Strengthened drought and flood management through improved science-based information availability and management in Myanmar

Deliverable 7 (activity 3.1 and 3.2) Technical training session and closing workshop

UNEP

Report

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Signed by: Oluf Zeilund Jessen

Strengthened drought and flood management through improved science-based information availability and management in Myanmar

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EXECUTIVE SUMMARY

This report is Deliverable 7 of Activities 3.1 and 3.2 of the Climate Technology Centre and Network (CTCN) technical assistance to Myanmar entitled 'Strengthened drought and flood management through improved science-based information availability and management' (reference number 2016000035). It is funded by Green Climate Fund (GCF) Readiness and Preparatory Support Funding. This technical assistance is implemented by DHI in cooperation with the Climate Change Division of the Environmental Conservation Department (ECD), Ministry of Natural Resources and Environmental Conservation (MONREC). The ECD is the National Designated Authority (NDA) of the GCF as well as the National Designated Entity (NDE) of the CTCN.

A web portal developed by DHI provides access to state-of-the-art remote sensing data and information, tools and reporting abilities for flood and drought management, water resources and water related sectors in Myanmar. The portal address is:

www.flooddroughtmonitor.com/myanmar

More information can be found in the "Technology specifications and methodology for validation" report (Deliverable 3 of Activity 1.3) as well as "Technical training session and Validation report" (Deliverable 5 of Activity 2.2). DHI will keep the system running for the period of 5 years and is responsible for its maintenance.

This deliverable is documenting the final technical training session and official closing workshop of this CTCN technical assistance to Myanmar, which took place from 26th to the 29th of August 2019.

This technical assistance will come to an end with the final deliverable of Activity 3, the *Lessons-learned and Roadmap report*, including recommendations for further development of the portal, for linkages with national policy development, and informing the design of a *Draft GCF Concept Note* to upscale this project's outcomes.

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ACRONYMS & ABBREVIATIONS

CHIRPS	Climate Hazards Group Infrared Precipitation with Station
CTCN	Climate Technology Centre & Network
DDM	Department of Disaster Management
DHI	www.dhigroup.com
DMH	Department of Meteorology and Hydrology
DSS	Decision Support System
DZGD	Dry Zone Greening Department
ECD	Environmental Conservation Department
GCF	Green Climate Fund
GHG	Green House Gases
GPM	Global Precipitation Measurement
HAII	Hydro and Agro Informatics Institute of Thailand.
HIC	Hydro Informatics Center of Myanmar
IWUMD	Irrigation and Water Utilization Management Department
MAD	Mean Absolute Deviation
MAE	Mean Absolute Error
MIID	Myanmar Institute for Integrated Development
MIMU	Myanmar Information Management Unit
MOALI	Ministry of Agriculture Livestock and Irrigation
MOC	Ministry of Construction
MOEE	Ministry of Electricity and Energy
MONREC	Ministry of Natural Resources and Environmental Conservation
MOTC	Ministry of Transport and Communication
MSWRR	Ministry of Social Welfare, Relief and Resettlement
NDA	National Designated Authority
NDE	National Designated Entity
NDVI	Normalized Difference Vegetation Index
SAP	Simplified Approval Process
SPI	Standardized Precipitation Index
SPI1	Standardized Precipitation Index over 1 month period
SPI3	Standardized Precipitation Index over 3 months period
SPI6	Standardized Precipitation Index over 6 months period
SWI	Soil Water Index
TRMM	Tropical Rainfall Measuring Mission
WCRP	World Climate Research Programme

1 Background

This report is the Deliverable 7 of Activities 3.1 and 3.2 of the Climate Technology Centre and Network (CTCN) technical assistance to Myanmar entitled '*Strengthened drought and flood management through improved science-based information availability and management*' (reference number 2016000035). It is funded by Green Climate Fund (GCF) Readiness and Preparatory Support Funding.

This technical assistance is implemented by DHI in cooperation with the Climate Change Division of the Environmental Conservation Department (ECD), Ministry of Natural Resources and Environmental Conservation (MONREC). The ECD is the National Designated Authority (NDA) of the GCF as well as the National Designated Entity (NDE) of the CTCN.

A web portal developed by DHI has been set up for Myanmar providing free and easy access to data and information for flood and drought management, water resources and water related sectors (www.flooddroughtmonitor.com). DHI will keep the system running for the period of 5 years and is responsible for its maintenance.

The activities focus on workshops and training, validating selected datasets of the web-portal, generating a strong user community, and providing guidance to the ECD and other stakeholders for the drafting of a GCF Simplified Approval Process (SAP) Concept Note for upscaling of the outcomes of the technical assistance including installation of the portal in Myanmar.

The purpose of this report is threefold:

- To document the official closing ceremony with the presence of the Union Minister of MONREC U Ohn Win and the Director General of the ECD U Hla Maung Thein;
- To document the final 3-day technical training that took place from the 26th to the 28th of August 2019 in Nay Pyi Taw.
- To present the results from the final draft Concept Note workshop with MONREC and MOALI.

2 Official Closing Ceremony

The official closing ceremony of the CTCN technical assistance to Myanmar was held in Nay Pyi Taw and had 39 participants (17 female and 22 male). The official closing speech was delivered by Union Minister of MONREC U Ohn Win presented in Appendix A, followed by DHI's closing speech delivered by DHI Senior Specialist and Team Leader of the AIRBM C1.17 Ayeyarwady DSS & BMP Hans Christian Ammentorp, and with Director General of the ECD U Hla Maung Thein in attendance.

Figure 2.1 Union Minister of MONREC U Ohn Win and DHI Senior Specialist and Director of AIRBM project Hans Christian Ammentorp, during official opening remarks.

Focus was on changes in Myanmar's climate, as shown by observable trends over last six decades: mean temperature and sea level is rising; there is an increase in the occurrence of extreme events as well as the observed late onset and early termination of southwest monsoon amongst others. To respond to these challenges, the government has prepared the Myanmar Climate Change Master Plan (2018-2030). The Minister's opening speech mentioned the impacts of climate change and the importance of having available data, information and tools to manage resources efficiently and come up with adaptation measures.

The importance of technical assistance and raising awareness at the different departments of government emphasized in both interventions. The availability of data and information provided by the portal can be used to inform different modelling and hydrological design activities. The satellite information can be used in planning and management activities within agriculture, hydropower etc. As an example, data of the portal is being used as model input in the Decision Support System (DSS) and Masterplan project for the Ayeyarwady River Basin.

In addition to the ECD and other MONREC Departments, the following departments were represented by national experts who have been involved in this technical assistance since the beginning:

- the Department of Agriculture (DOA) and the Irrigation and Water Utilization Management Department, Ministry of Agriculture Livestock and Irrigation (MOALI);
- the Department of Agricultural Research (DAR), MOALI;
- the Department of Meteorology and Hydrology (DMH), and the Department of Water Resources and Improvement of River Systems (DWIR), Ministry of Transport and Communication (MOTC);
- the Disaster Management Department (DDM), Ministry of Social Welfare Relief and Resettlement (MOSWRR);

- the Hydro-Informatics Center.

The national media was also present namely MRTV and SkyNet broadcasters, covering the first day of the technical training. More information on attendance and participant feedback and evaluation can be found in chapter 3.5 and Appendix C and D.

Figure 2.2 Union Minister of MONREC sitting in the foreground of the top photograph of the official closing workshop, Director General of the ECD U Hla Maung Thein next to DHI Specialist Hans Christian Ammentorp; On the bottom picture the remaining Director Generals of the Ministry.

3 Final technical training

The final technical training of this assistance was initiated after the official closing ceremony on the 26th of August until the 28th of August 2019. In attendance remained the technical national experts from most departments. Agendas and attendance registers are given in Appendix C and D respectively.

In this chapter, we report on the topics covered during the technical training, namely, presentation of validation conclusions, the Reporting and Drought Assessment applications. The portal address is: www.flooddroughtmonitor.com/myanmar, a screenshot of the homepage is shown in Figure 3.1.

