

Comprehensive Disaster Management Program (CDMP) Improved Adaptive Capacity to Climate Change for Sustainable Livelihoods in the Agriculture Sector - PHASE II

ADPC Training Report No. 2

Training and Learning Event on "Climate Forecast Applications" in Agriculture and Allied Sectors in

Bangladesh: for NTIWG members and other project professionals



Figure. Director General of DAE is addressing the participants during the ADPC and LACC-II project facilitated "Climate Forecast Application training and learning event in Dhaka on 15 October, 2009.

I. Background

The Livelihoods Adaptation to Climate Change Phase II (LACC II) aims to introduce, improve or further strengthen disaster risk reduction and climate change adaptation capacities for sustainable livelihoods and food security in the rural sectors including crops, livestock, fisheries and forestry and other key factors of rural livelihoods in drought prone and coastal regions of Bangladesh. In this LACC process, Asian Disaster Preparedness Center (ADPC) and the LACC II Project Management Unit (PMU) has provided input to build capacity of the local level professionals in climate change and livelihoods based climate change adaptive capacity in the agriculture sector. In this regard, understanding of the various innovative approaches and livelihoods based climate change adaptation initiatives evolving in the region are important issues of the overall capacity building of the DAE professionals.

ADPC has extensive experiences of working in the region and engaged with the development of climate change related projects, programs and capacity building events in the region. Earlier in April, 2008, ADPC has organized their full-scale "Regional Climate Risk Management Training" where multiple professionals from DAE and Ministry of Agriculture have participated and received training.

Follow up to that, ADPC has undertaken a series of local level training programs (four events in October, 2008) for Upazila Officials and Operational level officers on Fundamentals of Climate Risk Management. In this line following training and capacity building activities were carried out under LACC-II project:

- Local level Climate Change and Adaptation Basic Training for Upazila level officials (Facilitated by ADPC team)
- Local level Climate Change and Adaptation Basic Training for Operation level officers (Facilitated by ADPC team)
- Technical Training on Sectoral Adaptation (Facilitated by PMU)
- National level Climate Change Forecast Applications Training and Learning (Facilitated by ADPC team).

After having these local level training programs, ADPC has carried out this training and learning event on Climate Forecast Applications for Agriculture and allied sectors on 15 October, 2009 (Thursday) at the AIS Conference Room, DAE, Khamarbari, Dhaka. The present document reports on the process and findings of the training event.

Objectives of the event

The overall objectives of the training program is to share and learn various issues of Climate Change related issues relating to adaptation approaches and climate forecast applications that would help better manage of the climatic risks in agriculture and allied sectors in Bangladesh. From the sharing and learning of the event participants are expected to be able to get further ideas on how climate change forecast can be applied in various settings and local conditions in an applied manner.

The specific objectives of this national level training program were to:

- capacitate the participants to understand and gain applicable knowledge on the available model results of the anticipated climate change related risks and impacts from an over-view of the existing model results available from regional, national and sub-national level;
- share updates on various available Climate Forecast Application Systems with increased details of sources and process of forecasting, prediction and early warning systems related to Flood, Drought, Cyclone and so forth.
- create greater understanding of the various "forecast products" available (also coming up) that would be relevant for agriculture and allied sectors in Bangladesh;
- facilitate an institutional and adaptive learning process that could be useful for future use of existing forecast products, have a regular interaction with the information source providers (e.g. BMD) and the practitioners (DAE officers and project) and researchers;
- provide participants systematic understanding of the climate change adaptation (options, measures, scientific adaptation, spontaneous adaptation, adaptive capacity etc.) and various types of livelihoods based adaptation options that could be developed using available CFA related products; and
- Facilitate an "active learning environment" for discussing climate change and climate forecast applications and adaptive learning at national to local level in future.

Target participants

Approximately a cross section of 40 professionals have participated (excluding the trainers) in this training and learning event. The training and learning event is targeted primarily for the following participants:

- LACC-II project NTIWG members;
- DAE's Disaster Risk Management and Climate Change Core Group members;
- LACC-II project field officers (FOs); and
- Others who showed interest from DAE and remained actively involved in related activities.

