7th MONSOON FORUM REPORT

15 November 2011
Nay Pyi Taw, Myanmar

The 7th Monsoon Forum, convened in Nay Pyi Taw, Myanmar, on 15 November 2011, was organized by the Department of Meteorology and Hydrology (DMH). Though principally supported by The European Commission (EC) and the Food and Agriculture Organization of the United Nations (FAO) as part of the project "Enhancing the utility of seasonal climate forecasts to manage climate risks for food security" the outputs of the 7th Monsoon Forum will feed into the undertakings under the project "Reducing risks of tsunamis, storm surges, large waves, and other natural hazards in low elevation coastal zones in Bangladesh, India, Maldives, Myanmar, Sri Lanka and Thailand" supported by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and jointly implemented by the World Meteorological Organization (WMO) and the Regional Integrated Multi-hazard Early Warning System (RIMES).

Activity Background

The UNESCAP is supporting the project "Reducing risks of tsunamis, storm surges, large waves, and other natural hazards in low elevation coastal zones in Bangladesh, India, Maldives, Myanmar, Sri Lanka and Thailand". The project is jointly implemented by WMO and RIMES in collaboration with the National Meteorological and Hydrological Services (NMHSs) in project countries.

One of the key undertakings under the project is the conduct of the Monsoon Forums, a platform for interface between NMHSs and user institutions to facilitate enhanced usability of early warning information in decision-making for better management of risks. The Monsoon Forums are part of the project component on strengthening institutional systems for end-to-end warning.

In Myanmar, the Monsoon Forums were established through previously implemented projects. Six (6) Forums were organized by DMH between 2007 and early part of 2011.

The 7th Monsoon Forum was organized by DMH in Nay Pyi Taw. Though the 7th Monsoon Forum was principally supported by EC and FAO, the outputs of the Forum will feed into the continuous process of evolving climate, weather and hydrological forecast products which are tailored to the user needs, to enhance the usability of early warning information for the user institutions.

The 7th Monsoon Forum is organized with the following objectives:

- review the monsoon season that has just concluded, in terms of climate patterns, outlook performance, and impacts on the different climate-sensitive sectors in the countries;
- discuss the outlook for the season ahead and possible sectoral impacts, and the response options that can be carried out by user-institutions for enhanced management of risks;
- discuss difficulties/challenges/gaps in the application of forecast information, and possible mechanisms of bridging such difficulties, including meeting the demand for sector-specific information requirements
- other issues and concerns relevant to the NMHSs and climate information user institutions

To introduce the pilot sites under the project "Reducing the risks of tsunamis, storm surges, large waves and other natural hazards in low elevation coastal zones in Bangladesh, India, Maldives, Myanmar, Sri Lanka and Thailand" to the Monsoon Forum process, DMH requested participants from the government administrative offices of Kungyagon and Labutta districts. The participation of participants from Kunyangon and Labutta also facilitated discussion with them on the project details, obtaining their support, and getting their agreement on the activities which will be conducted at select communities in the districts

Hosted by DMH, under the Ministry of Transport, the 7th Monsoon Forum was attended by a total of 39 participants coming from the following institutions:

- Agricultural Planning Department

- Department of Fisheries
- Department of Health
- Department of Irrigation
- Department of Livestock and Breeding
- Department of Relief and Resettlement
- Environment Conservation and Forestry
- FAO
- General Administration Department
- Local Administrative Authority Representatives from Kunyangon and Labutta Districts
- Myanmar Agricultural Product Trading
- Myanmar Agricultural Services
- Myanmar Red Cross Society
- Media institutions including State Media
- Office for the Coordination of Humanitarian Affairs (OCHA)
- RIMES

Meeting Proceedings

Inaugural Program

Dr. Hrin Nei Thiam, Acting Director General, DMH, delivered the inaugural message on behalf of the His Excellency U Nyan Htun Aung, Union Minister for Transport.