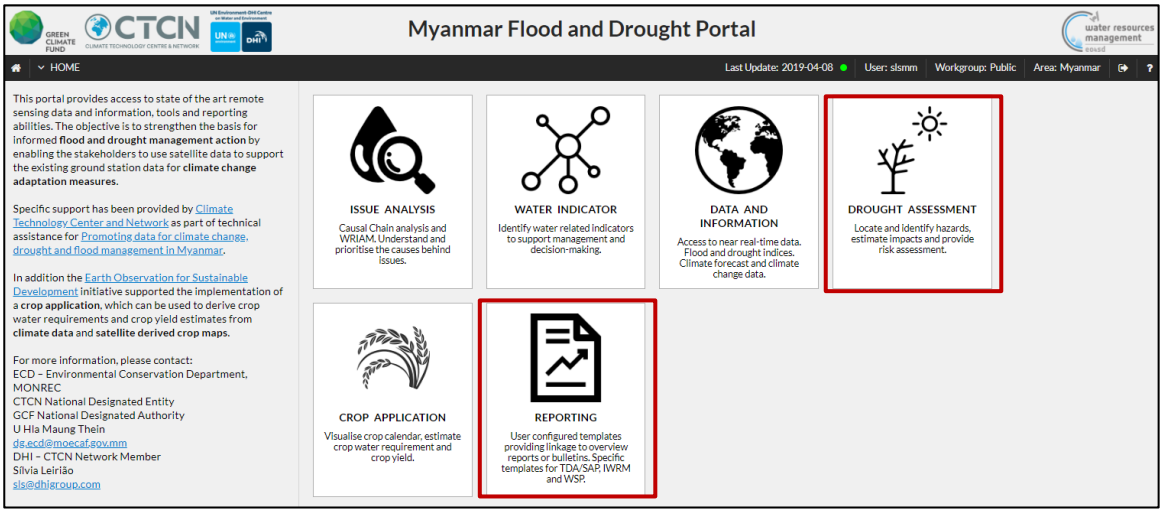

Figure 3.1 Home page of the portal, the Reporting and Drought Assessment applications highlighted in red.

The specific objectives of the final training session were:

- to inform on the status of the ongoing CTCN technical assistance and the draft Concept Note proposal being prepared for submission to the GCF;
- to continue to train technical specialists in use of the portal, from national institutions in Myanmar, within the flood and drought, water resources and disaster management framework;
- to receive feedback from participants on their use of the portal and application of the data carried out in their own tasks.

This was the last event of the technical assistance that ended on the 31st of August 2019.

3.1 Validation conclusions

The results of the validation section of the technical assistance were revisited and additional final conclusions presented to participants. For more information please see Deliverable 5 (activity 2.2) Technical training session and Validation report. A brief summary is listed below:

1. The study areas were selected based on two categories; flood and drought. According to the information from stakeholders and historical records, the lower part of Myanmar especially in Bago, Kayin and Mon state represent flooded areas while the central dry zone of Myanmar represent a drought-affected area.

2. In statistical validation of satellite data, percentage difference and R-square values represent 'all dataset are in good correlation' while MAE and MAD represent the deviation of each dataset. Although compared dataset provide a high correlation, each dataset still has high uncertainty.

3. By comparing with observed rainfall data in five stations it was found that the satellite rainfall data has a similar pattern on a monthly basis. High rainfall events were not well described however. CHIRPS has the smallest resolution, long period dataset, but high uncertainty whereas TRMM has largest resolution and high uncertainty. GPM is an improved product from TRMM. It has smaller resolution, but very high uncertainty.

4. It was found that SPI and SWI have a good correlation in the rainy season at Mandalay and Myingyan. Also for NDVI, SPI values are positively correlated during the rainy season and can indicate where rainfed agriculture may be facing problems. NDVI also correlates well with the high vegetation activity in July and August (Rainy Season) and low activity in March and April (summer) in Myanmar.

5. The occurrence of drought can be detected using the SPI index, which is negative for unusually low rainfall. This can also be validated against information on damaged planted areas, which is collected by the DOA.

6. SPI provides an indication of meteorological drought. In order to establish a direct correspondence between the SPI and the NDVI deficit and verify the influence of the drought conditions on vegetation, more data is needed. Our approach was to inspect the portal's Crop Calendar and select those time periods for NDVI deficit and SWI percentile datasets and calculate the correlation with SPI. The results indicate that correlation is more pronounced, when it is informed by selected time windows.

7. An objective of the portal is to provide a better understanding of the climate at regional and national scale. Using remote sensing data can be relevant – even when deviating from data at specific locations/stations – particularly in areas with low coverage of stations. In addition, rainfall estimates from remote sensing at a large catchment scale might be more accurate than from single stations. Finally, continuous bias in rainfall data will not influence the results of indices such as SPI, as relative variations are assessed.

3.2 Reporting application

The two days of the technical training were mostly spent on the Reporting application of the portal, where stakeholders learned the basic functionality and how reports were developed. The specific objectives of this application are to:

- Configure reports for dissemination of results, warnings or information
- Have a flexible system allowing the user to configure and tailor reports
- Provide facility for automation of a reporting task based on schedule or trigger event

The outputs are user-configured reports and automated submitted warnings. This application was built to respond to the need for tools to disseminate data reports that are automatically maintained up-to-date. Additionally, the user can set a frequency in days for emailing the report automatically.

In the individual and group exercises, stakeholders learned how to view an existing report, clone an existing report, change some items and generate a report.

The reporting application is based on reporting templates (Word documents) containing a number of tags, where the user is able to specify which type of content the reporting application

should replace the tags with. Currently the tags can be replaced with images, text, charts or tables.

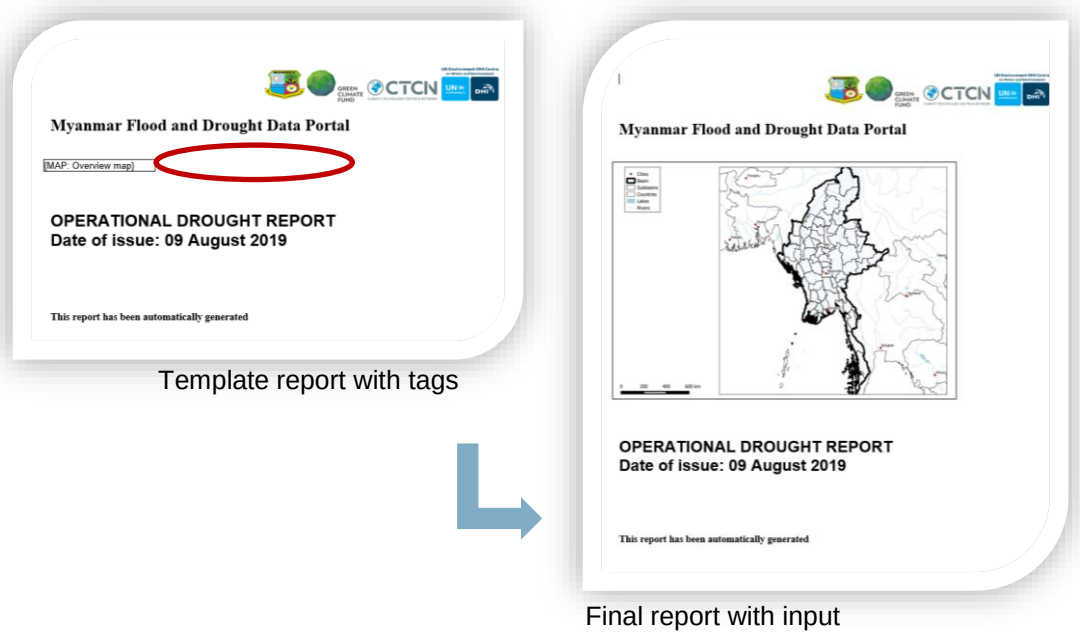

Figure 3.2 Reporting template and final report

In the reporting application, after uploading the template the same tags as set up in the template report are listed in the table view of the app. The text between the brackets in the template report is shown in the “Tag” column. Figure 3.3 shows a screenshot of a template being edited inside the Reporting application as well as a description of the functionality.

