysis to explore the applicability of the images in different sector.

#### **GROUP WORK: NEXT STEPS**

In this section, participants were asked to discuss in breakout groups about the three following questions;

- 1. What are the concrete steps to improve data use in existing projects and initiative?***
- 2. How can we best leverage the community of practice and the large amount of expertise and lessons learned from the different projects and stakeholders?***
- 3. Rank the biggest needs for the sector (Capacity building, tool to compare or design products, support in data access or analysis)***

The discussion points presented by each group are summarized in the following table.

Groups	Improve data use in projects (1)	Leverage the community of practice (2)	Ranking the needs (3)
Group 1	<ul style="list-style-type: none"> <li>Local independent certified data provider</li> <li>Infrastructure and awareness building</li> <li>Public Oriented data design</li> <li>Enhance accessibility of data</li> </ul>	<ul style="list-style-type: none"> <li>A national platform including government, private sector and academicians to share the learning</li> <li>Conduct joint assessment</li> <li>Conduct research and share the data to reduce the cost</li> </ul>	<ol style="list-style-type: none"> <li>Capacity Building</li> <li>Support in Data access or analysis</li> <li>Tool to compare or design products</li> </ol>
Group 2	<ul style="list-style-type: none"> <li>Infrastructure for data</li> <li>Training/Analysis/Data service provider</li> <li>Technical Skills</li> <li>Innovative Solutions</li> <li>Justified budget</li> <li>Transparency of data</li> <li>Data quality controller (BMD, DAE)</li> </ul>	<ul style="list-style-type: none"> <li>Workshop/seminar</li> <li>Experience exchange</li> <li>Awareness building programme</li> <li>Policy framework</li> <li>Appoint community volunteer</li> <li>Sensitization of officers</li> </ul>	<ol style="list-style-type: none"> <li>Tool to compare or design products</li> <li>Support in data access or analysis</li> <li>Capacity building</li> </ol>
Group 3	<ul style="list-style-type: none"> <li>Online database of all existing products</li> <li>New product design in a collaborative way</li> </ul>	<ul style="list-style-type: none"> <li>Community workshop with stakeholders</li> <li>Insurance Fair</li> <li>Publications</li> </ul>	<ol style="list-style-type: none"> <li>Support in data access/analysis</li> <li>Tool to compare or design products</li> <li>Capacity building</li> </ol>

The needs were ranked very differently by each group. If the need ranked first got 3 points, the second 2 points and the third 1 point, the three options would be ranked across the three groups as followed: (1) Support in data access or analysis: 7 points; (2) Tool to compare or design products: 6 points; (3) Capacity building: 5 points. However, when combined with the challenge table presented earlier, we note that capacity building is a cross-cutting need that would contribute to the other two.

The key take-away points from the two combined activities are summarized below:

(1) Support in data access or analysis:

- Need for more transparency, visibility and capacity building around identification and understanding of available datasets, and methods to understand data limitation and validate data quality;

(2) Tool to compare or design products:

- Need for support (tools and capacity building) for product design, including (but not limited to):
  - data comparison and analysis to assess and reduce basis risk;
  - methods for co-production of indexes;
  - innovative and cost effective approaches to address data collection, product validation and distribution challenges at scale or in remote areas;
  - sustainable business model, including questions of premium cost, frequency, insurer interest gain, farmers' benefits in good years, and smart subsidies.

### (3) Capacity building:

- Basics on index insurance, for stakeholders all along the value chain (including government and non-government officials, farmers, intermediaries)
- Index design methodology, for insurance companies and intermediaries, including specific focus on data quality, basis risk, sustainable business model.

## CONCLUDING REMARKS

In the concluding session, **Dr. Saleemul Huq** mentioned that in order to take forward the insurance sector in climate risk mitigation, it is important to understand the role of individual entities. Further research is necessary along with capacity building activities. Insurance is a very important element in the unfolding discussion on loss and damage and we are interested in exploring ways through which insurance can successfully fit it in those efforts. However, institutions need to plan ahead of project timelines and develop strategies to reach the most vulnerable. Policy advocacy is required to push government to develop a national mechanism of loss and damage under which insurance could be a potential sector to consider.