Dr. Hrin Nei Thiam, on behalf of the Union Minister, welcomed all the guests and participants to the 7th Monsoon Forum, jointly organized by FAO, RIMES and DMH. She also outlined the project "Reducing risks of tsunamis, storm surges, large waves and other natural hazards in low elevation coastal zones in Myanmar" supported by UNESCAP and jointly implemented by WMO and RIMES in collaboration with DMH. She explained that the Monsoon Forum is also an integral cell of the project supported by UNESCAP. She continued that the 7th Monsoon Forum is organized through the support of FAO.

According to Dr. Thiam, Monsoon Forums are principally to encourage climate forecast application to mitigate risks. She continued that Myanmar is an agricultural country so emphasis is given to agricultural enhancement. She stressed that DMH is treading the same direction by providing key weather and climate information that is adapted to agricultural conditions to guide decision makers in agriculture for food security.

She proceeded to provide a background of the 2011 Southwest Monsoon season in Myanmar. According to her, the Southwest monsoon had late onset and early withdrawal phases hence, the monsoon period was relatively short. Untimely and heavy rainfall were observed during the year. She continued that although no storm directly hit the country until October 2011, a depression which formed in October brought heavy rains that resulted to deaths and damages to properties.

She also discussed on the dramatic change in the global climate and the increasing vulnerability of those in hazard-prone areas.

Dr. Thiam then discussed the objectives of the Monsoon Forum. She emphasized that although hazards can not be prevented, something can be done to mitigate their impacts.

Subsequently, Mr. A.R. Subbiah, Director, RIMES, rendered his message. He narrated the interesting evolution of the Monsoon Forum process in Myanmar. According to Mr. Subbiah, initiatives connecting forecast provider and user institutions started in 2007. He discussed that the first forum was focused on discussions on the applicability of the climate outlook generated by DMH, but now stakeholders have better understanding. Despite the limitations in science, DMH manages to generate forecast information that is usable for the different sectors.

He then proceeded to discuss that to complement the FAO-supported project, RIMES is co-implementing with WMO the project ""Reducing risks of tsunamis, large waves, storm surges large waves, and other natural hazards in low elevation coastal zones", supported by UNESCAP, to bring DMH and intermediary institutions, to communities.

Mr. Subbiah proceeded to explain that the dry season is the calmest season – the least-risk season in the tropical region. He espoused that the 7th Monsoon Forum was designed to review the past season, move forward to a better understanding of what happened, and bring forward issues in the next monsoon forum.

After that, Mr. Bruce Isaacson, Chief Technical Adviser, FAO, acknowledged the different sectors present in the Monsoon Forum. He elaborated on FAO's main thrusts, which include climate information. He underscored that the Monsoon Forum is intended to make climate information more useful, as guide for decision-making in relevant sectors.

Mr. Subbiah, Dr. Thiam, and Mr. Isaacson delivering their messages during the Inaugural Session of the 7th Monsoon Forum in Nay Pyi Taw

DMH then announced that the Monsoon Forum has been officially opened and the proceedings will progress as indicated in the agenda.

The introduction of participants followed.

Review of the 2011 Monsoon Season

Review of the Monsoon Performance and the Seasonal Prediction Realized

This session was presented by Daw Thet Htar Su Hlaing of DMH. Ms. Hlaing discussed the climate of Myanmar; important synoptic features generally associated with the onset of monsoon over Myanmar; forecasting parameters; climate information timeline; Southwest (SW) monsoon onset, withdrawal, and intensity forecast and observed data; break condition; monsoon rain and cyclone frequency forecast and observed data; and summary of verification of seasonal forecast for Southwest monsoon.

Types of Forecast	Time of Issuance	Forecast Validity
General weather outlook for monsoon season	April 28	Monsoon season
Seasonal weather forecast	April 28 June 28 August 28	Early Monsoon Peak Monsoon Late Monsoon
Monthly weather forecast	28th of every month	1 month
10 days weather forecast	8th, 18th, 28th of every month	10 day

A matrix of forecast products, dates of issuance and forecast validity as presented by Ms. Hlaing

In her discussion, Ms. Hlaing emphasized the forecast products made available by DMH to its stakeholders and the dates of issuance. She espoused that the forecast products are posted on DMH's website and disseminated to stakeholders through various other means.