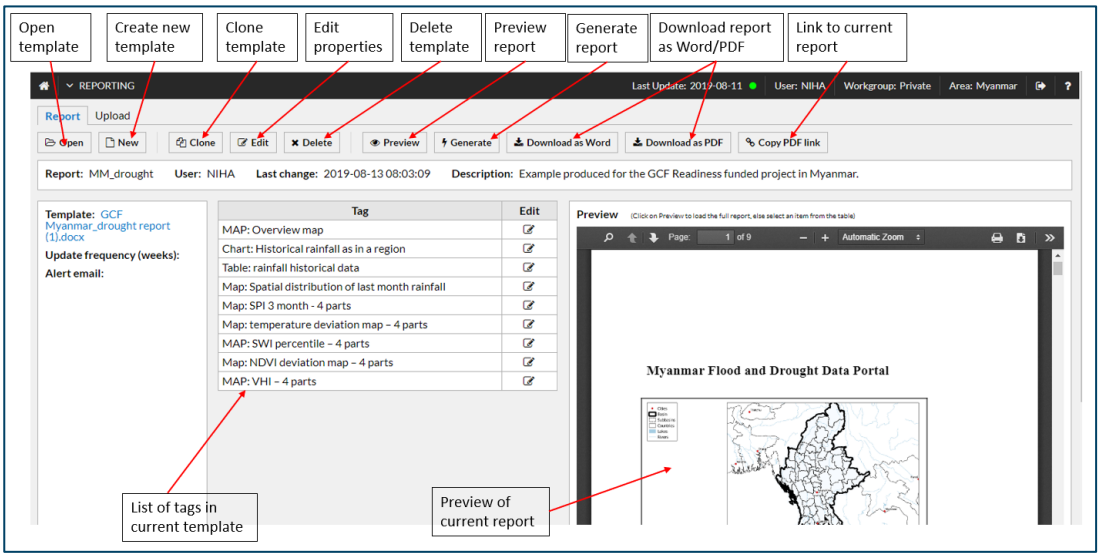

Figure 3.3 Basic functionality within the Reporting application. Note that some functionalities are only available when the user is the owner of the report.

To Download the full report as PDF or Word document, the user needs to first Generate the report:

- Preview is used by the owner of the report to see the report while it is been configured. Only the owner of the report is able to preview a report

- Generate is used by the owner to publish the report so all users accessing the same workgroup can view or download the report.

When working in the private workgroup, these functions do not make any difference since only one user (the owner) has access to the workgroup. Once the report has been generated, the report made available for download from the public link is also updated.

An exercise followed on how to access favourite data from the Data and Information application and include it in a report.

The last exercise on the reporting application showed the participants how to create a new report from scratch, and how to publish the report.

Participants were divided in groups of three, and each group received an area of interest and a climate change burning issue and asked to build a report on it using the Reporting application. They were to think of a title, body of text and data needed for their analysis.

In each report, groups added placeholders for items that should be replaced by the Reporting app, writing these using {} as mentioned previously, as well as descriptive text for the tags so they will be easier to identify within the Reporting app (see below example).

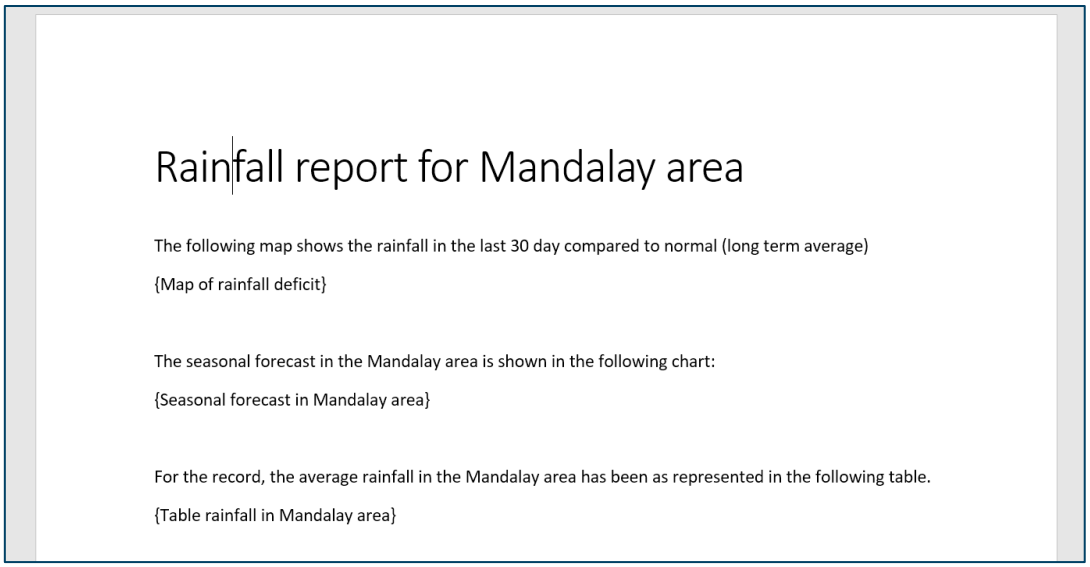

Figure 3.4 Example of a report containing 3 possible tag items: table, map and chart.

After building their reports and before sharing them, users need to Generate it. This will make it accessible to other users via a link for example. They could copy the public link and send it to the instructor via email. All reports produced by stakeholders are included in Appendix B.

Figure 3.5 Groupwork presentations after the Reporting Tool hands-on exercises.

3.3 Drought Assessment application

In this exercise, participants learned how the drought assessment and early warning application could help identify hazards, estimate impacts and provide risk assessment.

The identification of the timing and location of a drought event is the first step in a drought assessment or drought management process. The impact assessment aims at quantifying how the identified hazards affects specific areas or sectors exposed to this hazard.

The vulnerability analysis provides a mean for analysing the causes behind the drought impact and the priority of these causes. This is an important step for increasing the effectiveness of drought risk management as it provides the means for drought interventions or mitigation measures to be targeted specifically against the underlying causes for the drought impact.

The risk will be expressed based on the vulnerability towards the impact from a specific hazard, or as the likelihood of harm, loss, or disaster for a specific drought related hazard.

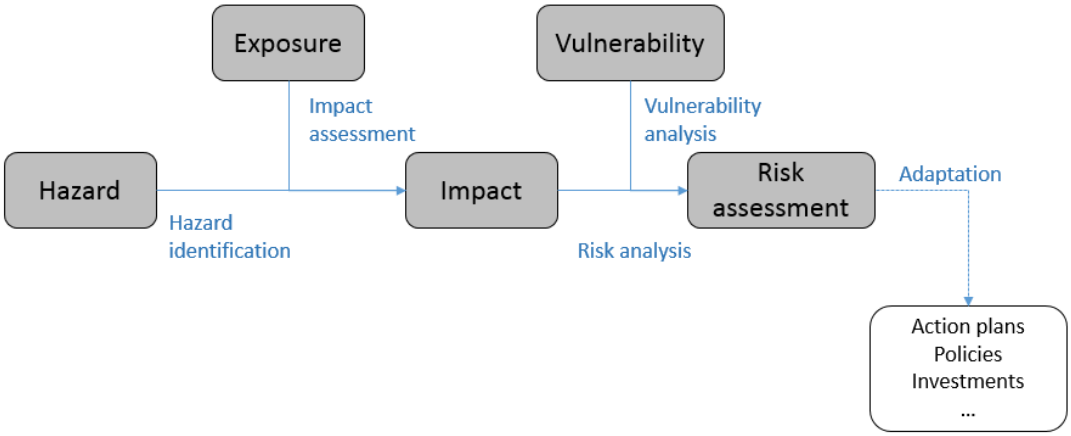

Figure 3.6 Diagram of risk assessment workflow presented to participants.

The Drought Assessment application is made to provide early warning in the “Warning” tab and perform risk analysis in the “Risk” tab. “Warning” and “Hazard” layers play different roles: in the former, to try to anticipate lack of rain/potential for drought; whereas in the latter it has meaning if it occurs over a vulnerable area, because then an assessment on the level of risk for that area can be made.

