

Bangladesh Academy for Climate Services (BACS)

Report on

Enhancing National Climate Services (ENACTS) Launch Workshop



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Photo Credit: **Faisal Bin Islam and Hafizur Rahman**

27 June 2019

Bangladesh Meteorological Department (BMD)

Dhaka, Bangladesh



WORKSHOP REPORT

Under the umbrella of **Bangladesh Academy for Climate Services (BACS)**¹, the International Center for Climate Change and Development (ICCCAD) at Independent University, Bangladesh (IUB); the International Research Institute for Climate and Society (IRI) at Columbia University; the International Maize and Wheat Improvement Center (CIMMYT) and the Bangladesh Meteorological Department (BMD) jointly organized the “**Enhancing National Climate Services (ENACTS) Launch Workshop**” on **27 June 2019**. This initiative, the first in Asia, was launched by the Bangladesh Meteorological Department (BMD) at its own premises. This effort was funded by the International Research Institute for Climate and Society (IRI)’s Adapting Agriculture to Climate Today, for Tomorrow (ACToday) project, co-developed with BMD, co-organized with ICCCAD and endorsed by BACS partners as part of the joint Bangladesh Academy for Climate Services (BACS) initiative, to promote open access and usability of the ENACTS products by partners and user communities. The workshop had total of 73 participants, including 38 from different government and non-government agencies, 21 members from BMD and 14 persons from IRI, ICCCAD and CIMMYT. The workshop had a mix of 55 male and 18 female participants.

Welcome Remarks

The director of BMD **Mr. Shamsuddin Ahmed** started with welcome note towards all the participants and introduced the ENACTS. This initiative harnesses the best global and local climate data to deliver robust climate information products and services for practitioners and policymakers. He also stated with great honor that this initiative has been launched first in Bangladesh within



Asia. He conveyed his gratitude towards all the founding partners of BACS and other associated partners for introducing ENACTS climate dataset and information products which will definitely help people in different sectors to make sound decisions in their respective areas. According to him, this workshop would serve as an opportunity for networking for various stakeholders involved in different sectors, and for improving their decision-making process in climate sensitive sectors.

Following his speech, **Ms. Mélody Braun**, Senior Staff Associate, ACToday Bangladesh country lead, IRI offered her greetings towards everyone. She mentioned that ENACTS has been implemented in over a dozen countries and regional centers in Africa. This is the first ENACTS implementation in Asia. ENACTS is being implemented in Bangladesh as part of the IRI’s Adapting Agriculture to Climate Today,

¹ <http://www.icccad.net/tag/bacs/>

for Tomorrow (ACToday) project, a five-year project implemented in Bangladesh, Vietnam, Ethiopia, Senegal, Guatemala and Colombia and aiming at developing climate services to support the Sustainable Goal #2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture). Climate services are defined as the combination of four pillars: the generation of climate information, the translation of information in an appropriate language for different sectors, the dissemination to end users and the use of the information in decision-making processes. As part of ACToday's initial consultations, the need for a multisectoral platform to discuss climate services needs and opportunities and connect users and providers of information was identified. This led to the joint creation of the Bangladesh Academy for Climate Services (BACS) together with the International Center for Climate Change and Development (ICCCAD) at Independent University, Bangladesh (IUB); the International Maize and Wheat Improvement Center (CIMMYT) and the Bangladesh Meteorological Department (BMD). BACS aims to improve coordination between projects and provide a sustainable collaborative platform hosted by a Bangladesh-based institution (IUB) to which short term donor-funded projects can contribute, with a focus on capacity and capability building of local institutions and long term sustainability.

The ENACTS initiative, implemented by BMD with the support of IRI, is developed as part of BACS to promote open access and usability of the ENACTS products by partners and user communities, improve integration of climate information into decision-making processes and facilitate interactions between BMD and user communities.

Dr. Mizan R Khan, Programme Director, Least Developed Countries Universities Consortium on Climate Change (LUCCC²), ICCCAD pointed out the importance of systematic observations on climate services. It is important to integrate the local science knowledge into the big science. Hence, capacity building of different group of actors who are involved with the climate services is crucial. He added that ICCCAD has many capacity building programs including a one-year MS degree program in Climate Change and Development, as well as short courses on several topics and themes. Having the capacity development of individual in mind, ICCCAD looks forward to the ideas on how to work together and how to carry the knowledge and products generated to user level.

