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

Deliverable 4 (activity 2.1) Technical training session and draft Concept Note guidance

UNEP

Report

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

Deliverable 4 (activity 2.1) Technical training session and draft Concept Note guidance

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EXECUTIVE SUMMARY

This report is the written deliverable of Activity 2.1 of the technical assistance to Myanmar entitled 'Strengthened drought and flood management through improved science-based information availability and management' (reference number 2016000035). This report describes a 2-day training on the 19th and 20th of February 2019 in Nay Pyi Taw, Myanmar.

The training was divided into two sessions: (1) a technical training session on use of the portal, and (2) a GCF Simplified Approval Process (SAP) Concept Note guidance session. In the former 20 technical staff of different institutions participated of which 9 were female, whereas the latter was attended in total by 17 participants from the Environmental Conservation Department (ECD), of which 11 were female.

The specific objectives of the technical training session were to inform on the status of the ongoing CTCN technical assistance; and to focus on technical specialists (some of them had been at the first national workshop) within the flood and drought, water resources and disaster management framework, and demonstrate how to use the portal. Additionally, the importance of the ongoing validation task was emphasized. We consider these objectives to have been met with 33% of participants saying that they were satisfied and 40% saying that they were significantly satisfied.

On the second day of training, ECD staff received guidance on planning for a full scale GCF proposal including hosting the platform developed during this technical assistance in a server in Myanmar in the long-term.

The next phase of the technical assistance is Activity 2.2 Testing and validation of the portal. A high-level meeting between the ECD, the Department of Meteorology and Hydrology and the Department of Disaster Management should take place to discuss the upscaling of the current portal outcomes. The validation task will be completed, and another technical training session will be carried out.

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ACCRONYMS & ABBREVIATIONS

CTCN	Climate Technology Centre & Network
DHI	www.dhigroup.com
DMH	Department of Meteorology and Hydrology
ECD	Environmental Conservation Department
GCF	Green Climate Fund
GHG	Green House Gases
HAII	Hydro and Agro Informatics Institute of Thailand.
HIC	Hydro Informatics Center of Myanmar
IWUD	Irrigation and Water Utilization Department
MIID	Myanmar Institute for Integrated Development
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
SAP	Simplified Approval Process
WCRP	World Climate Research Programme

1 Background

This report consists in Deliverable 4 of Activity 2.1 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.

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, validation of 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.

This report describes a technical training day followed by a session on drafting GCF SAP Concept Notes on the 19th and 20th of February 2019 in Nay Pyi Taw, Myanmar.

2 Participation and approach

The training was divided into two sessions: a technical training session on use of the portal for key stakeholder institutions of this technical assistance and a GCF SAP Concept Note guidance session focusing on the ECD staff at their offices.

The technical training session took place on the 19th of February and in attendance were 20 technical staff of which 9 were female, from the following institutions:

1. Climate Change Division, ECD, MONREC
2. Planning studies and GIS Department, ECD, MONREC
3. Department of Agriculture, MOALI
4. Department of Meteorology and Hydrology Ministry of Transport and Communication (MOTC)
5. Department of Disaster Management
6. Hydro Informatics Centre
7. Department of Water Resources and River Improvement

Official opening remarks were made by ECD's Deputy Director General Dr. San Oo, followed by a brief introduction and status update of the technical assistance and progress on Activity 2. The focus of the day was on historical and forecasted rainfall data from different remote sensing sources.

The guidance session on SAP Concept Note took place on the 20th of February at the ECD meeting room. The Deputy director General Dr. San Oo was in attendance, and in total there were 17 participants, of which 11 were female, from the following sections of the ECD:

1. Climate Change Division
2. Planning Statistics and GIS Division
3. Policy and Legal Department
4. Pollution Control Department
5. Environmental Impact Assessment Division
6. Human Resources and Administration

All workshop materials including the step-by-step exercises in Myanmar and English languages were disseminated to all stakeholders, including the larger user community of the portal now amounting to over 60 people.

Figure 2.1 Deputy Director General Dr. San Oo during official opening speech of the technical training and participants.