Drought warnings rely on the categorized drought indices and a locally determined warning threshold expressed as a lower or upper threshold for the index value and a duration.

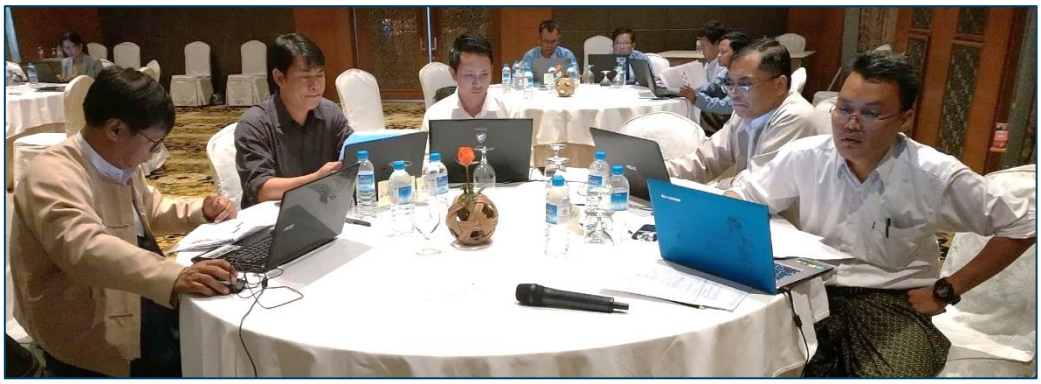

Figure 3.7 Participants working during the drought assessment application exercise.

The threshold values are used to identify if there is a potential hazard based on warning or drought indicators exceeding a specific threshold. This could be accumulated rainfall amount within a month being below a specific value, number of consecutive dry days in a month being above a specific threshold, or number of days where a drought index e.g. SPI is below a specific threshold. In order to use the warning layers for actual drought early warning it is required that

the threshold values are adjusted or “calibrated” towards the local conditions. This will often be done using the following steps:

- Selection of the warning layer to use, e.g. accumulated rainfall in the last 30 days
- Evaluation if the selected warning layer provides a “significant” description of the selected drought event. In other words, consideration is given to whether it is possible to detect the drought event based on this data type.
- If this is the case, then follows the determination of a threshold value which was relevant for the selected event and evaluate if the same threshold should be applied for future events or if there are factors which could influence the threshold.

In the Risk assessment exercise, participants used a combination of Hazard layers and Vulnerability layers. The Hazard layers are like the layers available in the Warning tab. The Vulnerability layers are mainly socio-economic or agriculture related layers. They identified in their areas of interest locations at different severity levels of risk of drought.

3.4 Draft Concept Note proposal

The last session of the technical training was dedicated to the draft Concept Note proposal being prepared currently under ECD’s coordination. The status of the proposal was presented to all stakeholders. A brainstorming exercise was carried out where participants were placed into multi-institution groups, assigned a focus area and asked two questions regarding issues and interventions of the future project in the climate vulnerable areas of Myanmar.

Figure 3.8 Discussion and presentation of groupwork results on the draft Concept Note regarding future project components.

A similar exercise was carried out during the very first workshop of this technical assistance, for more information see “Deliverable 2 (activity 1.2) Workshop report and cases for validation”, where participants used the Issue Analysis application in the portal to carry out a rapid water resources assessment of environmental issues. At this final workshop, building on all the portal experience they have accumulated, they were asked to do a similar analysis, having in mind their feedback would support Executing Entities in compiling a proposal for a future project.

However, focus was placed on Pakkoku, Labutta and Hakha townships specifically as examples of delta/flood-prone area, dry zone and mountainous region communities that are very vulnerable to the impacts of climate change. The results of Climate Change Vulnerability Assessment reports were presented to all stakeholders before carrying out discussions. Next, they were asked to respond to the following questions:

1. How are the livelihoods of vulnerable communities directly impacted by climate hazards and climate change?

2. What actions that can be implemented on the ground, solve the issues, and how could the future system (portal remote sensing data/tools) support this?

Figure 3.9 Last Concept Note exercise, participants discuss ground interventions in the three climate vulnerable States/Regions: mountainous, delta/flood-prone and dry zone.

The following table gathers the responses from each group where impacts are aggregated in four categories: impacts on water resources and supply, impacts on health, income and economy and the environment.

Table 3.1 Record of the Dry Zone group presentation regarding question 1

Dry zone area - Pakkoku Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
Lowering groundwater table (storage), very serious in many rural	Heat stroke can impact human health	Delaying the cropping harvest time and crop loss: it can affect income of farmers;	Forest cover impacted due to extreme drought and flood; it can

Dry zone area - Pakkoku Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
areas, communities use GW as a supply source	Destruction of their seasonal crops by flood and drought Degeneration of livestock health and crop losses impact on nutrition of local people	and landless labourers due to lack of job to work in agriculture; high temperature leads to land degradation through increased salinity	cause forest to die, conversion to grassland, steppe Invasive species of insects
Water stress on all sectors Altering of monsoon intensity and magnitude More irrigation water supply for agriculture production	Execution of climate-smart agriculture Supported by portal data but needing ground observations	Soil erosion, flash floods and landslides can lead to infrastructure damage	Loss of biodiversity can lead to impacts on eco-tourism
Shortage of drinking water; surface water supply cannot cover all parts of rural regions and those who are in such kind of region suffer water shortage also due to lack of treatment facilities	Improvement of surface water/groundwater supply using Rainwater Harvesting ponds To support this rainfall, evapotranspiration, and socio-economic data from the portal can be used	Rural people could not implement or develop successful livestock and agriculture activities due to less income Consequence is land abandonment and increased migration	Forest fires, desertification leading to loss of plant species
People in these areas have to pay charges for buying water according to their daily water intake.	Health impacts like hypertension due to high temperature especially elder people		

Table 3.2 Record of the Mountainous Area group presentation regarding question 1

Mountainous area - Hakha Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
Very difficult access to drinking water in these areas; shortage of water	Food security affected because of transportation breakage	Broken transportation routes due to landslides and power lines	Soil erosion and flash floods Landslides caused by torrential rainfall

Mountainous area - Hakha Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
	Loss of lives due to flash flood and to lack of adaptive capacity and awareness	Loss of property due to flash flood and to lack of adaptive capacity and awareness	Wild animals are becoming endangered due to impacts of flooding
	Malnutrition of local people	Declining crop yield and farmers' income due to erratic climate pattern	
		Failure in communications impacts local businesses	
		Higher commodity prices due to poor commodity flow and lack of access to basic services	

Table 3.3 Record of the Delta/Flood-prone Area group presentation regarding question 1

Delta/Flood-prone area - Labutta Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
Lack of access to drinking water; fresh water shortage, due to salt water intrusion	Damage to seasonal crops; Decrease of agricultural land area	Storms, wind and heavy rain affect commodity flow Seawater intrusion leads to land degradation and agricultural yield reduction	Damages to ecosystem and coral reefs
Rice planting will be delayed when there is little rain;	Water and food insecurity	Infrastructure destruction	Increased rates of coastal erosion due to sea level rise
Water supply structure in need of rehabilitation, not enough treatment facilities since colonial time	Saline groundwater can cause health impacts to local people unless they are aware of it, it may lead to income reduction due to health expenses on recovery	Because of sea level rise in delta areas, there is loss of agricultural land	

Delta/Flood-prone area - Labutta Township			
Water Resources and supply	**Public Health**	**Income and Economy**	**Environment**
	Impact of floods in education, as children cannot go to school	When storm surges occur, fishermen cannot go to sea, impacting their daily income	

The next table gathers each group's response to question 2, organized in two sections: climate change impacts and potential solutions including support by the portal.