Dr. Ghulam Hussain, Senior Consultant, Project Coordination & Partner Liaison, CIMMYT stated the need of improving the skills of weather forecast, and the importance of good quality weather and climate data. BACS can be the platform to share and acquire climate data among different groups. However, BACS is a platform which was born from stakeholder consultations as part of IRI's ACToday project. The Academy was born from the need for a trans-sectoral dialogue on the use and understanding of



² <http://www.luccc.org/>

weather and climate information in Bangladesh. BACS can become an institution in future to work more holistically on the climate services issues.

Following the welcome notes from the panel members, representatives from BMD presented on the **ENACTS and Its Implementation at BMD**. **Dr. Abdul Mannan**, Meteorologist, BMD started with emphasizing that BACS was cofounded by ICCCAD, IRI, CIMMYT and BMD and is hosted under the Gobeshona platform.

Importance of better climate data

Climate-resilient development is critical for managing negative impacts, and climate information is one of the critical inputs for climate-resilient development. Climate information is generated, translated, disseminated and used through climate services. Better climate services would be able to provide the right information, at the right time and in the right format, leading to more effective climate-smart development strategies. Good quality climate data is the foundation for all climate services.

Definition and importance of ENACTS

When introducing the ENACTS, Dr. Mannan mentioned that weather station data measures actual rainfall at specific locations but do not cover the entire country (more precise data, less coverage), whereas satellite data provide estimates of rainfall over a grid covering the entire country (less precise data, more coverage). These two datasets have been merged by blending rigorously evaluated local observations and the best available global climate products, providing national coverage with greater accuracy. It aims to improve integration of climate information into decision-making across various sectors, like agriculture and aquaculture, by training relevant users to use robust and high definition climate data.

ENACTS tries to simultaneously improve availability, access and use of climate information. The improved data availability is ensured by capacity building of National Meteorological and Hydrological Services (NMHS), controlling and combining the quality of station data with proxies and seasonal forecast improvement. This ENACTS works with NMHS to quality-control all available station data and combine them with satellite and reanalysis products. It lays the foundation for the implementation of GFCS (Global Framework for Climate Services) at national level (NFCS). Development of online tools for data analysis and visualization eventually improve data accessibility. To ensure the use of climate information, users need to be engaged with the process to raise awareness, build capacity of the user community. Furthermore, the users need to be involved in product development.

Implementation of ENACTS at BMD

Dr. Mannan mainly talked on how the ENACTS is playing a role in improving the data availability by assessing the data quality. For that, the first step is to understand what is available, and then to identify and correct the suspicious observations for rainfall and temperature. After the quality control step, station data is combined with proxies, such as satellite or reanalysis. The perk of proxies is that it offers spatially complete data and have long time series of over 35 years for satellite rainfall products and over 50 years for reanalysis products. These are freely available from different sources.



He further explained how the ENACTS dataset was generated. Station data provides best information for a particular location but suffers from the shortcoming of low spatial coverage. While satellite data covers the areas in grid or boxes and have much higher spatial coverage, they are estimates and thus are less accurate than station data. For rainfall, Climate Hazards Group InfraRed Precipitation (CHIRP) data was used which has a gridded resolution of about 0.05 degree or about 5 kilometers (grid or box size). For temperature, data from JRA-55 reanalysis dataset was used. The deviations of satellite data from the station data at the station points were calculated and this difference or bias was then interpolated using appropriate statistical techniques to every grid or box of the satellite data covering the areas of Bangladesh. After this, the bias computed at every grid is removed from the satellite data. Finally, this adjusted satellite data was merged with station data. As ENACTS dataset is a combination of BMD data and adjusted satellite data, this dataset provides more consistent data with less error as compared with other available merged dataset such as CHIRPS.

So, he summarized that ENACTS will provide daily and ten-daily data on rainfall every 5km across Bangladesh from 1981 to present, and minimum and maximum temperature data every 5 km across Bangladesh from 1961 to 2018. Merged dataset for rainfall will be updated in every 10 days and temperature data will be updated in at least once a year.

Following Dr. Mannan's presentation, **S.M. Quamrul Hassan**, Meteorologist, BMD described the functional aspects of the Bangladesh climate maprooms (BMR) which are freely available interactive online climate interactive maps allowing users to analyze and monitor past, present and future data. Maps and figures can be tailored to specific applications. Both data and figures can be downloaded from the BMR.