3 Technical training session

The specific objectives of the training session were:

- to inform on the status of the ongoing CTCN technical assistance;
- to reach out to technical specialists within the flood and drought, water resources and disaster management framework, and demonstrate how to use the portal;
- to receive feedback.

There were participants attending new to the technical assistance, therefore, the day started off with ensuring all participants were registered and able to log in to the portal. The portal provides access to state-of-the-art remote sensing data and information, tools and reporting abilities, for Myanmar. The portal address ishttp://www.flooddroughtmonitor.com/myanmar, a screenshot of the homepage is in Figure 3.1. More can be found in the Technology specifications and methodology for testing and validation report (Deliverable 3 of Activity 1.3).

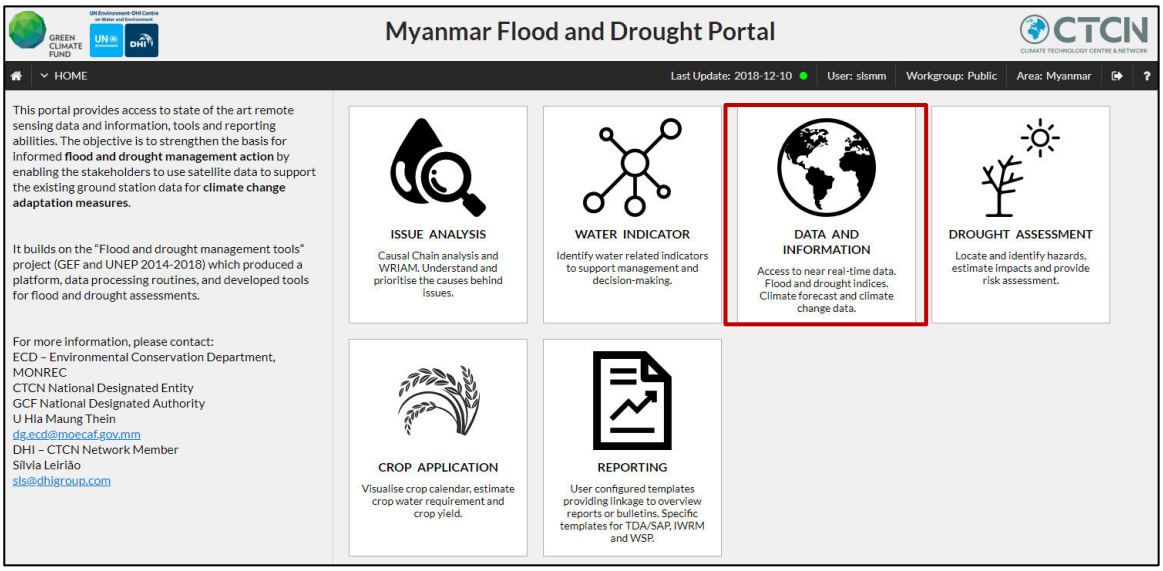

Figure 3.1 Home page of the portal, the Data and Information application object of the training, in red.

As the main deliverable of this technical assistance, it is crucial to make sure participants feel comfortable with every aspect of the data available in the portal. Therefore, the day was spent working with the Data and Information application of the portal, building on the work and exercises carried out during the first national workshop.

The first purpose was to make sure participants were able to operate the basic functionality of the portal such as how to log in, enter the data application select the datasets they wish to look at, view and download data to their computers. Since some of the participants had not been at the inception workshop and/or had not used the portal recently, it was very useful to review these aspects.

Secondly, other concepts from the first national workshop were revised such as the data formats the portal works with, and the types of tools namely:

- time series tool
- monthly time series tool
- table
- envelope plots
- column charts

- and raster.

The rest of the day was spent working with climate data that is crucial for flood and drought management: rainfall, temperature, and climate forecasts. Additionally, the importance of the validation task which is on-going by the technical assistance team, was continuously emphasized throughout the day as we looked at the different datasets.

A step-by-step exercise translated to Burmese language guided participants to generate a climate overview for an area of their choosing in Myanmar, focusing mostly on rainfall and temperature. Participants were split into three groups and the groups selected the areas of Magway, Ayeyarwaddy and the whole country to focus on.