Table 3.4 Group answers to question 2

Delta/Flood-prone area **Labutta Township**	**Dry zone area** **Pakkoku Township**	**Mountainous area** **Hakha Township**
Salinity intrusion <u>Interventions:</u> Monitoring system on salinity intrusion; development of saline front map (rack salinity intrusion, how much the front advances from year to year) Flood risk mapping; estimate flooding and scope of flood damage; prepare for early warning; prepare to provide seeds and food; Breed resistant varieties, change sowing time Crop suitability map; soil quality map	Increased drought frequency and severity <u>Interventions:</u> Early Warning System, dissemination through TV/Media/FM; mobile sms; mobile app (Myanmar language) Input data from the portal could be used, inspiration in Drought Assessment application	Implementation on the ground; infrastructure improvement <u>Interventions:</u> Capacity building and awareness raising Technical assistance on ground implementations
Need for clarity on drought problems, estimate the workload and plan to solve the drought problem <u>Intervention:</u> Using the portal or decision support system	Execution of climate-smart agriculture <u>Interventions:</u> A mobile app for farmers; Supported by the crop calendar and regional weather forecast in the background programming of this app; it can help them solve their daily crop water requirement problems	No climate change resilience and crop type information; need for Finding natural water resources <u>Interventions:</u> Supported by the portal input data and models; Suitability of agricultural land; Suitable route for transportation access

Delta/Flood-prone area Labutta Township	Dry zone area Pakkoku Township	Mountainous area Hakha Township
	Supported by portal data but needing ground observations	
Impact on education, close schools due to flooding and storms <u>Interventions:</u> Support from portal: indicators for decision makes, Issue Analysis as education tool	Improvement of surface water/groundwater supply using Rainwater Harvesting ponds <u>Interventions:</u> To support this rainfall, evapotranspiration, and socio-economic data from the portal can be used	Soil stability is an issue, so they need to know what to plant <u>Interventions:</u> Soil conservation zoning; crop suitability maps
Environmental land degradation; water scarcity due to degraded quality; deforestation <u>Interventions:</u> Capacity building targeting lack of awareness, change of mindset of inhabitants/government and stronger regulation; Support by portal education tools and on site training		Drinking water infrastructure, road infrastructure how to build and where <u>Interventions:</u> Enhancing technical assistance provision using the Masterplan

3.5 Feedback from participants

The training was held in Nay Pyi Taw and had 20 participants. All filled out the evaluation form. The overall impression of the workshop was very good, with 95% of participants finding it good or excellent, and only 5% (one person) finding it average. The topic that most participants found most interesting is the reporting app, where 10 respondents mention this as one of the most interesting topics for them. Second comes the response “all topics were interesting”, which is stated by five participants. Both the drought assessment and data and information are mentioned by three participants each.

12 people would recommend the course to others while 5 would not. The remaining three did not answer. However, some of the participants who would not recommend the workshop still rate it as excellent and one of the persons describes it as “the perfect workshop” in the comments. Therefore, it is clear that not recommending the workshop does not (in all cases) correspond to a negative impression of the workshop. It is possible that the respondents simply do not think the workshop would be relevant for anyone else. The same issue has possibly been identified before, so it could be relevant to have another question related to why the respondents choose what they do, in order to better understand the responses.

For the course content, as seen below, respondents choose Strongly agree or Agree for all topics, except for the last – “The Myanmar Flood & Drought Portal will be helpful in my day to day activities”. For this topic, 7 people, corresponding to 35%, choose Neither/nor or Disagree.

Table 3.5 Summary of findings from participants’ training evaluation.

Course content	Strongly agree	Agree	Neither/nor	Disagree
Technical content of the course was satisfactory	5	15		
Hands-on exercises were relevant and instructive	8	12		
Workshop material was clear and comprehensive	7	13		
The content will facilitate involving more members of my team in using the	4	16		
The Myanmar F&D Portal will be helpful in my day to day activities	2	11	4	3

For questions regarding workshop execution and workshop practicalities, the distribution is quite similar for most questions, with 15-35% choosing Strongly agree and 65-75% choosing Agree. A few (1-2) choose neither/nor for most questions.

In Workshop execution, the point that performed best was “Instructor(s) had a good knowledge and understanding of the subject”. Participants were least happy with the duration of the course.

For the workshop practicalities, participants were most happy with the venue and least happy with how long advance they received practical information.

Regarding the comments, participants generally seem very satisfied, using phrases like “perfect workshop” and “one of the best workshops I have attended” and asking for more, similar workshops. Some comments are more critical; one mentions a bug in the portal that needs to be fixed and one other calls for a good translator.

Some comments ask for more knowledge and training, regarding the portal itself, the flood and drought project, and what data should be used as inputs to the portal.

One comment particularly asks for more participants from different private and public sectors. These should then express their suggestions, impressions and future perspectives regarding the portal to other participants.

4 Concept Note Workshop

On the 29th of August 2019, the last draft Concept Note Workshop was held in Nay Pyi Taw, the agenda and attendance register are in Appendix C and D respectively. Participants were stakeholders from the ECD, DOA and DAR.

The session started out with revisiting the submission process and following steps, including the submission and approval of the funding proposal until the project implementation (see Figure 4.1).

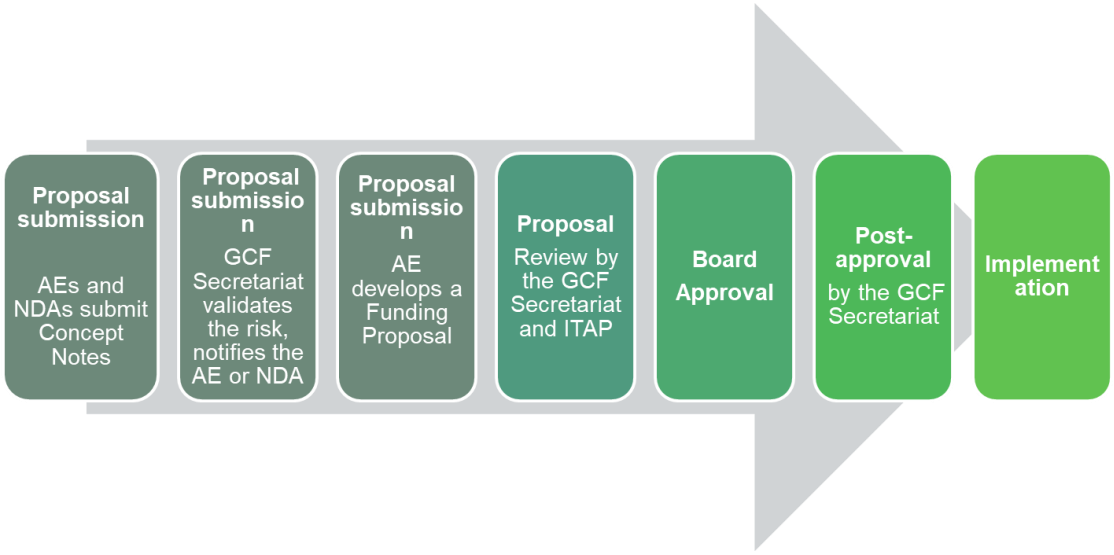

Figure 4.1 Steps in the submission and subsequent approval of a project proposal by the GCF.

Participants received printed copies of the current draft of the Concept Note and project logframe. They started by reviewing it considering comments from GCF water experts as well as DHI's water resources specialists:

- Component 2 activities: larger emphasis on activities with direct impact on most vulnerable communities, direct impact on livelihood improvement.
- Inclusion of more tangible Integrated Water Resources Management output.
- The GCF looks for strategic solution ideas instead of standalone investments, as well as proposals for projects implementing best options verified in feasibility studies.
- Proposals of projects using a wider range of financial instruments and with verified ability to pay Operation & Maintenance costs are very well positioned.
- An evaluator may get the impression that the project would be good for ECD and other Executing Entities, but think: how much it would actually benefit the people of Myanmar?
- More focus on the problems that are possible to address, and how this will be done:
    - The location and severity of increased stress on rainfed agriculture, caused by CC, will be predicted changes in the impact of floods and droughts on people and property will be predicted (where, severity)
    - Describing how the project/ECD/other partners will ensure early action to mitigate such foreseen problems.