Following his presentation, **Ms. Razia Sultana**, Assistant Communication Engineer, BMD showed the maproom on the climate data, produced by BMD. She showed how a user can produce different rainfall and temperature maps by adjusting date and place. She also mentioned that as ENACTS provide extensive data on rainfall and temperature, information can also be visualized by district.



The maproom has various climate analysis options on daily, decadal and monthly basis. The maproom has also the scope for analyzing seasonal climate, seasonal trend, extreme rainfall and extreme temperature. By clicking a location on the map, the user can generate four time series graphs that provide analysis of recent rainfall averaged over an administrative district, with respect to that of recent years and the long-term mean. The maproom also displays climate forecasts, allowing users to visualize the probability of seasonal rainfall and temperature conditioned on ENSO and the probability of seasonal rainfall and temperature conditioned on IOD. Under BACS, IRI, BMD and BACS partners will work with user communities to support the integration of ENACTS data into decision making process.

In addition to the BMD's presentation, **Mr. Tufa Dinku**, Research Scientist from IRI provided complementary guidance on the use of the maproom. Mr. Tufa leads the ENACTS effort at IRI and hence, he provided a brief summary of the whole implementation. He reminded that station data do not cover all the areas, while satellite estimate data from above the clouds for every 5 km and might over or under estimate rainfall or temperature. ENACTS merges these two datasets and reduces the errors among them, providing better estimation of rainfall and temperature than other datasets. He also mentioned that rainfall data



is available from 1981 and temperature data from 1961, based on availability of station data in the country.

In this end, **Md. Abdul Mannan** added that Bangladesh has many stations located in different parts of the country, that are used for climate analyses of specific regions of the country. The implementation of ENACTS at BMD included installation of the IRI data library, a powerful tool for generating climate information. Although there are not stations for every grid or 5 km by 5 km box, we now have over 35years of climate time series for every 5km grid across Bangladesh available. It has also established the unique online access to information products which satisfies the needs of many users and partly overcomes the challenges of data access. The BMD staff are capacitated throughout this process.

Open Discussion- Question-Answer Session

The open discussion session followed by the presentation include the questions and responses from the facilitators is summarized below.

How to apply the maproom in various sectors of agriculture, aquaculture, crop-insurance etc and what are their impacts?

- The basic function of the BMD ENACTS Maproom is to provide information on rainfall and temperature variations that can be adapted to specific decisions. Each sector needs to think about the kind of climate information they would need to prevent climate impacts or inform their decision-making processes. The aim of the Bangladesh Academy for Climate Services is to support capacity building of user communities through this process.

How these data are going to be helpful or user-friendly for the community level people?

- The dataset can be used by any stakeholder whose actions and decisions may be affected by climate impacts and willing to integrate climate information to inform his activities. This can include practitioners, policy-makers, researchers, academics. Communities may not have direct access or ability to use the maprooms, but practitioners working closing with communities can benefit from the use of maprooms in their activities at community level and convey relevant information.

How people in the field-level can be made aware of the changes in rainfall and temperature so that they can take actions accordingly?

- Climate services include the generation, translation, dissemination and use of information, and several actors are playing a role at The response came out as an example that between the data generating institution, such as- BMD and the end users, for example- local people; there are various organizations and institutions for example- Department of Agriculture Extensions (DAE), Department of Fisheries (DoF) etc. So, it can be the responsibilities of these intermediary institutions to transform and translate these data into understandable and user-friendly way for general people. There needs to be more awareness raising training and activities in the field level to enhance their knowledge on this issue.

Why are there missing values in the middle or at some part of the time for one or more years, and how can this be addressed when dealing with BMD data?

- There is limitation in every activity. Often due to various technical problems and lack of sources, data can be missing. To deal with missing data, different approaches can be used to continue a study. One can use the simplest method of replacing missing value with mean value but there are other sophisticated statistical techniques for dealing with missing values. As ENACTS merged dataset contains data for every day starting from 1981, this dataset minimizes the number of missing values, thanks to the bias adjusted grid data.



Group Activity and Presentations

Late on, participants were divided into four groups to work on four sectors which are- **Agriculture, Aquaculture, Insurance** and **Others** and asked to prepare a list of the positive and negative attributes of the maproom, the implications on their sector and also to provide recommendations for updating the maproom. The presentations from the groups are summarized below.