DMH also noted abnormal events for 2011. These include:

- Abnormal cyclone activity in early February
- New recorded rainfall in January
- Unusual mid-January snowfall over Panwa, Northern Myanmar
- Very cold weather in March in most areas of Yangon
- No cyclone occurred in April and May
- No monsoon depression in July and August
- Myanmar recorded its heaviest rainfall on 21 July 2011 at 29.10 inches within 12 hours

Subsequently, Ms. Hlaing presented the summary of verification of its seasonal forecast for 2011.

Verification of Seasonal Forecast for 2011

- Monsoon Onset forecast for Southern Myanmar (Correct)
- Monsoon Onset forecast for Delta (about 6 days late)
- Monsoon Onset forecast for Central Myanmar (Correct)
- Monsoon Onset forecast for Northern Myanmar (Correct)

- Monsoon Withdrawal forecast for Northern Myanmar (about 5 days late)
- Monsoon Withdrawal forecast for Central Myanmar(about 6 days late)
- Monsoon Withdrawal forecast for Delta (about 5 days late)
- Monsoon Withdrawal forecast for Southern Myanmar(Correct)

- Early monsoon period Rainfall forecast Score (0.6) Good
- Peak monsoon period Rainfall forecast Score (0.8) Good
- Late monsoon period Rainfall forecast Score (0.5) Good

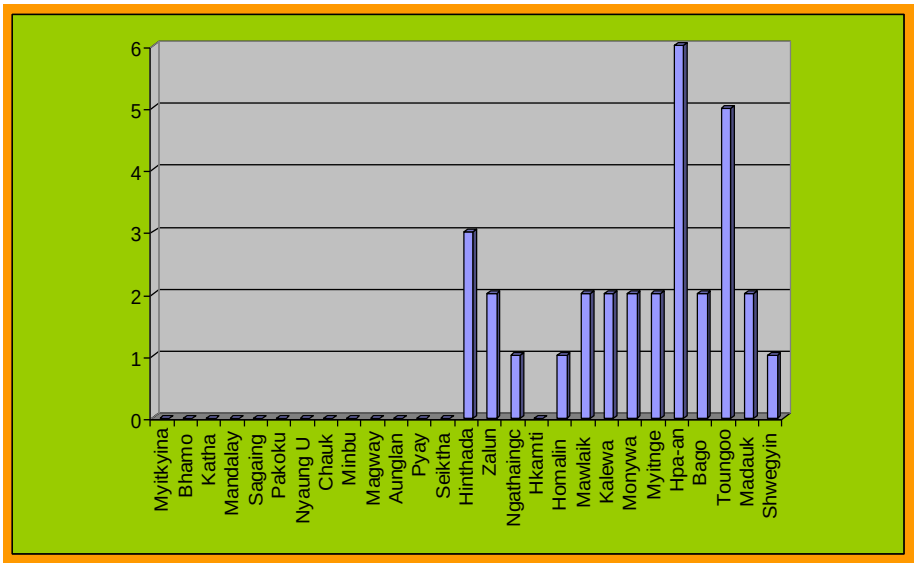
- Monsoon Intensity forecast for pre monsoon period (Fair)
- Monsoon Intensity forecast for peak monsoon period (Correct)
- Monsoon Intensity forecast for post monsoon period (Fair)

- Storm frequencies F/C for pre monsoon period (Correct)
- Storm frequencies F/C for peak monsoon period (30% correct)
- Storm frequencies F/C for post monsoon period (Correct)

Summary of 2011 Southwest monsoon outlook verification

Hydrological Component Review of the Season

This presentation was rendered by Mr. Sein Lin, also of DMH. In his presentation, Mr. Lin mentioned the hydrological forecasting stations in the country. He explained that the country has experienced floods during the pre-monsoon, monsoon and post-monsoon periods. He provided details for the flood peaks and durations in 2011. He emphasized that DMH provided flood warnings and bulletins throughout the period. The flood frequency during the 2011 monsoon period, in different districts, was also discussed.