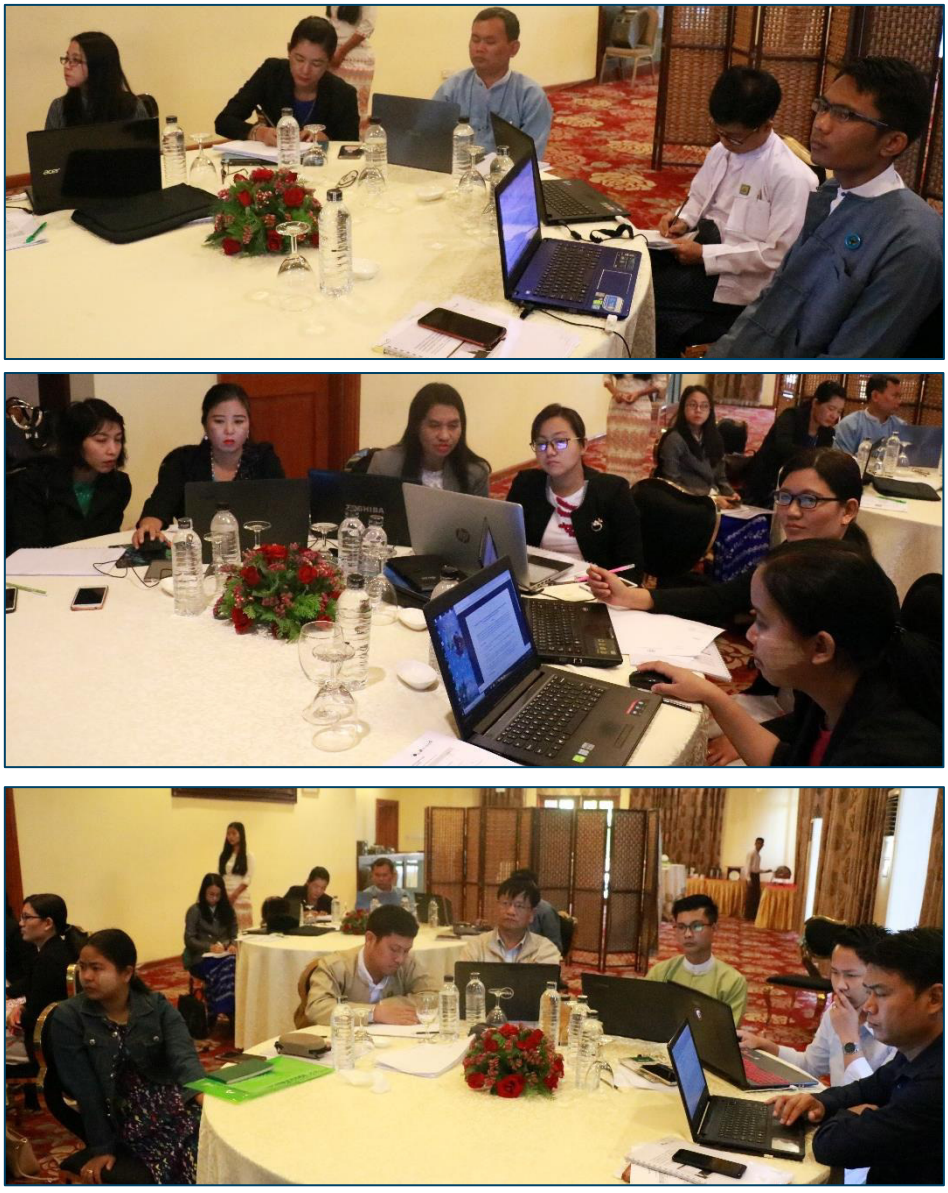

Figure 3.2 Three groups of participants for the data and information exercises.

They compared TRMM, CHIRPS and GPM data sources and discussed. The characteristics of each dataset were also discussed and their relevance emphasized at the time of choosing one over the other for a specific application.