Agriculture

This group was consisted of the members from BARC, DAE, BARI, HEKS, OXFAM, WP etc. The group mentioned that the availability and accessibility of the past, present and forecast data is a great potential of ENACTS data as monsoon is very important in agriculture sector, and that it is important to be able to download the data. The group flagged that they need data at very fine resolution for specific points, and currently are not clear about how to do that.

Aquaculture

The Aquaculture group was represented by the members from CNRS, WorldFish, DoF, CARITAS, CEGIS, World Bank etc. The group mentioned that they like the open access of the data, country wise coverage and the availability of the past, present and forecasted data. They believed these data can help the aquaculture sector by providing early warning of flood, farmers can be informed regarding prediction of fish stocking and also help in nursery and hatchery activities. They mentioned that the maproom data lack of other parameters (such as: water temperature, evaporation rate and salinity) and upazilla wise maps. They would also like to see ENACTS data include sea surface temperature, inundation data and amount of cloud forecast and visibility which are important factor in aquaculture sector.



Insurance

Insurance theme was presented by the representatives from ACI, Green Delta, Shadharon Bima, INAFI, Syngenta, Win Miaki etc. The insurance group liked the prospect of availability of data in a single platform and appreciated the quality of the data. These data will help this sector in claim settlement, weather index insurance product design and also to enhance the confidence level of farmers in dealing with crop failures and problems. They mentioned that this maproom data should include other parameters, such as: wind speed, hail storm prediction and sunshine hours. They also pointed out that if the time lag (10-days) can be reduced, it would be better in analyzing data. They also mentioned that if the Excel or CSV version of data can be provided, it would be even more user-friendly and finally, there needs to be a provision for verifying the climate data set.

Others

The other group had three members from Hellen Keller, Start Fund Bangladesh and IWM. This group looked at ENACTS data from the point of view of different sectors. They mentioned that they like the matter of high variety of ENACTS datasets, their user friendliness and the feature of 5 km across of resources. They mentioned that this dataset can be developed if more impact-based data analysis is provided along with information on natural disaster and hazard events such as flood, heat wave, lightening etc. They also mentioned that if dataset on upstream locations outside Bangladesh can be provided, it would be better to make sound decision on various sector. Due to the geographic location of Bangladesh, its various sectors are affected by surrounding country's weather and climatic patterns, hence ENACTS can include this important component to help everyone in their respective sector.

Closing Remarks

Dr. Saleemul Huq, Director, International Centre for Climate Change and Development (ICCAD) greeted everyone for joining at the ENACTS launch workshop. He said that it is very important to integrate stakeholders in dealing with climate change, especially climate related information. He conveyed his gratitude towards Bangladesh Meteorological Department



for providing information and their kind willingness to help us in understanding the scientific analysis. He also thanked Columbia University for collaborating with BACS for extending the climate services. He emphasized the importance of understanding the need of people, their expectations from ENACTS in regard to data set and ensuring flexible and user-friendly services for utilizing this dataset. He also mentioned that climate change has two types of impact, short term and long term. Short term impact of climate change affects us faster and the other will impact us in long term. However, being the citizen of the most vulnerable countries, like Bangladesh, he said that it is absolutely crucial for the people to understand the immediate impacts of climate change and actions to tackle. Finally, he mentioned that it is also important to share a platform where different stakeholders can put their ideas in front of everyone. He emphasized that it is a continuous and coordinated efforts, so regular meet-ups, workshops and sharing information is important to update about every changing climate. He presented the Gobeshona³ platform, a knowledge platform which helps people to share and represent various aspects of their research and activities on climate change. BACS was first presented as Gobeshona 2018, and was then established as a component of the Gobeshona umbrella. Hence, he invited everyone to join Gobeshona in January 2020 to showcase their work in the world of climate change. He also mentioned about the project PRATIK of Oxfam is working along with Monash

³ www.gobeshona.net

University, where they provided mobile phones to 300-350 women. These women were trained in using the phones to solve various climate related problems. They are now also working as a consultant in their neighboring areas to solve various socio-ecological problems with the help of mobile phone technology. Hence, he mentioned that it is important to sort out the potential use of technology in innovative way as to enhance the problem-solving attitude in climate change sector. He also emphasized the necessity of coordination among the partners and also between the south-south region of the world for better management and approaches in combating climate change.