Flood frequency during the Southwest monsoon season in different districts in Myanmar

Mr. Lin then discussed the verification results for the hydrological component.

Performance of the Season with Regards to Food Security

Mr. Soe Win Maung, of the Agricultural Planning Department, delivered this session. His discussion focused on issues appertaining Myanmar agriculture, key interests during the monsoon seasons, crop production, and disaster events which impacted heavily on the agriculture sector.

Mr. Maung explained that agriculture is the driving engine of Myanmar's economy. Rice production for 2010-2011 planting season is projected to reach up to more than 30 million metric tons. Climate being an important factor in agriculture, information about the onset, withdrawal, duration, precipitation, distribution per zone or region, number of rainy days, and occurrence of extreme events are very essential. He likewise emphasized on the role of dams in agriculture.

He subsequently discussed the damages inflicted to agriculture by the flash floods of 2011. He proceeded to discuss that a more robust early warning system should be established. There is a general passive attitude among people even after they receive the warning. The awareness is very low, especially on the grassroots level. He underscored that on the other hand, there is also a need to improve the early warning services provided to the people.

As to modernization, Mr. Maung espoused that Myanmar is lagging behind in the regional level.

Finally, he discussed on making informed decisions based on information. He stressed though that there are times when information is not available. There are also times, he continued, when there is available information but deeper insights should be considered in decision-making. He suggested that there should be a "formula" for decision-making. And the challenge would be bridging information and decision. He also qualified that information should be reliable and timely.

Overview of Global Seasonal Climate and Prediction Performance for Southeast Asia

This presentation was rendered by Mr. A.R. Subbiah. In his presentation, Mr. Subbiah outlined the different drivers which influences the conditions for Myanmar's 2011 dry season. He discussed the prevailing La Nina condition in Nino 3.4 region and its influence over Southeast Asia, and the Northeast monsoon wind direction.

Moreover, Mr. Subbiah discussed that the dry season is normally characterized by very low rainfall and temperatures. Temperature variations though can be significant.

He then elaborated on the relationship of climate and food security and the documented damages to agriculture brought about by floods in Thailand, Cambodia, Vietnam, Lao PDR and Myanmar.

Feedback from climate-user institutions

Under this session, OCHA rendered a presentation on early warning, forecast and emergency preparedness. It was emphasized that food and security crisis in the recent years has continued to be a challenge in the Millennium Development Goals. Myanmar is classified as 14th in the world suffering from natural hazards. The presenter also discussed on the importance of early warning and monitoring. In addition, global and regional early warning and forecasting tools were also discussed. The session was capped by a discussion of OCHA's global focus on hazard, vulnerability and capacity.

OCHA's presentation was followed by the presentation from the Department of Relief and Resettlement. Among the key points included in this discussion were the mandates of Department, their current thrusts and the importance of climate information in their undertakings.

Dry Season Outlook and Working Group Discussions to Develop Impacts Outlook and Response Options