Next, another step-by-step exercise translated to Burmese provided an introduction to climate forecast, how to view and get the data and examples of how to analyse the data. The exercise

also showed to participants the difference between historical ensembles and model-based forecasts:

- Historical ensembles are based on historical rainfall and is a method for using historical data to forecast how the rainfall will be in the coming months. This is useful for evaluation of the uncertainty or variability in the rainfall within given months. Historical ensembles could be used for studies on how the historical rainfall have been in certain periods and could also be used to as inputs to models to evaluate the impact of the historical rainfall variability.
- Seasonal forecasts are based on a probabilistic model which means that it produces a number of likely outcomes (ensembles) which should represent the likely outcome of the rainfall within the coming season (9 months). The data available in the data portal is time series with 20 items each representing a likely outcome, and the time series are updated every 5 day. This data can be used in estimating reservoir storage, irrigation releases and agricultural management in predicting drought conditions.
- Medium range forecasts are based on the GFS 0.25 degree 16 day deterministic forecast and the GEFS 1 degree 16 day probabilistic forecast (20 members) products. Forecasts grids starting from the 0 hour forecast every 3 hours out to 10 days, then 12 hour forecasts for days 10-16. This type of data could be applied to flood forecasting, early warning, and emergency management.

Participants also discussed the variability or uncertainty on the rainfall and how this would influence any decision made based on the data.

Finally, by the end of the training day, participants put the following requests for data to be added to the portal, as well as a number of suggestions and comments on usability:

- Alter the selection window for data and information; it has alphabetical sorting but it could also have “groups” in a tree structure where the top level is the data type and below all the sources.
- Replace shapefiles of Ayeyarwady with DWRM files, extend to other basins
- Replace shapefiles of Myanmar with MIMU administrative shapefiles
- Add land use data; either from MODIS or ESA; or the Mekong platform SERVIR Mekong
- Add solar radiation dataset from Princeton University or www.power.larc.nasa.gov
- Add air quality dataset
- Add ESA flood map which is also in MIMU and Onemap
- Improve night lights dataset by going from two static layers to a dynamic dataset
- Expand GIS mapping functionality – this is mentioned as it was suggested by participants however this type of functionality enhancement is not possible within the scope of this technical assistance; but could be targeted within an upscaling project.

The technical assistance team will review all requests and endeavour to implement as many as technically possible.

4 GCF SAP Concept Note session

This session involved the ECD staff and was held in the ECD meeting room at MONREC. Being the anchor of this technical assistance and the NDA of the GCF, they are the departure point in laying the foundation for a potential upscaling of this assistance's outcomes. The objectives of this session were to:

- Guide the ECD and stakeholders on planning for a full scale GCF proposal including hosting the platform developed during this technical assistance in a server in Myanmar in the long-term.
- Support the preparation of a concept note ensuring that the technicalities for hosting the server for the platform in Myanmar after the initial period of 5 years will be properly addressed.

Figure 4.1 Participants during the second day of training at the offices of the ECD, MONREC:

As supporting documentation, GCF official materials available online were distributed and reviewed together with the participants namely: the User's Guide to the Concept Note structure; the Guidelines for the Environmental and Social Screening of Activities Proposed under the Simplified Approval Process; and the GCF SAP Concept Note form itself. Emphasis was placed on making participants aware of the different sections, so that they are confident in using the materials after the session.