Following his speech, **Dr. Mizan R. Khan** mentioned that to combat climate change, it is crucial to build capacity building of the future generation. In this regard, he mentioned that universities are the most sustainable knowledge hub and institution in developing the capacities of people. He mentioned about the Least Developed Countries Universities Consortium on Climate Change (LUCCC) program of ICCCAD where different universities of least developed countries are part of the consortium to foster a South-South collaborative network for enhancing research capacity and proficiency in climate change. He also mentioned that government should work as a coordinator in this collaboration and we must seek cooperation from various institutions like BMD in enhancing the knowledge.

Then, **Mr. Shamsuddin Ahmed** greeted everyone for making the event successful. He mentioned that the progress of BACS in the first year is significant and worthwhile to mention. He said the success depend on three factors- academics, research and operational services. So, it is absolutely important to address them together to improve climate services for all. He also mentioned that coordination and participation of multi stakeholders is also very important to update and share the knowledge among the greater population. Hence, he urged to work together and collaborate for a better climate service provision and spread them among the most vulnerable population due to climate change.

Finally, **Ms. Méloody Braun** thanked everyone for participating at the launch workshop. She said that through the collaboration and participation, BACS will try to update as per the need of the users. And she also mentioned to contact ICCCAD, BMD, CIMMYT or IRI if any kinds of queries are required regarding ENACTS data. She stated that ENACTS has been built upon to serve the vulnerable sectors and it is significant to acknowledge the need of the stakeholders. Hence, the team will modify the service accordingly to serve the broader population in combating climate change.



Way Forward

The feedback gathered from the participants coming from different sectors will help the ENACTS products to be tailored to the specific needs identified by stakeholders in sectors like agriculture, aquaculture, insurance and other sectors using climate data and services. To facilitate uptake of these products, there will be training and follow-up engagement with the user groups and the upcoming BACS training will include the ENACTS products. IRI and BMD will continue their collaborative effort in making these products more useful for the communities to increase integration of climate information into decision making processes.

Media Coverage

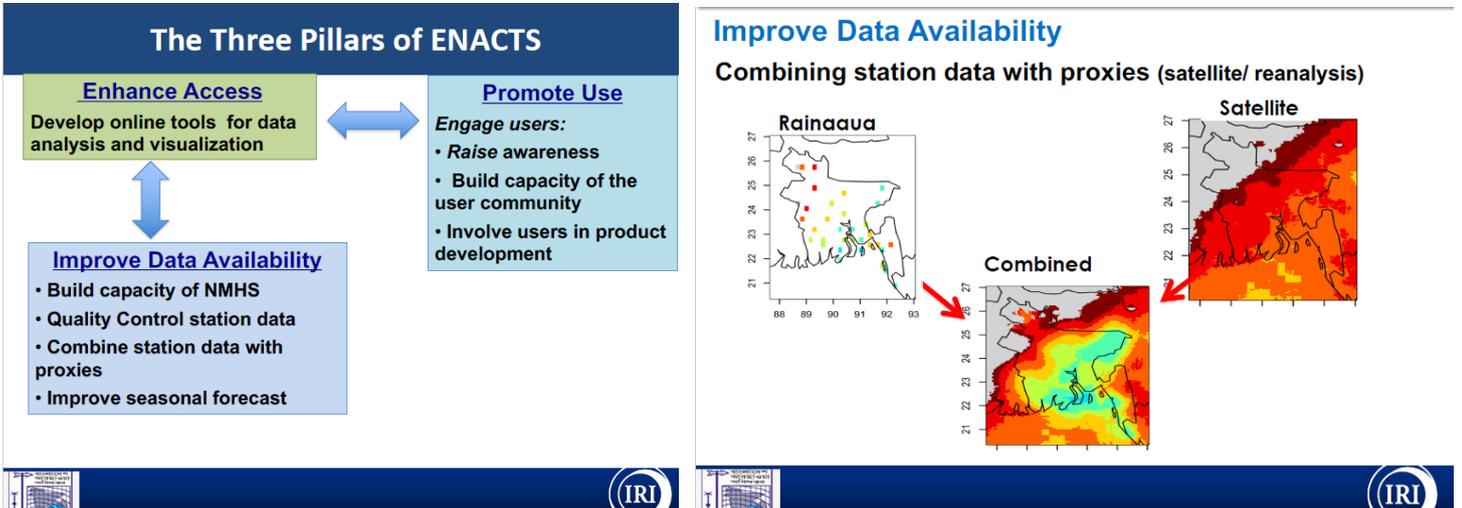
<https://www.dhakatribune.com/opinion/op-ed/2019/07/18/tools-to-help-vulnerable-communities>

