



Training on Forecast Interpretation, Translation and Communication Activity Report

17-19 September 2013, Dhaka, Bangladesh



The Training on Forecast Interpretation, Translation and Communication was convened by the Bangladesh Meteorological Department as part of the project “Reducing risks of tsunamis, storm surges, large waves, and other natural hazards in low elevation coastal zones”, supported by the United Nations Economic and Social Commission for Asia and the Pacific through the Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries.

1 Introduction

Effective forecast application for managing resources and reducing disaster risks requires a process of understanding and transforming forecast information into a form that is relevant to users. This process is constrained by the mismatch between the scientific nature of forecasts and the non-scientific background of forecast users. In Bangladesh, user demands for easy-to-understand information products and capacity to interpret and translate them for application in decision-making have been articulated in the Monsoon Forum.

1.1 Training Objectives

In response to user demand, the Training on Forecast Interpretation, Translation, and Communication was held from 17-19 September 2013 in Dhaka, Bangladesh. Specifically, the training aimed to build capacity of participants to:

- a) Understand the science behind hazards
- b) Understand the science behind forecast generation
- c) Appreciate the process of forecast generation
- d) Be aware of forecast products available in the country, including associated uncertainties
- e) Evaluate how these products could be useful, in view of hazard-sensitive activities and decision context
- f) Apply products in identifying potential impacts to systems that could be at risk
- g) Identify options to manage these potential impacts, and
- h) Identify ways for closer collaboration between forecast/information providers – the Bangladesh Meteorological Department (BMD) and Flood Forecasting and Warning Center (FFWC) – and forecast user institutions.

1.2 Structure

The training program was divided into modules (M) and sessions (S), as follows:

Table 1. Forecast Translation Training Outline

M1: Weather and Climate

M1S1: Weather and Climate Dynamics

M1S2: Weather and Climate Forecasts: Generation, Interpretation, and Communication

M2: Floods

M2S1: Floods in Bangladesh

M2S2: Flood Forecasts and Warnings: Generation, Interpretation, and Communication

M3: Forecast Translation

M3S1: Understanding Probabilities

M3S2: Translating Forecasts into Impact Outlook and Response Options

M4: Other Hazards: Earthquake and Tsunami

M4S1: Earthquake and Tsunami

M4S2: Earthquake Information Products: Generation, Interpretation, and Communication

M4S3: Tsunami Information Products: Generation, Interpretation, and Communication

M5: Communicating Risks

M5S1: Risk Communication

1.3 Participants

A total of 34 trainees from 16 government and non-government organizations, listed below, participated in the training:

- Bangladesh Agricultural Research Council (BARC)
- Bangladesh Rice Research Institute (BRRI)
- Department of Agriculture Extension (DAE)
- Department of Livestock Services (DLS)
- Department of Fisheries (DOF)
- Bangladesh Water Development Board (BWDB)
- Survey of Bangladesh (SOB)
- Bangladesh Inland Water Transport Authority (BIWTA)
- Bangladesh Air Force
- Bangladesh Coastguard
- Bangladesh Navy (BN)
- National Center for Disease Control
- Department of Disaster Management (DDM)
- Bangladesh Red Crescent Society (BDRCS)
- Cyclone Preparedness Programme (CPP)
- Save the Children

1.4 Resources

Resource persons for the training were from the Bangladesh Meteorological Department (BMD), Flood Forecasting and Warning Center (FFWC), and RIMES.

The training employed the following methodologies:

- Presentations
- Interactive discussions
- Case study analysis
- Practical exercises

2 Highlights of the Training

2.1 Opening Session

The training commenced with a recitation from the Holy Quran. Mr. Md. Shah Alam, Director, BMD, in his welcome of training participants, expressed appreciation of this initiative from RIMES and the support provided for it by ESCAP. He underscored the importance of building user capacity in forecast application, and looks forward to similar trainings at subnational and local levels.

Ms. Ruby Rose Policarpio, Institutional Development Specialist, RIMES, provided a rationale for the training, citing the 1997-1998 severe El Niño, for which forecast of up to six (6) months lead time was available. Climate-sensitive sectors did not use the information for developing mitigation strategies, resulting to tremendous economic losses, particularly in the agriculture sector. She then facilitated participant introductions and expectations, and introduced the objectives, scope, and methods of the training.

2.2 Module 1: Weather and Climate

M1S1: Weather and Climate Dynamics. BMD introduced the climate setting of Bangladesh, which included weather and climate processes and drivers, seasonal characteristics, extreme events and their impacts, observed trends, and climate projections.