Trainers and resource persons

The training and learning event was developed with active contribution of the institutional resource persons who are involved in various types existing climate forecast applications in the country. In this respect, resources persons were invited from Bangladesh Water Development Board's Flood Forecasting and Warning Center (FFWC) who are involved with hydrological risks such as floods in the country. Resource person was also invited from the Bangladesh Meteorological Department (BMD) particularly having specialization in agrometeorological hazards and forecast systems. Experienced resource trainers were also drawn from the national agricultural research institutions such as BRRI and BARI to provide more updates on recent developments and get into discussions with forecasters and users. ADPC provided the overall facilitation of the training and learning process and active learning. ADPC trainer presented various facts, figures and climate change model result output (based on various existing sources) and facilitated the overall learning process in the event.

The training team comprises of multi-disciplinary and multi-agency professionals. Some of the key resource professionals and trainers for this local level capacity building exercise are as follows:

- Dr. Shameem Hassan Bhuiyan, BMD
- Mr. Mr Abul Bashar, FFWC/BWDB
- Mr. Atiq K. Ahmed, ADPC (Lead Facilitator)
- Dr. Jiban K. Biswas, BRRI
- Dr. Akkas Ali, BARI
- Dr. Abu Wali Raghib Hassan, DAE
- Mr. Sanjib Saha, LACC-II, PMU, FAO; and
- Mr. Abul Hossain, DAE.

Arrangement of training logistics

The CFA training and learning event was facilitated by Asian Disaster Preparedness Center (ADPC) taking logistical support from the Project Management Unit (PMU), LACC-II, DAE and FAO and financial support from FAO. Resource persons were involved from BMD, BRRI, BARI and FFWC. AIS department of the DAE has kindly agreed to use their Conference room where the day-long training event was carried out on 15 October, 2009 (Thursday) at the AIS Conference Room, DAE, Khamarbari, Dhaka.



II.Activities and experiences

Inauguration and Opening Session

The inauguration and opening session of this training and learning event started with an overall welcome address from the LACC-II project-PMU delivered by the sub-component manager Abu Wali Raghib Hassan. Mr Atiq Ahmed from ADPC has welcomed the participants and elaborated on the need for growing knowledge and practices relating to Climate Forecast Applications in agriculture and allied sectors in Bangladesh. He has suggested that DAE has started a process with LACC project progression but there enhancement of professional capacity is very much depending on the collaborative work with the other early warning sources agencies and operational professionals at national and ground level.

The Director General of DAE has participated in the inauguration session as a Chief Guest and opened the

event for the participants. He has given a thoughtful welcome address and given various examples in the recent time where the need for climate forecast applications vis-à-vis early warning was expressed highly. He has also pointed out that agriculture sector development is a major policy thrust for the current government and DAE would like to build their operational capacity to adapt with the ongoing climatic changes and variability in all the ecological zones of the country. In this regard, he has thanked FAO, LACC project and ADPC for bringing along a timely training and capacity building program on CFA.



In the end of this session, the training team has given a briefing on training objectives, elaborated the upcoming sessions and laid out the overall agenda of the day.

Technical Session round I: Early warning and Probabilistic Forecast Systems in Bangladesh

The major technical aspect of the training program was structured in two different rounds. In the first round, three technical presentations were delivered from ADPC, BMD and FFWC. In the first presentation of this

round Mr Atiq K. Ahmed from ADPC has provided an elaborated presentation on the Climate Change and Anticipated Risks to Bangladesh and particularly in the project pilot areas. The presentation has touched the gradual downscaling of climate change model results from various initiatives such as IPCC AR4, PRECIS model run results for various parts of Bangladesh, anticipated climatic risks to the coastal zone of Bangladesh and so forth. He has discussed how these risks are increasingly putting the agriculture and allied sectors in higher risks in coming years. The presentation pointed out that these increasing patterns of climatic risks on the agriculture and allied sector are creating a larger need to enhance capacity to predict those for local level. In this respect, incorporation of "end-to-end" climate information generation and application system is crucial and climate forecast applications based agricultural risk management strategies should be adopted.