<http://www.icccad.net/enacts-climate-data-initiative-officially-launches-in-bangladesh/>

Points of Contact

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ANNEX



BMD

Climate Data Library

Maproom

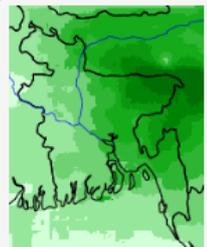
Division
Bangladesh ▾

BMD Map Room

The climate and society maproom is a collection of maps and other figures that monitor climate and societal conditions at present and in the recent past. The maps and figures can be manipulated and are linked to the original data. Even if you are primarily interested in data rather than figures, this is a good place to see which datasets are particularly useful for monitoring current conditions.

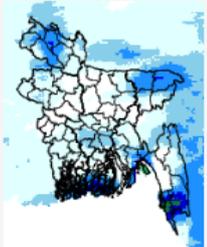
Climate

Historical, current and forecast climate conditions around the country.



Agriculture and Climate

The variability of seasonal precipitation, and the sub-seasonal statistics of these, play a key role in the quality and quantity of agricultural output.



WORKSHOP AGENDA

Time	Activity	Responsible
09:30 am-10:00 am	Registration	ICCCAD
10:00 am-10:30 am	Welcome Speech by: <ul style="list-style-type: none"> - Mr. Shamsuddin Ahmed, BMD Remarks by: <ul style="list-style-type: none"> - Ms. Mélody Braun (IRI) - Dr. Sk. Ghulam Hussain (CIMMYT) - Dr. Mizan R. Khan (ICCCAD) 	Facilitator (BMD)
	Self-Introductions	
10:40 am-11:00 am	ENACTS and its Implementation at BMD	BMD/IRI
11:00 am-11:30 am	Tea break + Group Photo	
11:30 am-11:50 am	Climate Services provided by BMD (BMD)	CIMMYT
11:50 am-12:05 pm	Introduction to BMD's ENACTS climate datasets (BMD)	
12:05 pm-12:45 pm	Product Launch: Demonstration of BMD's online climate information products (Maproom) (BMD)	
12:45 pm-1:15 pm	Open Discussion	
01:15 pm-02:15 pm	Lunch	
02:15 pm-02:45 pm	Groupwork: Brainstorming on the application of the new climate datasets and products by different sectors: <ol style="list-style-type: none"> 1. Agriculture 2. Aquaculture 3. Other sectors (Forest/Health/Disaster Management etc) 	IRI
02:45 pm-03:30 pm	Presentations from different sectors	Group representatives
03:30 pm-03:45 pm	Tea Break	
03:45 pm-04:15 pm	Guided Discussion and Way Forward	BMD, ICCCAD, CIMMYT, IRI
04:15 pm-04:30 pm	Closing Remarks <ul style="list-style-type: none"> - Dr. Saleemul Huq, ICCCAD - Mr. Shamsuddin Ahmed BMD 	Facilitator (BMD)