M1S2: Weather and Climate Forecasts – Generation, Interpretation, and Communication. BMD presented its forecast information products; inputs, models, and the complex process used in their generation; and uncertainty associated with these products. Participants were given orientation on terminologies, symbols, and color codes used in these products.

Importance of seamless forecasts was emphasized, i.e. the use of forecasts of different timescales. Seasonal climate outlook has higher uncertainty, hence could be used in planning. Medium- and shorter-term forecasts have lower uncertainty compared to the seasonal outlook; hence could complement, for application in contingency planning and livelihoods decisions. Two- to three-day forecasts have the lowest uncertainty.

The session also covered BMD's dissemination system, highlighting the institutional arrangement and redundant channels of communication.

Discussions focused heavily on the interpretation of the different cyclone warning signals. The discussion noted the disconnect between BMD's warning system and the Standing Orders on Disaster (SOD). The discussion also revealed the absence of mechanism within many user institutions for disseminating information received from BMD.

2.3 Module 2: Floods

M2S1: Floods in Bangladesh. FFWC presented the country's flood profile, classification of floods affecting Bangladesh, flood-prone areas in the country, long-term flood frequency, and significant flood events and their impacts.

M2S2: Flood Forecasts and Warnings – Generation, Interpretation and Communication. This session included presentations on and discussion of the process of generation of water level/ flood forecasts, from BMD's water level monitoring system, collection and transmission of station data, process of analysis, models used in flood forecasting, model output evaluation, to issuance of forecast. Participants were given orientation on available flood forecast products at different timescales, definition of terminologies used, and threshold levels employed for flood warning. Uncertainty in flood forecasts was explained – uncertainties in weather forecast input and in hydrological and

hydrodynamic models all contribute to flood forecast uncertainty. The session also covered the dissemination system through redundant channels.

2.4 Module 3: Forecast Translation

M3S1: Understanding Probabilities. This session introduced the concept of probability of exceedance or the likelihood of a certain climate parameter being exceeded, on the average, in a defined period. The session put emphasis on interpretation of historical data and constructing plausible inferences based on forecast and historical observation data. An exercise was facilitated to aid participant understanding of the concept. Participants were tasked to analyze the potential rainfall for October 2013, given the long-term rainfall variability, probability of exceedance, and the forecast.

M3S2: Translating Forecasts into Impact Outlook and Response Options. This session provided tools for transforming forecasts into impact outlook and management strategies/measures for application. An exercise grouped participants based on the sectors they represent, and facilitated their analysis of forecast-based potential impacts and response options. Outputs from each group were then presented in the plenary.

2.5 Module 4: Other Hazards – Earthquake and Tsunami

M4S1: Earthquake and Tsunami. This session sensitized participants on the earthquake and tsunami risks in the country. The session covered earthquake triggers, Bangladesh’s seismicity, earthquake and tsunami-prone areas, and historical earthquake and tsunami events and their impacts.

M4S2: Earthquake Information Products – Generation, Interpretation, and Communication. This session familiarized participants on BMD’s 24/7 earthquake monitoring and tsunami early warning system, and covered earthquake detection, monitoring, data acquisition and analysis, and standard operating procedure (SOP) for earthquake bulletin generation and dissemination. The session assisted participants in interpreting earthquake magnitude and intensity.

M4S3: Tsunami Information Products – Generation, Interpretation, and Communication. This session presented and discussed BMD’s tsunami warning system, which include SOP for warning generation based on analysis of earthquake magnitude and epicenter and on information from regional tsunami warning centers, information products, and dissemination. The session also aided participants in the interpretation of tsunami bulletins.

2.6 Module 5: Communicating Risks

M5S1: Risk Communication. The session discussed the basics of risk communication and design of risk communication materials. Case studies allowed participants to learn from documented experiences. A facilitated exercise assisted participants in the design of risk communication materials.

2.7 Closing Session

Mr. Md. Shah Alam closed the training, and handed the certificates of appreciation to resource persons and certificates of completion to participants.

3 Training Outcomes and Recommendations

All 34 participants from agriculture, water resource, transport, health, and disaster management sectors completed the training. The training provided yet another venue for forecast provider and user interaction toward usable forecasts and actionable warnings. All participants were appreciative of the relevance of the training to their work. Annex 1 provides the feedback received from participant evaluation.