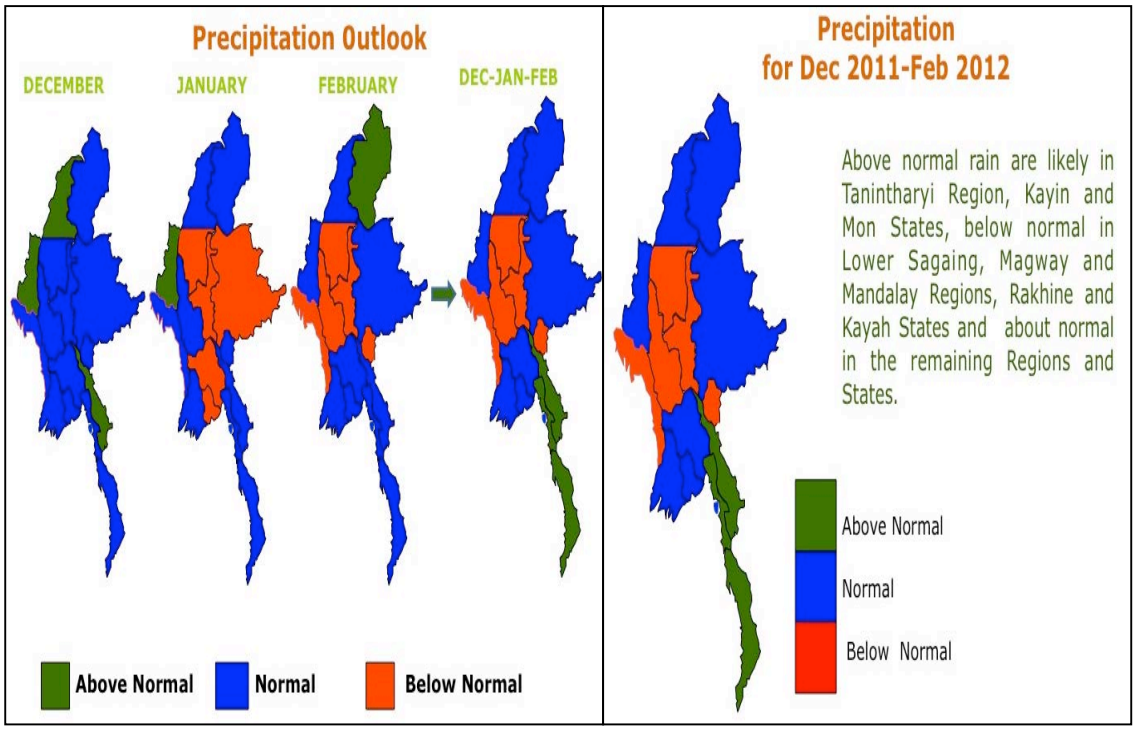
Dry Season Outlook

The presentation on the dry season outlook was delivered by DMH. It covers two components: general weather outlook for the dry season and the general long range water level forecast for low flow season.

The sub-session on general weather outlook for the dry season was delivered first. DMH's current early warning capacity was discussed. DMH explained that the rainfall variability in Myanmar are attributed to the intensity of summer monsoon wind, frequency of tropical cyclone and monsoon depressions, active and break cycle of the monsoon, cyclone seasons on April/May and October/November, movement and frequency of disturbances, and regional scale extreme events (El Nino/La Nina), among others.

Subsequently, the prevailing La Nina condition in the equatorial Pacific was discussed. Regional Sea Surface Temperature (SST), temperature, and precipitation forecasts for December, January, and February (DJF) from different global climate centers were also provided. Based on the analysis of the conditions affecting the dry season in Myanmar, DMH developed its dry season outlook.

The precipitation outlook and general weather outlook are presented below.



Above: Precipitation outlook for December 2011 to February; Below: General weather outlook for the 2011-2012 dry season. Both were issued by DMH during the Monsoon Forum

Government of Republic of the Union of Myanmar
Ministry of Transport
Department of Meteorology and Hydrology
Nay Pyi Taw

Dated 15 November 2011

General Weather Outlook for 2011-2012 Winter Monsoon

Three low pressure areas may form over Bay of Bengal during this Winter Monsoon Season. Out of these three low pressure areas, one may further intensify into a depression. Weather will be partly cloudy to cloudy in the Andaman Sea, South Bay and generally fair elsewhere in the Bay of Bengal.