LIST OF PARTICIPANTS

Sl. No.	Name of the Participants	Organization	Designation
1	Dr. Nazmun Nahar Karim	BARC	CSO
2	Dr. Nabansu Chattopadhyay	DAE	Sr. International Consultant
3	Dr. Farida Perveen	DAE	Additional Deputy Director
4	Dr. Md. Zillur Rahman	Department of Fisheries	Deputy Director (Aquaculture)
5	Md. Abdul Latif	GED, Planning Commission	Senior Assistant Chief
6	Sheikh Ishtiaque	OFRD, BARI	Scientific Officer
7	Md. Azizur Rahman	BMD	Deputy Director
8	Shamsuddin Ahmed	BMD	Director
9	Shahnaj Sultana	BMD	Meteorologist
10	Md. Bazlur Rashid	BMD	Meteorologist
11	Kh. Hafizur Rahman	BMD	
12	Razia Sultana	BMD	Assistant Communication Engineer
13	Md. Afatb Uddin	BMD	Meteorologist
14	Md. Shadukul Alam	BMD	Assistant Director
15	S.M. Mahmudul Haque	BMD	Assistant Director
16	Md. Muzammel Haque Tarafder	BMD	Deputy Director
17	Dr. Md. Abdul Mannan	BMD	Meteorologist
18	Nayma Baten	BMD	Meteorologist
19	Nijhum Rokeya Ahmed	BMD	Meteorologist
20	AKM Nazmul Hoque	BMD	Meteorologist
21	S.M. Quamrul Hassan	BMD	Meteorologist
22	Mossammat Ayesha Khatun	BMD	Deputy Director
23	Md. Rashaduzzaman	BMD	Meteorologist
24	Syed Abul Hasanat	BMD	Assistant Director
25	Md. Asadur Rahman	BMD	Assistant Director
26	Md. Sanaul Hoque Mondal	BMD	Assistant Director
27	Taslima Imam	BMD	Assitant Director
28	Naseem Aleem	BANA/World Fish	Deputy Chief of Party
29	Mrityunjoy Das	Care Bangladesh	Program Coordinator, Humanitarian and Resilience
30	Sanjib Kr. Mondal	Caritas Bangladesh	Senior Program Officer
31	Engr. Motaleb H. Sarker	CEGIS	Director, Water Resources
32	Shanta Soheli Moyna	CNRS	Research and Monitoring Officer
33	Abdullah Ali Rafee	CNRS	GIS Officer
34	Shekhar Chakraborty Partha	HEKS/EPER	Program Officer
35	Mahbuba Haque	INAFI	Executive Director

36	Bushra Monowar Duti	IWM	
37	Md. Tarikul Islam	IWM	Head, Cimate Change Cell
38	Hosne Ara Hashi	Jago Nari, Barguna	Chief Executive
39	Md. Humayun Kabir	Manab Mukti Sangstha, Sirajgonj	Director Programme
40	Jillian Waid	NIPN, Hellen Keller International	
41	Farzana Akter	NIPN, HKI	Research Assistant
42	Tapas R. Chakraborty	OXFAM	ICT & Development
43	KNMN Azam	OXFAM	SPO
44	Raihanul Haque Khan	RIMES	CPL
45	Aminul Moven	SFSA Bangladesh	Project Manager
46	Palash Kundu	SKS Foundation	Assistant Director
47	Lamiya Mahpara Ahmed	Start Fund Bangladesh	Analyst
48	Yasin Kabir	Syngenta Foundation	Technical Coordinator
49	David B. Gomes	Tear Fund	Acting Country Director
50	Dr. Laskar Muqsudur Rahman	Wildlife Conservation Society	Legal Advisor
51	Mohammad Abdul Kader	Win Miaki Ltd	Specialist-Weather Content
52	Dr. Shameem Hassan Bhuiyan	World Bank	Consultant
53	Md. Emdad Hossain	World Fish	ZOR & WF
54	MHM Mostafa Rahman	World Fish	Environment Specialist
55	A.J.M. Azharul Islam	World Food Programme	PA
56	Sunbeam Rahman	ACI	Manager, GIS-RS
57	Md. Arifur Rahman	Green Delta Insurance	SEO & GDIC
58	M.A. Karim	Sadharon Bima Corporation	Deputy Manager
59	Proggo Pratik	Akash	Chief Executive Officer
60	Shammunul Islam	ACToday, (IRI)	Country Coordinator
61	Melody Braun	IRI, Columbia University	Senior Staff Associate, ACToday Country Lead
62	Tufa Dinku	IRI, Columbia University	Research Scientist
63	Colin Kelley	IRI, Columbia University	
64	Nabilah Islam	IRI, Columbia University	Visiting Researcher
65	T.S. Amjath Babu	CIMMYT	
66	Anne-Laurie Pilat	CIMMYT	Consultant
67	Sk. Ghulam Hussain	CIMMYT Bangladesh	Senior Consultant
68	Dr. Saleemul Huq	ICCCAD	Director
69	Dr. Mizan R. Khan	ICCCAD	Programme Director, LUCCC
70	Tasfia Tasnim	ICCCAD	Senior Project Associate
71	Faisal Bin Islam	ICCCAD	Project Associate
72	Hafizur Rahman	ICCCAD	Project Officer
73	Farah Anzum	ICCCAD	Research Associate