Later on, **Dr. Daniel Edward Osgood** stated that to support projects with insurance, it is important to develop tools to support farmers and vulnerable communities. Unless there is a proper mechanism in place, the goal of building resilient communities will be a challenge. So, knowledge enhancement and cooperation between different stakeholders is necessary to allow this sector to be sustainable. Finally, **Ms. Mélody Braun** thanked everyone and expressed her wish to see such multi-stakeholder efforts continue. She mentioned that the ACToday project plans to organize a training for insurance sector in Bangladesh in the future, tailored to some of the expressed needs and challenges. It would help to enhance the understanding of actors and support capacity building to develop tools and data analysis.



## ANNEX I: LIST OF PARTICIPANTS

SI No.	Name	Designation	Organization
1	Ms. Mahbuba Haque	Executive Director	INAFI Bangladesh
2	Mr. Md. Rabiul Awal	Lecturer	Department of Meteorology, University of Dhaka
3	Mr. Suarav Dey Shuvo	Teaching Assistant	Department of Meteorology, University of Dhaka
4	Mr. Sarder Udoy Raihan	Sub-Divisional Engineer	Bangladesh Water Development Board (BWDB)
5	Mr. Fida Haq		ShurjoMukhi Limited
6	Ms. Nahid Sultana	Deputy General Manager	Phoenix Insurance Company Ltd.
7	Mr. Christopher Au	Senior Associate	Wills Towers Watson
10	Mr. Ashraful Haque	FOREWARN, Coordinator	International Centre for Climate Change and Development (ICCCAD)
11	Mr. Norul Amin	Program Officer, Micro Insurance & Livelihood	World Food Programme (WFP)
12	Mr. Md. Addul Karim	Manager	Sadharan Bima Corporation
13	Dr. Naeema Jihan Zinia	Project Coordinator	Swiss contact, Bangladesh Micro insurance Market Development Project
14	Dr. Shameem Hassan Bhuiyan	Consultant	World Bank
15	Dr. Farida Perveen	Additional Deputy Director	Department of Agricultural Extension (DAE)
19	Mr. Kazi NMN Azam	Senior Project Officer	OXFAM
20	Mr. Tapas R chakraborty	Partnership, Programme Officer	OXFAM, ICT & Development
21	Mr. Khandoker Muhammad Rashed Iftekher	Upazila Agriculture Officer	Department of Agricultural Extension (DAE),
22	Mr. Tamim Alam	Actuarial Associate	Syngenta Foundation
23	Mr. Md. Shafikur Rahman		Phoenix Insurance Company Ltd.
24	Mr. Sunil Krishna Saha	General Manager	Phoenix Insurance Company Ltd.
25	Ms. Tasnova Farheem	Programme Manager	INAFI Bangladesh
26	Mr. Nazrul Ahasan	HSD	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)
30	Mr. Saeb Iftekhar	Manager	Oxfam, EDP, PSS
31	Dr. Md. Abdul Mannan	Meteorologist	Bangladesh Meteorological Department (BMD),
27	Ms. Jacquelyn Turner	Communications Officer	IRI, Columbia University
8	Mr. Shammunul Islam	In-country liaison	IRI, Columbia University
9	Ms. Colin Kelly	Associate Research Scientist	IRI, Columbia University

16	Daniel Osgood	Lead Scientist, Financial Instruments Sector Team	IRI, AcToday, Columbia University
17	Ms. Melody Braun	Senior Staff Associate	ACToday Bangladesh, Columbia University
18	Ms. Beth Tellman	Post Doc. Scientist	IRI, Earth Institute, Columbia University
28	Dr. Saleemul Huq	Director	International Centre for Climate Change and Development (ICCCAD)
32	Dr. Mizan R. Khan	Deputy Director	ICCCAD
29	Ms. Tasfia Tasnim	Senior Project Associate	ICCCAD
33	Mr. Md. Hafizur Rahman	Project Officer	ICCCAD
34	Ms. Farah Anzum	Junior Research Associate	ICCCAD