- The evaluator may also ask to which extent the current portal and the currently trained users can provide these benefits.
- Set up a realistic budget, including all participating Myanmar organisations.

Next, we looked at an approved Concept Note available at the GCF website: “Empowering food insecure and vulnerable communities through climate services and diversification of climate sensitive livelihoods in the Kyrgyz Republic” from 15th June 2016. Here we studied how the GCF investment criteria had been tackled and looked at its budget as an example.

Both the MOALI and the MONREC teams provided comments on each component and the logframe of the project. The final draft to be presented in the last deliverable of this technical assistance, will incorporate the product of these discussions. Main contributions regarding needed project interventions in the climate vulnerable townships are listed below in general:

- Data collection on the ground for all three areas;
- ECD training center, land access and training activities definition.

As specific climate change adaptation interventions for the delta/flood-prone area of Labutta Township, participants listed:

- Reclamation of saline soils;
- Organic fertilizer application;
- Restoration of mangroves;
- Testing salt tolerant rice varieties.

For the dry zone Pakkoku Township, the following interventions were considered:

- Early Warning System with data collected on the ground
- Application of water efficient technology
- Testing drought resistant varieties
- Application of rain water harvesting
- Application of soil and water conservation methods
- Crop diversification/agroforestry.

Regarding the mountainous Hakha Township:

- Procurement of satellite imagery with fine resolution;
- Application of sloping agriculture land technologies and agroforestry;
- Using water efficient technologies and organic fertilizers, survey of water tank dimensions and locations, compare performance of water tanks;
- Develop methodology for processing of images to produce potential landslide maps and transport route maps;
- Soil type surveying.

Finally, the budgeting GCF spreadsheet downloaded from their website was also provided to participants and each team took it as an example of how to put together the project budget. At the end of the day, they agreed: that the IWUD would be asked to join as Executing Entity; that

each team would be available for remote iterations of the draft proposal document; and that they would work on budgeting the relevant project activities within the logframe.

5 Project closure reporting

The last written deliverables of Activity 3 will be the *Roadmap and lessons learned report*, describing recommendations for further development of the portal and for linkages with national policy development and potential for engagement of the private sector.

Continued and close coordination with the Climate Change Division of the ECD will ensure the Draft Concept Note is finalized with the support from this technical assistance. After that the ECD and the NDA will be responsible for its submission.

APPENDIX A

Opening Speech of Union Minister of MONREC

အဆင့်မြင့်သိပ္ပံနည်းကျသတင်းအချက်အလက်များနှင့်စီမံခန့်ခွဲမှုမှတစ်ဆင့် မြန်မာနိုင်ငံတွင် မိုးခေါင်ရေရှားခြင်းနှင့် ရေကြီး၊ ရေလျှံခြင်းတို့အား စီမံခန့်ခွဲမှုစနစ် အားကောင်း လာစေရေး (Strengtnened drought and flood management through improved science-based information availability and management in Myanmar) စီမံကိန်း၏ Final Technical Training နှင့် စီမံကိန်းအပြီးသတ်အခမ်းအနားတွင် သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန၊ ပြည်ထောင်စုဝန်ကြီး ပြောကြားမည့် အဖွင့်မိန့်ခွန်း

(၂၆-၈-၂၀၁၉)(တနလာ်နေ့)၊ Kempinski Hotel၊ နေပြည်တော်

အားလုံးမင်္ဂလာပါ

၁။ ဒီကနေ့ကျင်းပတဲ့အစည်းအဝေးကိုတက်ရောက်လာကြတဲ့ အမြဲတမ်းအတွင်းဝန်၊ ညွှန်ကြားရေးမှူးချုပ်များ၊ ညွှန်ကြားရေးမှူးများ၊ Denish Hydraulic Institute (DHI)မှ Senior Officer များ ဖြစ်ကြတဲ့ Mr. Hans Christian Ammentorp နဲ့ ကိုယ်စားလှယ်များ၊ Hydro and Agro Informatics Institute of Thailand မှ Ms. Piyamarn Sisomphon နဲ့ ကိုယ်စားလှယ်များ ဌာနအသီးသီးမှ ကိုယ်စားလှယ်များ အားလုံး ကိုယ်စိတ်နှစ်ဖြာ ကျန်းမာချမ်းသာကြပါစေကြောင်း ဆုတောင်းမေတ္တာ ပို့သရင်း နှုတ်ခွန်းဆက်သအပ်ပါတယ်။

ည့ွှသည်တော်များ ခင်ဗျား-

၂။ ဒီကနေ့ကမ္ဘာကြီးမှာ သဘာဝပတ်ဝန်းကျင် ယိုယွင်းပျက်စီးလာတာနဲ့အတူ တစ်ဖက်မှာလည်း ရာသီဥတုပြောင်းလဲမှုရဲ့ နောက်ဆက်တွဲ ဆိုးကျိုးတွေဖြစ်တဲ့ မိုးခေါင်မှု၊ ရေကြီးမှု၊ မြေပြိုမှု၊ မြေဆီလွှာပြုန်းတီးမှု၊ သဲကန္တာရဖြစ်ထွန်းလာမှု၊ တောမီးလောင်မှု၊ မုန်တိုင်းမကြာခဏ ကျရောက်မှု၊ ပင်လယ်ရေမျက်နှာပြင်

မြင့်တက်လာမှု စတဲ့ ရာသီဥတုပြောင်းလဲမှုဆိုင်ရာ ပြဿနာတွေကို တစ်နေ့ထက် တစ်နေ့ ပိုမိုရင်ဆိုင်လာကြရပါတယ်။ မြန်မာနိုင်ငံအနေနဲ့ကလည်းပဲ ရာသီဥတု ပြောင်းလဲမှုဆိုင်ရာ ဆိုးကျိုးတွေကို ယခင်ကနဲ့ နှိုင်းယှဉ်မယ်ဆိုရင် ပိုမိုပြင်းထန် လာပြီးတော့ အကြိမ်အရေအတွက် ပိုမိုကြုံတွေ့ခံစား နေရတယ်ဆိုတာကို အားလုံး သိရှိပြီးဖြစ်သလို လတ်တလော ရေကြီးမှုဖြစ်စဉ်များကို ရင်ဆိုင်ခံစား နေရတာဟာ မျက်မြင်ကိုယ်တွေ့ပဲဖြစ်ပါတယ်။

၃။ မြန်မာနိုင်ငံအနေနဲ့ အဲဒီလို နေ့စဉ်၊ နှစ်စဉ် ကြုံတွေ့ခံစားနေကြရတဲ့ ရာသီဥတုပြောင်းလဲမှုဆိုင်ရာ ဘေးအန္တရာယ်တွေကိုလျှော့ချနိုင်ဖို့နဲ့ ရာသီဥတု ပြောင်းလဲမှုနဲ့ လိုက်လျောညီထွေနေထိုင်နိုင်စေဖို့ အပြည်ပြည်ဆိုင်ရာနဲ့ ဒေသတွင်း အိမ်နီးချင်းနိုင်ငံတွေနဲ့ ပူးပေါင်းဆောင်ရွက်လျက်ရှိသလို ရေရှည်တွင် ကဏ္ဍအသီးသီးမှာ ရာသီဥတုပြောင်းလဲမှုလျှော့ချရေးနှင့် လိုက်လျောညီထွေ ရှိစေဖို့ကို ရင်ဆိုင်ဖြေရှင်းနိုင်ဖို့ အတွက် အဓိက အရေးကြီးလုပ်ငန်းစဉ်တွေဖြစ်တဲ့ **"မြန်မာနိုင်ငံရာသီဥတုပြောင်းလဲမှုဆိုင်ရာမူဝါဒ၊ မြန်မာနိုင်ငံရာသီဥတုပြောင်းလဲမှု ဆိုင်ရာ မဟာဗျူဟာနဲ့ ပဉ်မလုပ်ငန်းအစီအစဉ် (၂၀၁၈-၂၀၃၀)**" ကို နိုင်ငံတော် အစိုးရက ချမှတ်ထုတ်ပြန်ခဲ့ပြီး ၂၀၁၉ ခုနှစ် ဇွန်လ ၅ ရက်နေ့မှာ ကျင်းပခဲ့တဲ့ နိုင်ငံတော်သမ္မတနဲ့ အကြီးအကဲများ တက်ရောက်တဲ့ ကမ္ဘာ့ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးနေ့ အခမ်းအနားမှာ မိတ်ဆက်ကြေညာပြီးဖြစ်ပါတယ်။