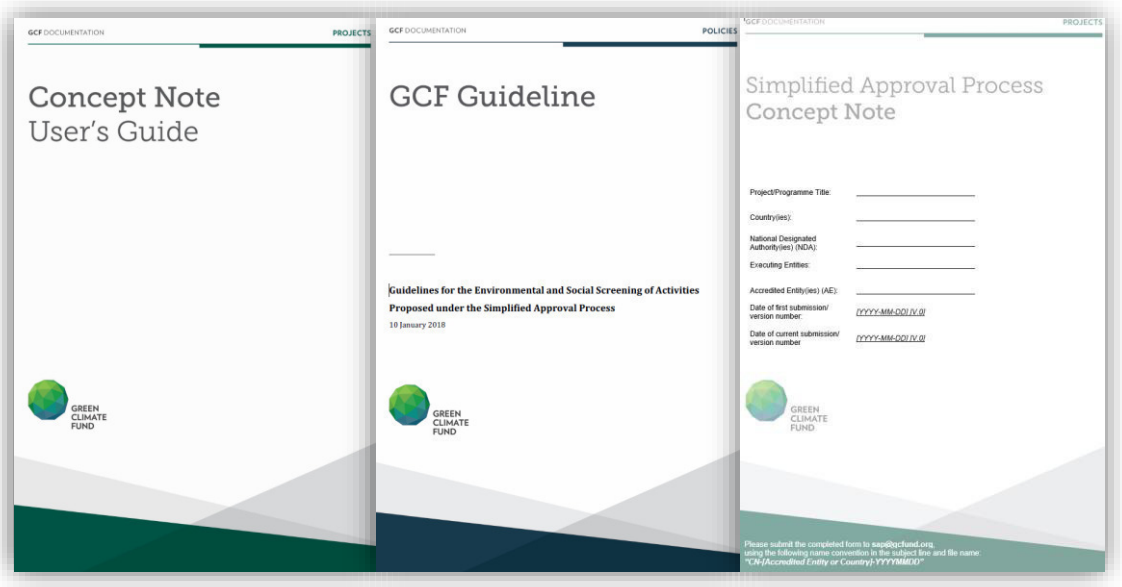

Figure 4.2 Documentation distributed to participants and utilized during the guidance session.

The first part of the session focused on what is the GCF SAP and how does it work, criteria for project support of concept notes and the SAP Template.

After reviewing the documentation, the participants went through a series of brainstorming sessions in three groups formed based on the areas they were targeting. The sequential brainstorming sessions helped them define: the purpose of their projects, the outcomes, the specific objectives, and finally for each objective they listed 4 activities/tasks to accomplish each objective.

Next, an introduction to SAP Concept Note Section A as well as the Environmental and Social Screening Checklist was given, followed by a group work session where participants went through each checklist item and verified which risk category their project concepts could fall under, and whether they could be supported by an SAP process.

To complete the session, SAP Concept Note Section B was presented to participants where they were encouraged to use the results from the brainstorming sessions to start filling in each of Section B's items: context and baseline, programme description, and finally expected results aligned with GCF criteria.

The technical assistance team will be available for remote assistance to participants should they require it, and the way forward with the drafting of a Concept Note to upscale project outcomes is to be discussed with ECD management.

5 Feedback from participants

This chapter summarises the evaluation of the course by the participants. The chapter is divided into two sections, covering the two days of the workshop, which were carried out with different sets of participants. All participants have answered all questions in their respective questionnaire.

5.1 Training day 1

On Day 1 there were 15 participants who replied to the questionnaire. The participants are generally satisfied with the training course, with 33% saying that they are satisfied and 40% saying that they are significantly satisfied. The remaining 27% are moderately satisfied, and no participants state that they are not satisfied.

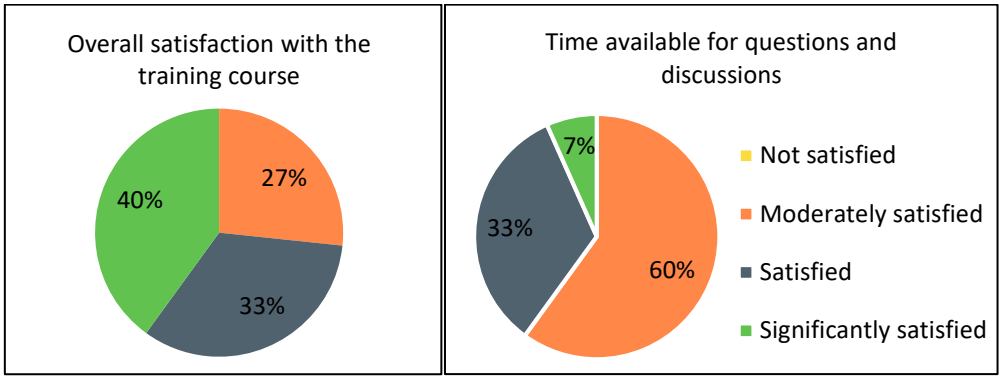

Figure 5.1 First day feedback from participants on satisfaction.