## ANNEX II: WORKSHOP AGENDA

8:30-9:00	<b>Registration</b>
9:00-9:30	<b>Welcoming Remarks and introduction</b> <i>Using data to develop a shared vision of risk- from reinsurers to beneficiaries</i>
9:30-10:30	<b>Roundtable participants introductions</b> <i>Brief introduction of yourself, your project, your key issues, your vision of what is needed as a community to develop and expand parametric insurance in Bangladesh?</i>
10:30-11:00	<b>No dataset is perfect: towards a shared vision of risk (presentation)</b>
11:00-11:15	<b>Mapping insurance projects in Bangladesh (working groups)</b>
11:15-11:30	<b>Tea break</b>
11:30-12:00	<b>Historical shocks in Bangladesh (working groups)</b>
12:00-12:30	<b>Presentation of weather and climate data</b>
12:30-13:00	<b>Presentation of flood data</b>
13:00-14:00	<b>Lunch break</b>
14:00-14:30	<b>Datasets and expertise (working groups)</b> <i>Availability, quality, timescales, spatial/temporal resolution, accuracy to identify known shocks from reinsurance, client, and other perspectives</i>
14:30-15:15	<b>Discussion on datasets and expertise</b>
15:15-15:30	<b>Tea break</b>
15:30-15:45	<b>Summary take-away of discussions</b>
15:45-16:45	<b>Next steps (working groups and discussion)</b>
16:45-17:00	<b>Closing remarks</b>

### ANNEX III: CHALLENGES TO INSURANCE IDENTIFIED BY PARTICIPANTS

List of Stakeholders (workshop participants)	Challenges faced
Oxfam	<ul style="list-style-type: none"> <li>• Lack of <i>reliable</i> data source and data authentication</li> <li>• Complexities of data <i>translation and transfer</i> to the users</li> <li>• Shortage of <i>confidence</i> on the data by the communities</li> </ul>
Department of Agricultural Extension (DAE)	<ul style="list-style-type: none"> <li>• Lack of data <i>availability</i></li> <li>• Absence of <i>usable format</i> of data</li> <li>• Need to enhance the <i>capacity</i> of data collector</li> </ul>
Agro-Meteorologist, Bangladesh Meteorological Department (BMD)	<ul style="list-style-type: none"> <li>• Absence of <i>high quality and real time</i> data</li> <li>• Poor <i>maintenance</i> of the weather stations</li> </ul>
INAFI	<ul style="list-style-type: none"> <li>• <i>Designing</i> of the effective insurance products</li> <li>• Lack of <i>awareness</i> of the farmers</li> <li>• Strengthening the <i>distribution channel</i> of insurance</li> <li>• <i>Sensitization</i> of government and non-government officials</li> <li>• <i>Awareness building</i> of farmers</li> <li>• Innovative and cost-effective <i>product design</i></li> </ul>
IWM	<ul style="list-style-type: none"> <li>• <i>Backward and poor quality</i> data</li> </ul>
Phoenix Insurance	<ul style="list-style-type: none"> <li>• Insurance is <i>not popular</i> among mass population</li> <li>• Higher focus on the <i>interest gain</i> by the insurer</li> </ul>
Swisscontact	<ul style="list-style-type: none"> <li>• <i>Understanding the insurance mechanism</i> at individual level</li> <li>• Identifying <i>basic risk</i> is a problem</li> <li>• Lack of support from BMD to establish <i>new weather station</i></li> </ul>
Shadharon Bima Corporation	<ul style="list-style-type: none"> <li>• <i>High premium</i> for the farmers</li> <li>• <i>High quality data</i> for compensation</li> <li>• <i>Lack of accessibility</i> of the insurance companies to remote areas</li> </ul>
World Food Programme	<ul style="list-style-type: none"> <li>• Concept of climate insurance is a new concept in Bangladesh</li> <li>• Lack of capacity and willingness of the procurer and re-insurer to work in Household level</li> <li>• Proper infrastructure and project viability</li> <li>• Inclusion of microfinance institutions</li> </ul>
Others	<ul style="list-style-type: none"> <li>• More focus on long term pay off rather short term pay-off</li> <li>• Lack of proper climate data analysis</li> </ul>
Syngenta Foundation	<ul style="list-style-type: none"> <li>• Limited spatial coverage of BMD data</li> </ul>