Participants provided the following recommendations for future trainings:

- More detailed, but simple explanation of terminologies used in forecasting
- More case studies specific to Bangladesh context
- Duration of training should be extended from 3 to 5 days
- Regular conduct of the training, targeting decision-makers in various sectors, particularly those in disaster-prone areas
- Sector-specific training, for example for the agriculture sector, wherein agricultural forecasting could be included
- Training could be extended to schools/ universities and communities
- Field trip to the Storm Warning Center, demonstration sites, and other relevant institutions could be included

Annex: Training Evaluation

The training was evaluated based on participants' assessment of:

- a) Degree to which training objective was met
- b) Relevance of topics covered
- c) Contents of the training
- d) Time allotted for the sessions
- e) Usefulness of the materials provided
- f) Knowledge, competence, clarity, and level of engagement of trainers/resource persons
- g) Benefits of the training

The following figures present the evaluation results:

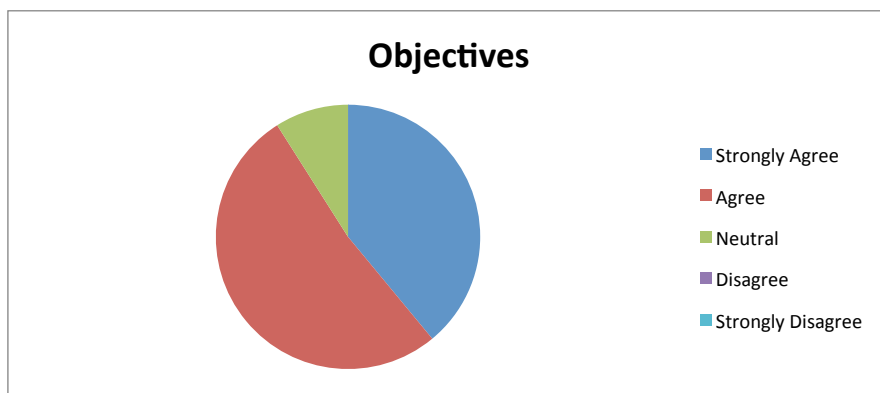


Figure 1. About 90% of the participants agreed that the training objectives were met

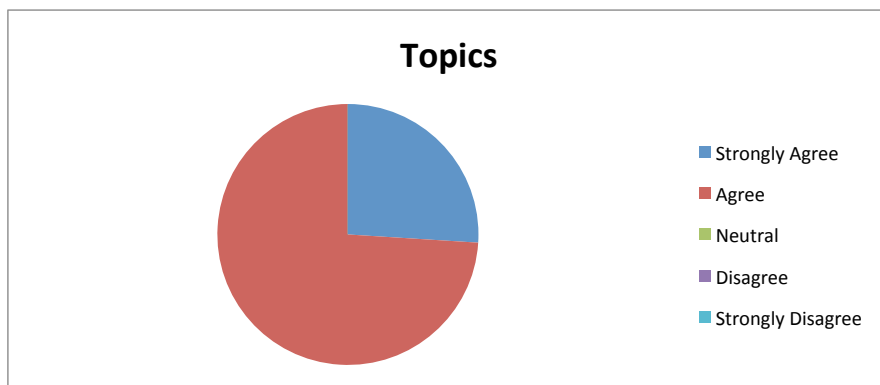


Figure 2. All participants found the topics relevant.

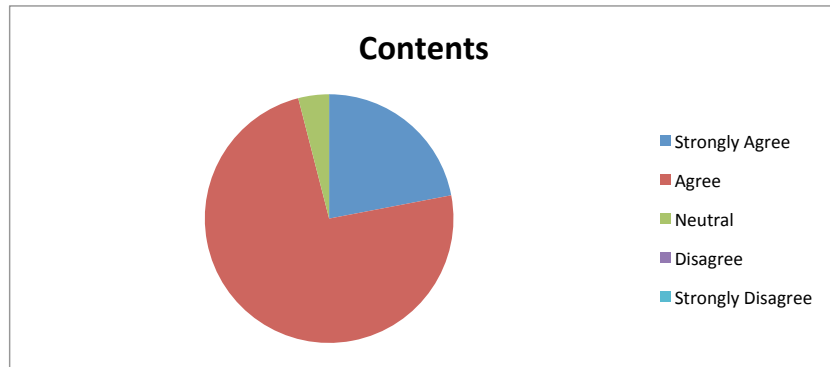


Figure 3. About 96% of the participants found the contents well organized and easy to follow