၄။ ဒါ့အပြင် နိုင်ငံရဲ့ပထဝီမြေမျက်နှာသွင်ပြင် အနေအထားအရ အရှေ့ပိုင်းဒေသနှင့် ရှည်လျားတဲ့ ကမ်းရိုးတန်းဒေသနဲ့ မြစ်ချောင်းများကို ပိုင်ဆိုင်ထားတဲ့အတွက် မိုးခေါင်ခြင်းနှင့် ရေကြီးခြင်းတို့နဲ့ဆက်နွယ်တဲ့

ရာသီဥတုပြောင်းလဲမှုဆိုင်ရာ ဖြစ်စဉ်တွေကို ကြိုတင်သိရှိနိုင်မယ့် နည်းပညာတွေကို ပိုမိုအသုံးပြုနိုင်ဖို့ လိုအပ်လာပါတယ်။ ဒါ့အတွက် ရာသီဥတုပြောင်းလဲမှုနဲ့ လိုက်လျောညီထွေရှိရေးနဲ့ ဆက်နွယ်တဲ့ မိုးခေါင်ရေရှားခြင်းနဲ့ ရေကြီးရေလျှံခြင်း ကိစ္စတွေမှာ အဆင့်မြင့် သိပ္ပံနည်းကျ သတင်းအချက်အလက်တွေနဲ့ စီမံခန့်ခွဲမှုစနစ်တွေကို အသုံးချနိုင်မှု အားကောင်းလာစေဖို့ ဒိန်းမတ်နိုင်ငံအခြေစိုက် DHI နဲ့ ပူးပေါင်းပြီး CTCN ရဲ့နည်းပညာပံ့ပိုးမှု၊ ကမ္ဘာလုံးဆိုင်ရာ အစိမ်းရောင်ရန်ပုံငွေအဖွဲ့ (GCF) ရဲ့ ငွေကြေး အထောက်အပံ့နဲ့ ဒီစီမံကိန်း ဆောင်ရွက်ခဲ့ခြင်း ဖြစ်ပါတယ်။

၅။ စီမံကိန်းရဲ့ အဓိကရည်ရွယ်ချက်တွေကတော့ ရာသီဥတုပြောင်းလဲမှုနှင့် လိုက်လျောညီထွေရှိမှု ကဏ္ဍများတွင် တိုးမြှင့်ဆောင်ရွက်နိုင်ရန်၊ ရာသီဥတု ပြောင်းလဲမှုကြောင့် ဖြစ်ပေါ်လာတဲ့ ရေကြီးရေလျှံမှုနှင့် ဆက်နွယ်သည့် သတင်း အချက်အလက်များနှင့် ပတ်သက်၍ စိုက်ပျိုးရေး၊ စက်မှု၊ ပညာရေးနှင့် သုတေသန ကဏ္ဍတို့တွင် ထိရောက်စွာဆောင်ရွက်နိုင်ရန်၊ မြန်မာနိုင်ငံတွင် အကောင်အထည် ဖော်ဆောင်ရွက်လျက် ရှိသော National Adaptation Program of Action (NAPA)နှင့် မကြာမီက ထုတ်ပြန်ပြီးဖြစ်တဲ့ မြန်မာနိုင်ငံရာသီဥတုပြောင်းလဲမှု ဆိုင်ရာ ပင်မလုပ်ငန်းအစီအစဉ်ကို အကောင်အထည်ဖော်ရာတွင် အထောက်အကူ ဖြစ်စေရန်ဖြစ်ပါတယ်။ စီမံကိန်းသက်တမ်းမှာ ၂၀၁၈ ခုနှစ် ဇူလိုင်လ ၁၃ ရက်နေ့ တွင် စတင်ခဲ့ပြီး ယခု ၂၀၁၉ ခုနှစ် ဩဂုတ်လ ၃၁ ရက်နေ့တွင် သက်တမ်း ကုန်ဆုံးမှာဖြစ်ပါတယ်။ ဒါ့ကြောင့် ဒီကနေ့မှာ Portal အသုံးပြုခြင်း နည်းပညာများကို အပြီးသတ် လေ့ကျင့်သင်ကြားပေးမည့် Final Technical Training နှင့် စီမံကိန်းအခမ်းအနားကို ကျင်းပခြင်းဖြစ်ပါတယ်။ စီမံကိန်းကာလ အတွင်း

Myanmar Flood and Drought Portal တည်ထောင်ထားရှိခဲ့ခြင်း၊ Portal မှ သတင်းအချက်အလက်များ အသုံးပြုလျက်ရှိသည့် ဌာနဆိုင်ရာများနဲ့ အဖွဲ့အစည်းများသို့ Portal အသုံးပြုခြင်း နည်းပညာများကို လေ့ကျင့် သင်ကြားပေးခြင်း (၂) ကြိမ်ပြုလုပ်ခဲ့ပြီး၊ Portal မှ ရရှိသော သတင်းအချက်အလက် များကို မြေပြင်ရှိသတင်းအချက်အလက်များနဲ့ တိုက်ဆိုင်စိစစ်၍ အတည်ပြုခြင်း (Data Validation)တို့ကို ဆောင်ရွက်နိုင်ခဲ့ပါတယ်။

၆။ ဒီနေရာမှာ ဆက်စပ်လို့ တစ်ဆက်တည်းပြောကြားလိုတာကတော့ အခု အသုံးပြုနေတဲ့ Myanmar Flood and Drought Web Portal ဟာ DHI ရဲ့ အစီအစဉ်နဲ့ ဒိန်းမတ်နိုင်ငံမှာ တည်ထောင်ထားတာဖြစ်ပြီး မြန်မာနိုင်ငံအနေနဲ့ စီမံကိန်းကာလအတွင်းနဲ့ နောက်ထပ်(၅)နှစ် မှာ Web Portal ကို အခမဲ့ အသုံးပြုနိုင်မှာဖြစ်ပါတယ်။ ဒါ့ကြောင့် အဲ့ဒီ(၅)နှစ်သက်တမ်းပြီးတဲ့ နောက်မှာ လက်ရှိ www.flooddrought monitor.com နှင့် နည်းပညာအကူအညီများ၏ ရလဒ်များကို အခြေခံချိတ်ဆက်၍ မြန်မာနိုင်ငံအတွက် အရေးပါတဲ့ ရေကြီးခြင်း၊ မိုးခေါင်ခြင်းဆိုင်ရာ အချက်အလက် တွေနဲ့ပတ်သက်တဲ့ အလားတူ နည်းပညာမြင့် web portal တစ်ခုကို နိုင်ငံအတွင်းထူထောင်နိုင်ဖို့အတွက် စီမံကိန်းအဆိုပြုလွှာ တစ်ခုကို DHI ရဲ့ အကူအညီနဲ့ ပြုစုပြီးတော့ ရန်ပုံငွေအထောက်အပံ့ရရှိရေးအတွက် GCF သို့ တင်ပြလျှောက်ထားသွားမှာ ဖြစ်ပါတယ်။

၇။ ဒီနေ့ကျင်းပတဲ့ Final Technical Training မှာ နည်းပညာရပ်ပိုင်းဆိုင်ရာ ကိစ္စတွေကိုသာ အထူးပြုဆွေးနွေးမှာ ဖြစ်တဲ့အတွက် အားတက်သရော ပါဝင် ဆွေးနွေးကြဖို့နဲ့ အပြီးသတ် Training ဖြစ်တဲ့အတွက် တက်ရောက်လာသူတွေ