There is least satisfaction for the time available for questions and discussions, with only 40% being satisfied or significantly satisfied, and the remaining 60% being only moderately satisfied.

All users experienced at least some knowledge increase for all topics. The topic with the smallest increase is Knowledge about remote sensing data for Myanmar, where 53% of participant feel that their knowledge has only moderately increased and only 7% feel that their knowledge has significantly increased.

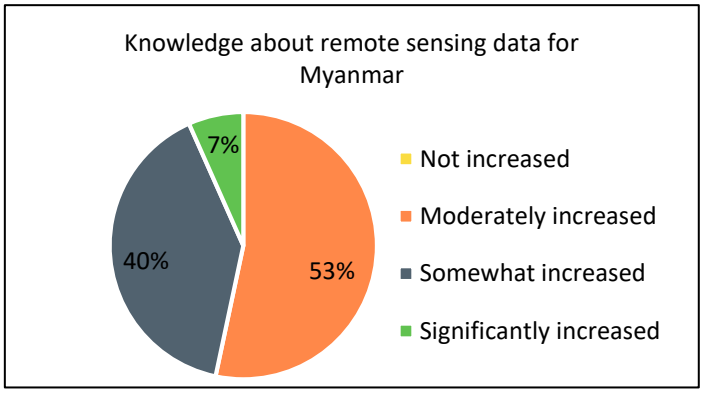

Figure 5.2 First day knowledge increase feedback results on remote sensing data.

While the reason could be that the users already have a lot of knowledge on the topic, this does not seem to be the case. 47% of participants have only some prior understanding and 13% have no prior understanding. This could indicate that this is a topic which should be covered in more detail.

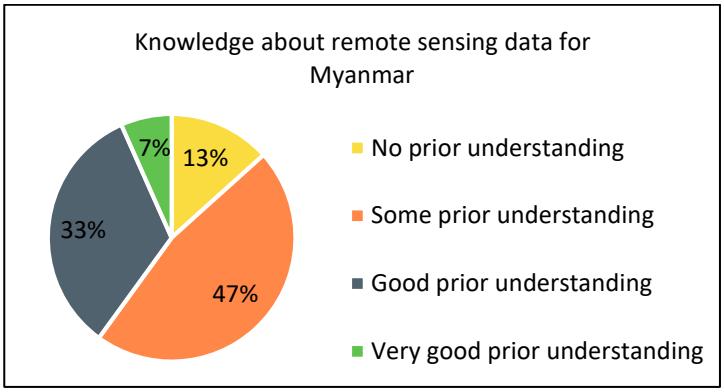

Figure 5.3 First day feedback results on knowledge of remote sensing data.

The largest knowledge increase has clearly been for viewing and downloading data from the portal, where 40% feel that their knowledge has somewhat increased and 53%feel that their knowledge has significantly increased.

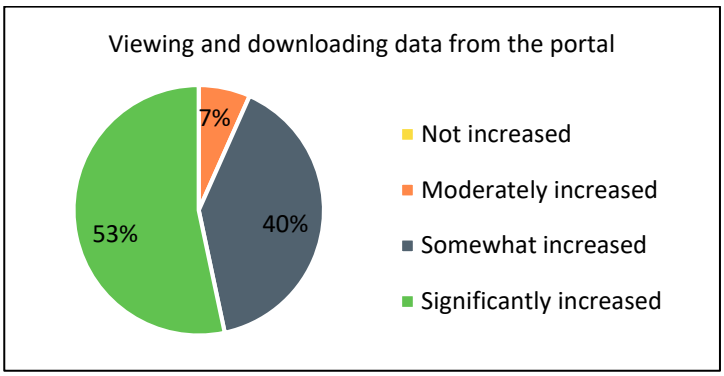

Figure 5.4 First day feedback results on viewing and downloading data.

5.2 Training day 2

On Day 2, 8 participants replied to the questionnaire. The overall satisfaction with the course was very good, with 87% being satisfied and 13% being significantly satisfied.