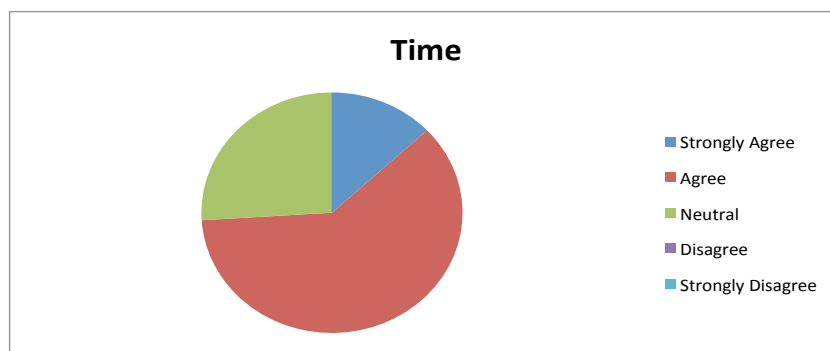


Figure 4. About 25% of the participants indicated that more time is required for the sessions

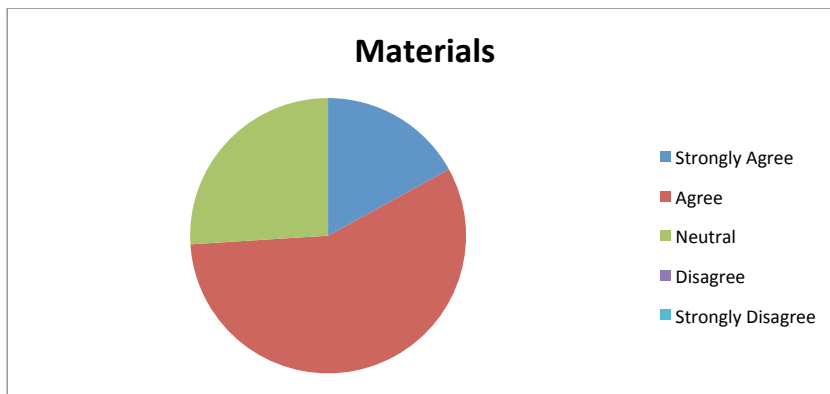


Figure 5. About 75% of the participants found the materials useful easy to understand

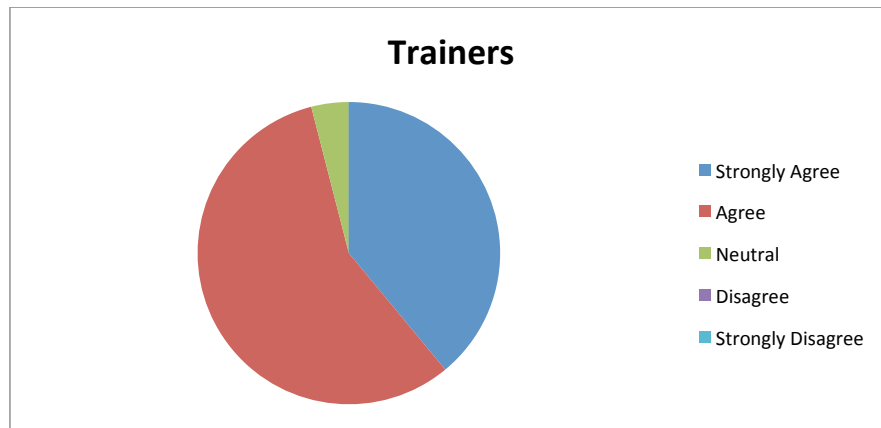


Figure 6. About 95% of the participants found the trainers knowledgeable, competent, clear in their explanations/discussions of the sessions, and engaged well with the participants during the training

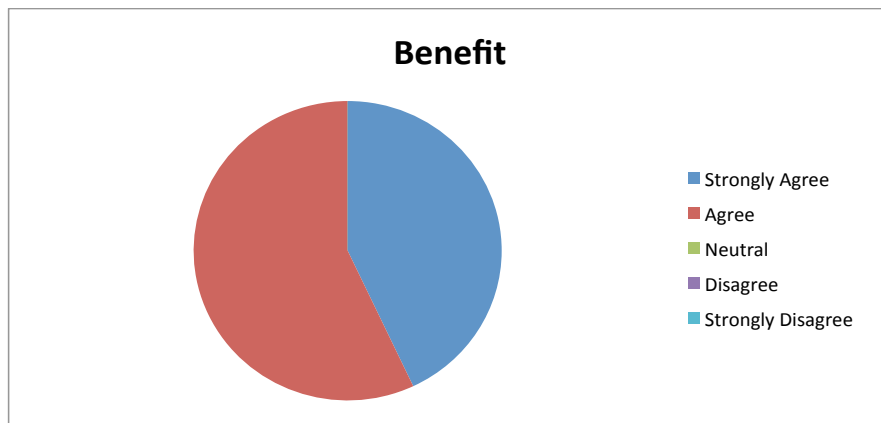


Figure 7. All of the participants found the training beneficial to them and to their institutions



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