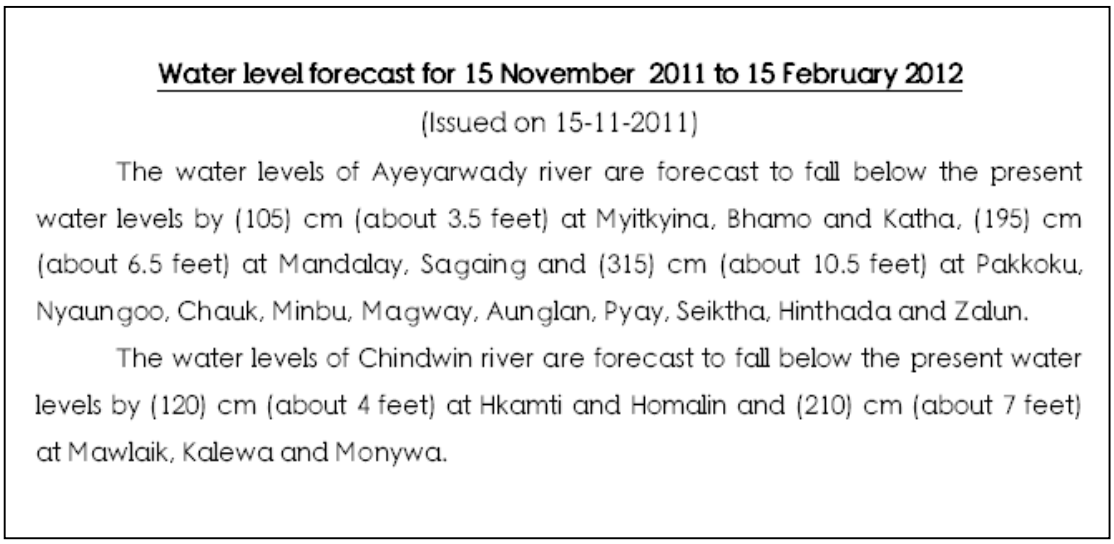
Above normal rain are likely in Tanintharyi Region, Kayin and Mon States, below normal in Lower Sagaing, Magway and Mandalay Regions, Rakhine and Kayah States and about normal in the remaining Regions and States.

Night temperature will be below normal in Tanintharyi Region and Mon States, about normal temperature in Upper Sagaing and Bago Regions, Kachin, Chin and Kayin States and above normal in the remaining Regions and States.

During the Winter Season, decrease of Night Temperature, strong easterly wind and rough sea, untimely rain by the movement of easterly wave and westerly wave and dense fog in different areas are likely. Users are advised to take necessary actions with daily weather forecast, coastal weather bulletin and the notification by Myanmar Agricultural Services.

The presentation on general long range water level forecast for low flow season followed. The presentation highlighted low flow forecast for Ayeyarwady and Chindwin Rivers for 15 November 2011 to 15 February 2012.

Based on its analysis, the Hydrological Division of DMH issued the following water level forecast.



Water level forecast for 15 November 2011 to 15 February 2012

(Issued on 15-11-2011)

The water levels of Ayeyarwady river are forecast to fall below the present water levels by (105) cm (about 3.5 feet) at Myitkyina, Bhamo and Katha, (195) cm (about 6.5 feet) at Mandalay, Sagaing and (315) cm (about 10.5 feet) at Pakkoku, Nyaungoo, Chauk, Minbu, Magway, Aunglan, Pyay, Seiktha, Hinthada and Zalun.

The water levels of Chindwin river are forecast to fall below the present water levels by (120) cm (about 4 feet) at Hkamti and Homalin and (210) cm (about 7 feet) at Mawlaik, Kalewa and Monywa.

Water level forecast, covering 15 November 2011 to 15 February 2012, for Ayeyarwady and Chindwin Rivers

Working Group Discussion and Presentation

Following the dry season outlook, the participants were divided into three (3) groups: a) Agriculture, Fisheries and Animal Husbandry, b) Disaster Preparedness and Health and Nutrition, and c) Water Resources Management. The groups were to develop impacts outlook and response options, based on the dry season outlook released by DMH. The group discussion was also intended to thresh out issues appertaining the constraints and difficulties of user institutions in applying weather and climate information and dissemination mechanisms to reach the stakeholders, thereby providing insights to DMH on how to improve its services.

In order to guide participants in the discussion, the following questions were provided:

1) What would be the possible impacts, in the different sectors, taking into consideration the seasonal outlook?

2) What possible responses (mitigation measures) can be done in case of possible adverse impacts?

3) Are there constraints/gaps/difficulties in translating dry season outlook into impacts outlook and response options? If yes, what are these?

4) What channels/mechanisms can be used to maximize the dissemination of the seasonal outlook to concerned institutions, offices, organizations, and individuals?

5) Are there any other information needs, by sectors, which require to be addressed?