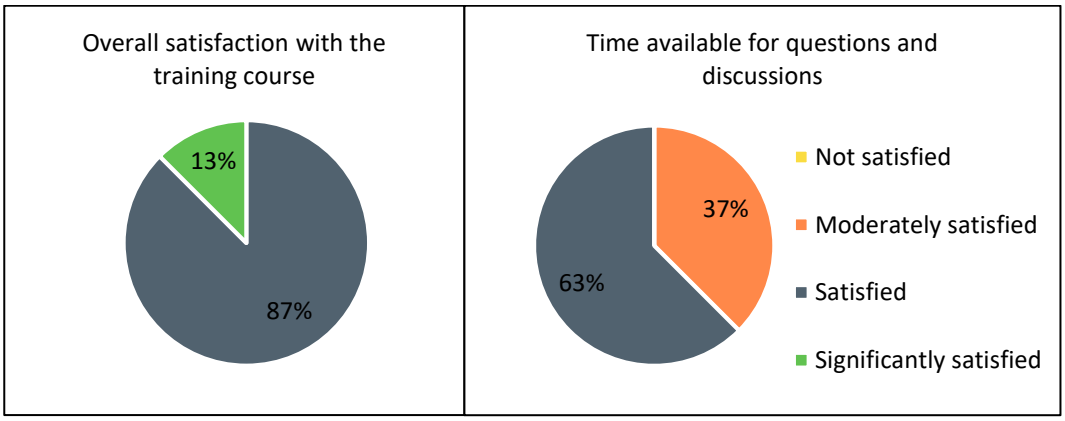

Figure 5.5 Second day participant feedback results on satisfaction

Similarly to the first day, there was least satisfaction with the time available for questions and discussions, with 37% being only moderately satisfied and no one choosing significantly satisfied.

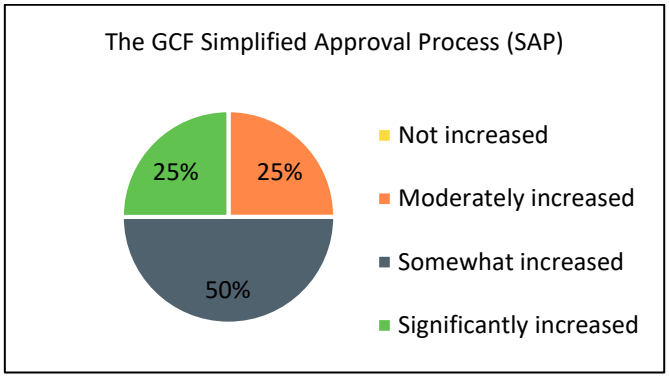

Figure 5.6 Second day feedback results on knowledge increase

The largest knowledge increase has been for the GCF Simplified Approval Process (SAP), where the knowledge of 50% of the participants was somewhat increased and for 25% it was significantly increased. No participants felt that their knowledge was not increased for this topic.

For the topic “Defining project purpose, outcomes, objectives and activities”, there is the same percentage of participants who feel that their knowledge has increased somewhat or significantly as above, but 12% feel that their knowledge has not increased.

6 Next steps

The next steps have two parallel tracks. Firstly, the technical execution of this assistance and training on the portal, and secondly, the provision of guidance in drafting an GCF SAP concept note for upscaling of the outcomes.

On the one hand, the technical training of stakeholders will continue with a larger 3-day training session in Nay Pyi Taw. The objectives of the training session will be to continue to train technical specialists in use of the portal, including but not exclusive to the same participants in the training reported herein; and to receive feedback from participants on their use of the portal and application of the data carried out in their own tasks. We will be covering the topics of remote sensing data, indicators and the use of the crop application.

Regarding the second track, it has been agreed with Director General U Hla Maung Thein that a high-level meeting between the ECD, the Department of Meteorology and Hydrology and the Department of Disaster Management should take place to discuss the upscaling of the current portal and finding the overlap and synergies with existing platforms/portals in Myanmar. The objectives of the meeting will be the following:

- Understanding of all platforms
- Overlap and synergies
- Next steps

The outcome of the meeting will be to share knowledge of the current situation in Myanmar regarding data portals and make an informed decision for the upscaling project, notably for the drafting of the GCF SAP Concept Note.