အနေနဲ့ သိရှိလိုသည်များကို ဆွေးနွေးမေးမြန်းကြဖို့ တိုက်တွန်းလိုပါတယ်။ ဒါ့အပြင် စီမံကိန်းပြီးတဲ့ နောက်မှာလည်း Web portal မှာ ပါဝင်တဲ့ အချက်အလက်တွေကို အသုံးပြုပြီး ရာသီဥတုပြောင်းလဲမှုနဲ့ ပတ်သက်တဲ့ အသိပညာပေးခြင်းနဲ့ စွမ်းဆောင်ရည် မြှင့်တင်ခြင်း လုပ်ငန်းများ ဆောင်ရွက်နိုင်ဖို့၊ လက်ရှိဆောင်ရွက်နေတဲ့ ရာသီဥတုပြောင်းလဲမှုဆိုင်ရာ၊ မိုးလေဝသဆိုင်ရာနဲ့၊ ရေနဲ့ စိုက်ပျိုးရေးဆိုင်ရာ လုပ်ငန်းအစီအစဉ်တွေနဲ့ ချိတ်ဆက်ပြီး နည်းပညာများ ပိုမိုအသုံးပြုနိုင်ဖို့နဲ့ ဗဟုသုတ၊ အလေ့အကျင့်၊ နည်းပညာတွေကို ပိုမိုသိရှိနားလည် လာစေပြီး လက်တွေ့ကျင့်သုံးလာနိုင်ဖို့ စတဲ့ အကျိုးရလဒ်တွေ ရရှိဖို့ မျှော်လင့်ပါတယ်။

၈။ နိဂုံးချုပ်အနေနဲ့ အလုပ်ရုံဆွေးနွေးပွဲကို ပါဝင်တက်ရောက်သူတွေရဲ့ တန်ဖိုးရှိလှတဲ့ ဆွေးနွေးအကြံပြုမှုတွေဟာ စီမံကိန်းလုပ်ငန်းတွေ အောင်မြင်အောင် ဆောင်ရွက်နိုင်ဖို့အပြင် မြန်မာနိုင်ငံအနေနဲ့ လက်ရှိကြုံတွေ့ခံစားနေရတဲ့ ရေကြီးရေလျှံခြင်းနှင့် မိုးခေါင်ခြင်းစတဲ့ ရာသီဥတုပြောင်းလဲမှုရဲ့ ဆိုကျိုးလျော့ကျစေရေး လုပ်ငန်းတွေကို အရှိန်အဟုန်မြှင့်ဆောင်ရွက်နိုင်မှာဖြစ်ပါတယ်။ ဒါ့အပြင် ရာသီဥတု ပြောင်းလဲမှုနဲ့ လိုက်လျောညီထွေ နေထိုင်နိုင်ဖို့အတွက် များစွာ အထောက်အကူပြု နိုင်မယ်လို့ ယုံကြည်ပါကြောင်းနဲ့ စီမံကိန်းအကောင်အထည်ဖော်နိုင်အောင် နည်းပညာပိုင်းဆိုင်ရာ ပံ့ပိုးပေးတဲ့ CTCN နဲ့ DHI၊ ရန်ပုံငွေထောက်ပံ့ပေးတဲ့ GCF နဲ့ Hydro and Agro Informatics Institute of Thailand တို့ကိုလည်း အထူး ကျေးဇူးတင်ရှိကြောင်း ပြောကြားရင်း နိဂုံးချုပ်ပါတယ်။

အားလုံးကို ကျေးဇူးတင်ပါတယ်။

APPENDIX B

Reports produced by participants

APPENDIX C

Agendas

Strengthened drought and flood management through improved science-based information availability and management in Myanmar
(26-8-2019) to (29-8-2019)
Kempinski Hotel, Nay Pyi Taw

Time	Title	Entity
Draft Agenda – 26th August 2019		
08.30 – 09.00	Registration	All Participants
09.00 – 09.20	Opening Speech	Union Minister, MoNREC
09.20 – 09.40	Opening Speech	DHI
09.40 – 09.50	Photo Session	All
09.50 – 10.10	Tea Break	All
10.10 – 10.30	Welcome and Presentation of participants	DHI
10.30 – 11.00	**The Myanmar Flood and Drought portal** *The portal and status of the technical assistance.* • Recap on the portal • Status of technical assistance Outcome: Knowledge of the different portal components, what they are and can be used for. Knowledge of status of implementation.	DHI
11.00 – 12.20	**Validation** *Presentation of the key aspects of Deliverable 5 (activity 2.2) Technic training session and Validation report.* Outcome: understanding the methodology and results obtained in the validation task of the technical assistance.	DHI
12.20 – 13.20	Lunch	All
13.20 – 15.10	**Reporting** *Introduction to the reporting tool.* • Basic functionality • Hands-on exercises • Workgroups Outcome: Knowledge and understanding of the Reporting tool.	All Participants
15.10 – 15.30	Tea break	All
15.30 – 16.30	**Wrap-up** *Feedback and questions from participants.*	All Participants
Draft Agenda – 27th August 2019		
09.00 – 10.20	**Reporting** *Exercises on how to use the reporting application.* • Groupwork Outcome: Autonomy in making report using data from the portal.	DHI
10.20 – 10.40	Tea break	All
10.40 – 12.00	**Reporting** *Continuation of the previous session.* • Hands-on exercises – use and setup of the crop application Outcome: Autonomy in making report using data from the portal.	All Participants
12.00 – 13.00	Lunch	All

13.00 – 15.00	**Crop application** *Recap on the concepts underlying the crop model that could be used to forecast drought impact on crops. Include the uncertainty in the climate forecast in the assessment.* • Hands-on exercises – use and setup of the crop application • Spatial input versus User-defined and Ensemble Outcome: Capacity and knowledge to evaluate the impact on the crop production from drought events.	All Participants
15.00 – 15.20	Tea break	All
15.20 – 16.00	**Wrap-up** *Feedback and questions from participants.*	

Strengthened drought and flood management through improved science-based information availability and management in Myanmar
(28-8-2019) to (29-8-2019)

Kempinski Hotel, Nay Pyi Taw

Draft Agenda- 28 th August		
08.30 – 08.50	**Technical assistance official closure**	Director General, ECD
08.50-09.20	**Introduction to Concept Note** • Discussion of the Draft Concept Note and status	DHI
09.20-09.40	**Awarding Certificates Ceremony** • Course Evaluation • Awarding of Training Certificates	Director, ECD Silvia
09.40 – 10.00	Tea break	All
10.00 – 12.00	**Wrap up** *Presentation of the status of the sustainability of the outputs of the technical assistance.* • Group work regarding climate vulnerable areas of Myanmar • Final Q&A with participants about the portal applications Outcome: Information to stakeholders regarding the future steps.	DHI
12.00 – 13.00	Lunch	All
13.00 – 15.00	**Status of the SAP Concept Note** *Planning of next steps and GCF criteria.* Expected project results aligned with the GCF investment criteria	DHI & ECD only
Draft Agenda- 29 th August		
09.00 – 10.20	**Status of the SAP Concept Note Section A** *Presentation of the SAP as reviewed by DHI. Review of the main project components and activities.* • Section A overview of key parameters Revision of the problem statement and climate rationale, objective and selected implementation approach.	ECD & DOA
10.20 – 10.40	Tea break	All
10.40 – 12.00	**SAP Concept Note Section B Project / Programme details** *Continue work on draft Concept Note.* • Context and Baseline Group work to review project components and activities for each component.	ECD & DOA
12.00 – 13.00	Lunch	All
13.00 – 15.00	**Next steps** *Planning of next steps and recap of the submission process to the GCF.*	ECD & DOA

APPENDIX D

Attendance Registers

Official Closing Ceremony 26th August 2019 – Nay Pyi Taw

Name	Gender	Department	Ministry	Job Title	Phone	Email
Thi Thi Soe Min	Female	ECD	MONREC	A.D	09401560983	thithimalun@gmail.com
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Name	Gender	Department	Ministry	Job Title	Phone	Email
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Technical training 26, 28 and 29th August 2019 – Nay Pyi Taw

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