It was pointed out that the overall capacity of the institutions and professionals should be further enhanced for a) analyzing climate outlooks, b) interpreting global climate outlook into local outlooks, c) translating local climate outlook into impact scenarios, d) communication development for response options/ feedback; and e) improving planning and adaptation strategies for local level preparations in a dynamic way.

He has also put emphasized on the initiating a CFA process and gradually build an enabling environment where professionals and

Incorporation of End-to-end climate information generation and application system



farmer groups can have a better understanding of the available climate forecast information systems of the source agencies such as BMD, FFWC and others and build an operational relationship with these agencies for developing a process of CFA for agriculture and allied sectors.

Follow up to this presentation, Dr Shameem Hassan from Agro-meteorology division of BMD has given a comprehensive presentation on the Early Warning and Probabilistic Forecast in Meteorological Systems in Bangladesh. He has talked about seasonal climatic patterns of Bangladesh and its various impacts of the agriculture systems, various means adopted by BMD to monitor agro-meteorological information, various agro-meteorological forecast products developed by BMD which can facilitate CFA process and DAE and other relevant issues.

He has informed that BMD produces following "Agromet Bulletin" from the observed Agromet and Meteorological data in every 10th day (i.e. 1st, 11th and 21st day of the month) which contains the following information:

- 10 day actual rainfall in mm
- 10 days normal rainfall in mm
- Departure (in %) of actual rainfall with normal
- No. of Rainy days
- Maximum temperature and normal Maximum temperature
- Minimum temperature and normal Minimum temperature
- Average evaporation and Evapotranspiration
- Average sunshine hours
- Weather Forecast for next 10 days
- Advisories for the farmers

Seasons	Period	Weather Events	Rainfall
Summer (Pre-monsoon)	March to May	Nor'wester, Tornado, Hail, Cyclone, Storm Surge, Heat Wave	19%
Rainy Season (Southwest Monsoon)	June - September	Heavy rain, Monsoon Depression, Flood	71%
Autumn (Post-monsoon)	October - November	Cyclone, Storm Surge, Nor'wester, Tornado	8%
Winter (Northeast Monsoon)	December - February	Abnormal Dryness (Drought), Cold Wave	2%



He has expressed a more collaborative arrangement for CFA with DAE local offices and BMD stations which might also very useful for producing more useful and downscaled information. He has pointed out that in future with increased capacity the NTWIG members and DAE core unit can play a core role in developing such initiative with BMD agromet division.

The last presentation of this round of technical session was delivered by Mr Abul Bashar, FFWC/BWDB and he has elaborated on the hydrological observations and flood forecasting system in Bangladesh. He has also discussed on the various potential use flood forecast products developed by the FFWC which could be useful for agriculture risk management and planning in an elaborated way. He has talked about the FFWC activities, forecast products and how these can be accessed and used. He has elaborated to the participants how these flood forecast products can be interpreted for understanding the local situations.



A follow up discussion on summary of the learning was undertaken briefly on these three presentations in the end of this round of technical session.

Technical Session Round II: Climate Forecast Applications, Adaptive Practices & Decision Making

Follow up to the technical session-I on the early warning and probabilistic forecast systems in the first half of the day, a participatory round exercise was carried out to have an elaborated understanding of the applications of climate information, adaptive practices and decision making issues. The overall objectives of this participatory round was to bring the operational professional and DAE officials close to the climate information source providers such as BMD and FFWC representatives and bring along the agricultural research organization professional to elaborate on some of the possible adaptive practices that can be adopted to deal with the climatic changes/variability in future.

During this session, Dr Jiban K Biswas from Bangladesh Rice Research Institute (BRRI) and Dr Akkas Ali from Bangladesh Agricultural Research Institute (BARI) have shared some latest research outputs which could be helpful for future adaptation of crops in drought and coastal regions in the country. Dr Jiban K Biswas from BRRI has elaborated on the environmental and climatic risks growing both in the saline prone areas as well as in the drought prone areas of the LACC-II pilot upazilas. He has suggested that BRRI dhan-27, 40, 41, 47, BR-11, 23 are among the suitable rice varieties for saline area. Cover crop like sweet potato, sweet gourd etc. are also suitable for saline prone areas. Other crops such as watermelon, *batishak*, radish and radish etc. can also be suitable in these



given areas. He has suggested that salinity management through fertilizer management is also crucial and further research is needed on deep water rice for coastal region as well. The BARI representative Dr Akkas has shared their experiences of developing the homestead vegetation model for saline areas in Khulna. They have recommended nine production units for homestead model. A host of issues came out and recommendations emerged from of discussions. Participants actively recommended following issues and shared experience driven lessons:

- **District level expansion of Technical working groups:** It was suggested that on top of the existing institutional arrangements of NTIWG and UTIWG there is a need for strengthening institutional capacity at district level which is needed for aligning the climate change issues with the district plans and implementations.
- **Climate Information product development:** It was pointed out during the discussion that in collaboration with BMD and DAE custom based climate information products needs to be developed particularly for the Sea Level Rise-salinity prone coastal areas and in the drought prone areas.
- Extend long-lead on agro-meteorological forecasts: It was pointed out that for agrometeorological forecasts the present available time is not very suitable for agricultural preparedness. In this respect, extension of long-lead time of agro-meteorological forecasts are asked for from the BMD agro-meteorology department.
- **Expansion of flood forecast for coastal areas:** The available forecast information products provided for flood from the FFWC needs to include the coastal areas and rivers as well.
- Adjustment of cropping pattern and planting time of crops: Participant discussed that CFA should be mainstreamed in the practices of farmers and block level practitioners. The crop management plans and timing could be adjusted using the forecast information if these are made available in time with adequate geographical extent.
- **Regular involvement of agricultural research outputs:** Agricultural research institutions can be further involved with the extension services from the beginning of any research activities so that farmers and block level SAAOs can also be engaged from the beginning of any research activity.
- **CFA related further training and awareness:** Further awareness can capacity building program for CFA should be undertaken and should be adopted in future projects.



Agenda				
9:00am	Registration			
Inauguration and Opening Session				
9:30am	Welcome Address from LACC-II project-PMU, DAE (by Dr Abu Wali Raghib Hassan)			
	Welcome Address from ADPC (by Atiq K. Ahmed, ADPC, Thailand)			
	Speech of Chief Guest by Director, Director General, DAE			
	Briefing on Training Objectives and Session Overview			
10:15am	Presentation: Training activities under the LACC-II Project: An Overview			
	(By Dr Abu Wali Raghib Hassan)			
	Tea Break			
Technical Sessions Round I. Early warning and Probabilistic Forecast Systems in Bangladesh				
10:45am	Presentation: Climate Change and Anticipated Risks: Overview of Global, National to			
	Local Challenges for Climate Risk Management for Agriculture and Allied Sectors			
	(By Atiq K. Ahmed, ADPC)			
11:30am	Presentation: Early Warning and Probabilistic Forecast in "Meteorological Systems"			
	(by Dr Shameem Hassan, BMD)			
12:15am	Presentation: Early warning and Probabilistic forecast in "Hydrological Systems"			
	(by Mr Abul Bashar, FFWC/BWDB)			
1:00pm	Discussions and Learning (Facilitated by Mr Atiq K. Ahmed, ADPC)			
Lunch Break and Prayer				
Tashniaal Soc	ciane Dound LL. Climate Foregast Applications, Adoptive Practices and Decision Making			
Technical Sess	sions Round IT. Chimate Forecast Applications, Adaptive Practices and Decision Making			
3:00nm	"Work-group" and plenary: Integration of Climate Forecast Information into			
0.00pm	Agricultural decision making and planning			
	(Facilitated by Atig K Abmed ADPC and Saniib K Saba PMU FAO)			
4:00nm	Two resource presentations and shared learning on:			
4.00pm	Adaptive Measures for Crops in Drought and Coastal Regions: Current Practices and			
	Future Potential (by Dr liban K Biswas, BRRI and Dr Akkas Ali BARI)			
5:00nm	Onen discussions and experience sharing			
5.00pm				
	Summary and Wrap Up by ADPC and PMU.			
	Closing remarks and vote of thanks by Director, FSW, DAE.			

IV. Reflections of participation and learning



For any further information on this training and learning event, please contact:

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