The next phase of the technical assistance is **Activity 2.2 Testing and validation of the portal**, and the key output is the **Validation report**.

APPENDIX A

Agendas

Myanmar Flood and Drought Portal
Technical Training

19th of February 2019, Aureum Palace Hotel & Resort, Nay Pyi Taw

Agenda		
Time	**Title**	**Entity**
09.00 – 09.20	Welcome and Presentation of participants	DHI
09.20 – 10.20	**The Myanmar Flood and Drought portal** *The portal and status of the technical assistance.* • Status of technical assistance including the Data validation • Summary of the portal, data and functionality Outcome: Knowledge of the different portal components, what they are and can be used for. Knowledge of status of implementation.	DHI
10.20 – 10.40	Tea break	
10.40 – 12.00	**Data and Information** *Overview and understanding of available near real time data for flood and drought assessment.* • Hands-on exercises – based on the Data and Information app. • Feedback from participants on what they have been using the portal for; testing and feedback on usability of the portal. Outcome: Knowledge and understanding of available data to be used for flood and drought assessment. Usability and testing of the portal.	DHI Participants
12.00 – 13.00	Lunch	
13.00 – 15.00	**Data and Information** *Completion of previous session and focus on flood and drought indicators* • Hands-on exercises – how key indicators could be used for flood and drought assessment • Forecast and projection data Outcome: Capacity and knowledge to use key indicators for flood assessment in Myanmar.	DHI Participants
15.00 – 15.20	Tea break	
15.20 – 16.00	**Wrap-up** *Feedback and questions from participants. Course Evaluation & Certificates*	

Note: this is the first technical training session for the GCF/CTCN technical assistance to Myanmar, "Strengthened drought and flood management through improved science-based information availability and management".

Myanmar Flood and Drought Portal
Concept Note Session

20th of February 2019, ECD, Nay Pyi Taw

Draft Agenda	
Time	**Title**
09.00 – 10.20	**Introduction to the SAP Concept Note and EES[1] Screening Checklist** *Presentation of what the SAP is, entities involved, how it works, and template. Selection of examples based on day's discussion, and drafting the Concept Note outline and Annex 1.* • The CTCN, GCF and associated practical processes • Selection of a project example • Design of the Concept Note structure • EES Screening Checklist
10.20 – 10.40	Tea break
10.40 – 12.00	**SAP Concept Note Section A - Project / Programme Information** *Work on draft Concept Note for selected example project.* • Section A overview of key parameters • Brief summary of the problem statement and climate rationale, objective and selected implementation approach. • Revision of Annex 1. Outcome: Section A and Annex 1 of example Concept note drafted.
12.00 – 13.00	Lunch
13.00 – 14.40	**SAP Concept Note Section B Project / Programme details** *Work on draft Concept Note for selected example project.* • Context and Baseline • Project / Programme description • Expected project results aligned with the GCF investment criteria Outcome: Section B of example Concept note drafted.
14.40 – 15.00	Tea break
15.00 – 16.00	**SAP Concept Note Section C Indicative financing / Cost information** *Wrap up of the draft Concept Note and overview of the last section of the selected example.* • Justification of GCF involvement • Sustainability and replicability of the project (exit strategy) • Stakeholders engagement in the project or programme • Monitoring and Evaluation and reporting plans Outcome: Conclusion of the draft Concept Note example.

Note: this is the first technical training session for the GCF/CTCN technical assistance to Myanmar, "Strengthened drought and flood management through improved science-based information availability and management".

[1] Environmental and Social Screening (EES) Checklist is an annex to the SAP.

APPENDIX B

Attendance Register

Strengthened drought and flood management through improved science-based information availability and management in Myanmar
19th February 2019- Aureum Palace Hotel & Resort, Naypyitaw

Name	Gender	Department	Ministry	Job Title	Phone	E-mail
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Strengthened drought and flood management through improved science-based information availability and management in Myanmar
20th February 2019–ECD, MONREC, Naypyitaw

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