6) Any recommendation to address constraints/gaps/difficulties in translating the seasonal outlook, enhance usability of seasonal outlook and other forecast products, and the conduct of the Monsoon Forums in the future?

Sectoral working groups discuss their responses to the guide questions during the exercise on developing impacts outlooks and response options, identification of gaps and constraints in climate forecast application, and dissemination mechanisms to maximize delivery of information to stakeholders

Provided below are the outputs from the working group discussions. The recommendations, presented as part of the working group outputs and synthesized from the discussions throughout the Forum are elaborated in a separate section.

Group 1 *(composed of representatives from Myanmar Agricultural Services, Agricultural Planning Department, Environmental Conservation and Forestry, Department of Fisheries, Department of Livestock and Breeding, and Myanmar Agricultural Product Trading)*

Possible Impacts	
Agriculture	*Fisheries*
• Insufficiency if water in some areas	• Aquatic biodiversity and habitat change
Possible Mitigation/Response Options	

• River pumping stations • Canal development • Sediment preparation • Crop diversification •	• Impose regulations on fishing methods, gears, size, areas, and seasons • Stocking • Identify protected areas/zones
Constraints/gaps/difficulties in translating the dry season outlook into impacts outlook and response options	
• Insufficient budget inputs • Insufficient technology, fertilizer, seeds support	• Plan of action • Information sector for fisheries community • Financial and logistic support • Collaboration with relevant ministries/agencies • Forecast information which are not clearly understood
Dissemination Mechanisms that can be used to maximize delivery of information to stakeholders	
• Extension and education unit in the agriculture sector • Media • Inter-agency information sharing mechanisms	• Surveillance program • Workshops, seminars and trainings • Fishermen groups • Government network system
Information needs which require to be addressed	
• Timely and reliable forecast information	

Group 2 *(composed of Department of Relief and Resettlement, General Administration Department, Local Authority/Community, State Media –radio/MRTV, FAO/OCHA, Department of Health, and Myanmar Red Cross Society)*

Possible Impacts
• Low pressure area and depression might result to loss of lives and damage to properties • Decrease in water level • Decrease in night temperature in Taninthayi and Mon
Possible Mitigation/Response Options
• Issue warning and send to state media, etc. for dissemination • Disseminate the information to impact areas • Information on whether or not electricity will be affected should be informed to the public • Disaster risk management and community-based disaster risk management courses should be introduced to key stakeholders to capacitate them in disaster risk management • Stockpiling of relief items for areas which might be affected • Raise the awareness of the people, in areas which are likely to be affected, of the possible impacts and what they should do
Constraints/gaps/difficulties in translating the dry season outlook into impacts

outlook and response options
• Communication channels are not maximized • Forecast language are not easily understood by end-users especially those in the grassroots level
Dissemination Mechanisms that can be used to maximize delivery of information to stakeholders
• MRTV • Relief and Resettlement Department • Myanmar Red Cross Society • General Administration Department • Community leaders • Ministry of Transport • Agricultural Department • Police communication system • Military communication system • NGO/INGO communication system
Information needs which require to be addressed
• Time- and location-specific forecast

Group 3 *(composed of Department of Irrigation and Hydrology Division of DMH)*

Possible Impacts
• Insufficient inflow for storage in water resources structures • Navigational problems in some areas • Difficulties in pumping water from rivers might be encountered • Higher saline concentration in coastal areas
Possible Mitigation/Response Options
• Control water impounding storage to ensure water availability for farming in affected areas • Install tube well facilities in affected areas • Use of pumping systems in affected areas
Constraints/gaps/difficulties in translating the dry season outlook into impacts outlook and response options
• Insufficient financial support • Collaboration with communities is not maximized • Sharing of climatological data such as maximum temperature, maximum daily rainfall, etc.
Dissemination Mechanisms that can be used to maximize delivery of information to stakeholders
• TV channels
Information needs which require to be addressed
• Timely and reliable forecast information

Recommendations

As mentioned earlier in this report, the recommendations listed hereunder are consolidated from the outputs of the working group discussion and inputs from participants during the deliberation of issues and concerns throughout the Forum. The recommendations are grouped into the following major themes: a) awareness raising; b) communication of forecast/feedback mechanism/data sharing; c) Modernization; d) forecast information requirements/availability of forecasts; and e) facilitating decision-making among stakeholders.

Awareness raising

- Awareness of the warnings and the hazards is very low especially in the grassroots level. Community leaders and key persons should be capacitated in identifying hazards and responding to warning information, for enhanced management of risks.
- The 2011 flash flood experience revealed the lack of knowledge of people about flash floods. It is important that awareness activities about flashfloods are conducted.

Communication of forecast/feedback mechanism/data sharing

- Feedback mechanism in the grassroots level is not existing. DMH, intermediary institutions and communities should work together to establish an institutional mechanism to communicate warning to communities and receive feedback from the same.
- Enhanced institutional collaboration should be forged to facilitate data sharing, and other concerns that will help foster the application of climate information.
- DMH should make cyclone warning easier to understand by implementing a color-coding cyclone warning scheme.

Modernization

- Myanmar has to catch up with improving its forecasting facilities. It is lagging behind other countries in the region.
- Installation of water level stations not only in major river systems but also on streams like Yaw Chaung and Shwe Chaung.

Forecast information requirements/availability of forecasts

- Climate information is critical to the agriculture sector. There is a need for DMH to provide information on the duration of the rainy season, the amount of rainfall per zone/region, and occurrence of extreme climate/weather events to guide decisions of those involved in the agriculture sector.
- Different sectors would benefit from informed decisions based on climate information. Climate information however is not available at all times. Not everyone has access to the information. DMH has therefore to make it a point to make the forecast information available and accessible to varied stakeholders.
- Information should be timely and reliable.

- DMH should express specific parameters of monsoon intensity in order for forecast information to be clear.
- DMH should make available time-series storm-related rainfall.
- Detailed warning, and instruction should be issued from DMH.
- DMH should provide updated information before, during and after the hazard event in affected areas.
- Forecasts are too coarse/general to be applied. The variations in the zones/regions make the application of homogenous information unfeasible. There is a need to provide location-specific forecast products.
- There is a need to improve spatial resolution. Data on distribution of rainfall should also be provided.

Facilitating decision-making among stakeholders

- A deeper process of analyzing climate information for decision-making should be done. More practical mechanisms on bridging information and decisions should be evolved. DMH and its stakeholders should evolve a "formula" or tool for decision-making.
- The role of dams is very important in the agriculture sector. Dam managers should be involved deeply in the analysis of forecasts so that they would be able to provide guidance to stakeholders concerned on the water availability in the dams during each season.
- Capacity building for key user institutions like the agriculture, water resources, irrigation, and disaster risk management, among others, in interpreting, translating and communicating DMH forecasts should be undertaken. This will facilitate better decision-making by stakeholders in the said sectors.
- Key stakeholder departments can be convened to analyze the impacts of the current dry season and discuss the observations/findings during the next forum.
- DMH could spearhead a research to see how information from DMH relates to agro-ecological zones. A profound look into the variabilities in monsoon onset and withdrawal, and user needs in the different climatic zones should be undertaken. This will guide DMH is evolving forecast products that is tailored to specific zones/regions.

DMH milestones in responding to user needs

- In response to one of the recommendations from stakeholders during the Monsoon Forum conducted on February 2011, DMH made available as among its forecast products the rainy days forecast which indicates the number of possible rainy days in 10 days and 1 month periods.

Closing Program

The closing program was graced by His Excellency U Win Shein, Union Deputy Minister for Transport.

In his closing remarks, he indicated that the Monsoon Forums target to develop robust sectoral institutions, communities and individuals in managing climate-

related hazards. He elaborated that during the Forum, the participants were able to appreciate the functions and mandates of each participating agency, and how agencies can work together to achieve a common goal of mitigating the impacts of climate-related hazards.

He conveyed his thanks to FAO for the financial support to the project, RIMES for the technical support and the commitment to continually assist DMH in institutionalizing and sustaining the Forums though the UNESCAP-supported project and other future programs.