Technical Assistance in Environment and Natural Resources Management

Catchment Monitoring and Evaluation System
M&E TRAINING REPORT

Training Venue: MUSANZE DISTRICT
From 2nd to 4th December 2020

By Center of Excellence in Biodiversity and Natural Resource Management
University of Rwanda

Temporary link of the M&E Tool: http://134.122.95.150/

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1. Executive Summary

The Center of Excellence in Biodiversity and Natural Resource Management at the University of Rwanda has a collaborative project agreement with the Rwanda Environment Management Authority for the Completion of Technical Assistance in Environment and Natural Resources Management. This project included assessments of several catchments and wetlands and development of a national wetland management framework, a water quality management plan and guidelines, a pollution management plan and catchment and water quality management plans for five catchments and watersheds. The data from these field assessments went into the development of a monitoring and evaluation tool.

The training for the end users of the Catchment Monitoring and Evaluation Tool took place at Musanze, Rwanda from 2nd to 4th December 2020. The workshop was opened by NYARUBUYE Jean Marie Vianney from REMA and followed by introduction remarks by Professor Beth Kaplin, Director of the Center of Excellence in Biodiversity and Natural Resource Management at the University of Rwanda.

Around 50 users from REMA, Rwanda Water Resources Board (RWB) and from 21 districts attended. The training was delivered by the two technical team members from the IT team, Celestin Mbonabucya and Pelin Mutanguha, the key team members who developed the M & E system. Team members from catchments, wetlands, water quality gave brief presentations about the kinds of data that were collected in their respective teams, which represent information for the monitoring of wetlands, catchments and water quality. The trainees expressed satisfaction with the training and the functionalities from the developed system which has proven to be flexible and user friendly compared to other systems at REMA and at RWB. Participants provided some inputs for improvement of the tool, and although some of the suggestions are out of the current TORs, they are very important to consider while upgrading the system. For example, some participants suggested that, if possible, the system can be upgraded with more functionalities so that it can be possible for it to replace the existing systems.

For the sustainability and for the maintenance of this tool, we recommend the maintenance of a strong partnership between University of Rwanda through the Center of Excellence in Biodiversity and Natural Resource Management (CoEB) and the School of ICT, with the

Rwanda Environment Management Authority, Rwanda Water Board and with the Ministry of Environment, where the CoEB will keep overseeing the growth of the system and encourage the collaborations between the different units in University of Rwanda and with the Government of Rwanda so that the system can be continuously upgraded and improved as needed and maintain its relevance in supporting national development plans and sustainable development goals.

Report prepared by:

MBONABUCYA Celestin

M&E IT Specialist

2. Implementation of trainings

2.1 First day of the training

The trainees received the overview on the research done on Water Quality, Wetland management and on Catchment Plans to understand what kinds of data were collected in the field, and how this informed the monitoring system development. This has been followed by the introduction of the Monitoring and Evaluation system with a focus on the overview of how it works as it have been agreed in the validation of the progress report that took place from 20th to 24th July 2020 at Musanze, Rwanda.

2.2 Second day of the training

The overview of the wetland management was delivered by the assistant to the team leader of the wetland management component. After that, all trainees were registered on the developed M&E Tool (system) and have been assigned the credentials based on their level of work. The M&E tool has four types of levels (District, Catchment, National and the Administrator).

During the training, the users were able to easily log in to the system, and were able to navigate within the system, upload various types of reports such as images, maps, single data, excel files, and download the data for a selected report for any needed component. They were able to view data in graphs and to see the trends for a given indicator at a selected site for all reporting periods. The trainees have tried to upload some images and some maps on the system and will do more exercises during the training.

2.3 Third day of the training (half day)

The RBIS (Rwanda Biodiversity Information System) was presented to the attendees for them to be aware of the project that the Center of Excellence in Biodiversity and Natural Resource Management is working on because this new national monitoring system will enable biodiversity monitoring which is in line with this technical assistance project. Biodiversity is an ideal indicator for wetlands and other freshwater ecosystems. The RBIS is putting together biodiversity data for the country, starting with a focus on freshwater ecosystems, and this information will complement the M&E system and the catchment, wetlands and water quality management plans developed during this project.

The attendees provided inputs and comments for the RBIS system. One interesting comment was to include certain system functions that can allow people with traditional knowledge to contribute to the system in one way or another. This is in line with the Nagoya Protocol provisions as well. Users of the system can for example have an interface where they can name some species in Kinyarwanda and could help researchers in conducting their research and field work.

The rest of the day was devoted to additional discussions, comments and recommendation to improve the M&E tool.

3. Trainees Suggestions

The suggestions, comments and recommendations have been collected from the trainees and have been taken into consideration to upgrade the M&E tool (Table 1).

Table 1. Suggestions and recommendations from participants of the workshop on the M&E tool, and responses from the designers of the tool.

Suggestions and Recommendation	Comments for implementation
1. Change the title "Reports" to "Reporting Periods"	Yes, to be added. Part of the TOR
2. Add the module to collect data from the public users for the community involvement.	Very important input where citizens will be involved in the environment management. Out of current TOR.
3. Make sure that the users at districts can view the list of the submitted summaries.	Yes, to be added. Part of the TOR
4. Make sure that all the images uploaded are also visible when the report is selected.	Yes, to be added. Part of the TOR
5. Check the generated report mainly on the data in a table and check the titles and their units.	Yes, to be added. Part of the TOR
6. Add full info on the images for all types of users.	Yes, to be added. Part of the TOR
7. Add the option to remove/ deactivate the uploaded image and map.	Yes, to be added. Part of the TOR
8. Make sure that all comments are seen at national level and at catchment level & Add communication channel to give feedback to district users.	Yes, to be added. Part of the TOR
9. Fix mobile responsiveness.	Yes, very important as many users us smart phones.

Suggestions and Recommendation	Comments for implementation
10. Increase the text field size to allow users to add more descriptive text.	Yes, to be done and very important
11. View images and view map.	Yes, to be done and very important
-Add who sent the document	Yes, to be done and very important
-Sorting and filtering at National and at catchment level	Yes, to be done and very important
12. Add a way to add the comments of the provided data especially on the Plan Reporting	Yes. To be done during the system upgrade
13. Add the report summary for the Leaders at Catchment and at National level. The template to be provided.	Yes, to be done and very important.
14. Add the red, yellow and red flags for the monitoring and evaluation of catchment plan	Yes, to be done and very important and to be done during the system Upgrade
15. The system should get integrated with other systems	Yes, to be done and very important and to be done during the system Upgrade
16. There must be the study of the existing systems and find the similarities and differences for more recommendations.	Yes. To be supported by REMA or by RWB or by the Ministry of Environment.
17. Adapt the system for daily use for district users (more desktop versions, mobile version) [provide a way to save drafts & publish data to upper levels]	Yes, to be done and very important and to be done during the system Upgrade.

Some comments have been adopted and the system was fixed, and other comments should be taken into consideration while upgrading the platform. The University of Rwanda and especially the Center of Excellence in Biodiversity and Natural Resource Management at the University, is ready to technically support where it is needed.

4. Types of Trained Users

The training has been provided to different types of users from district level, catchment level and national level.
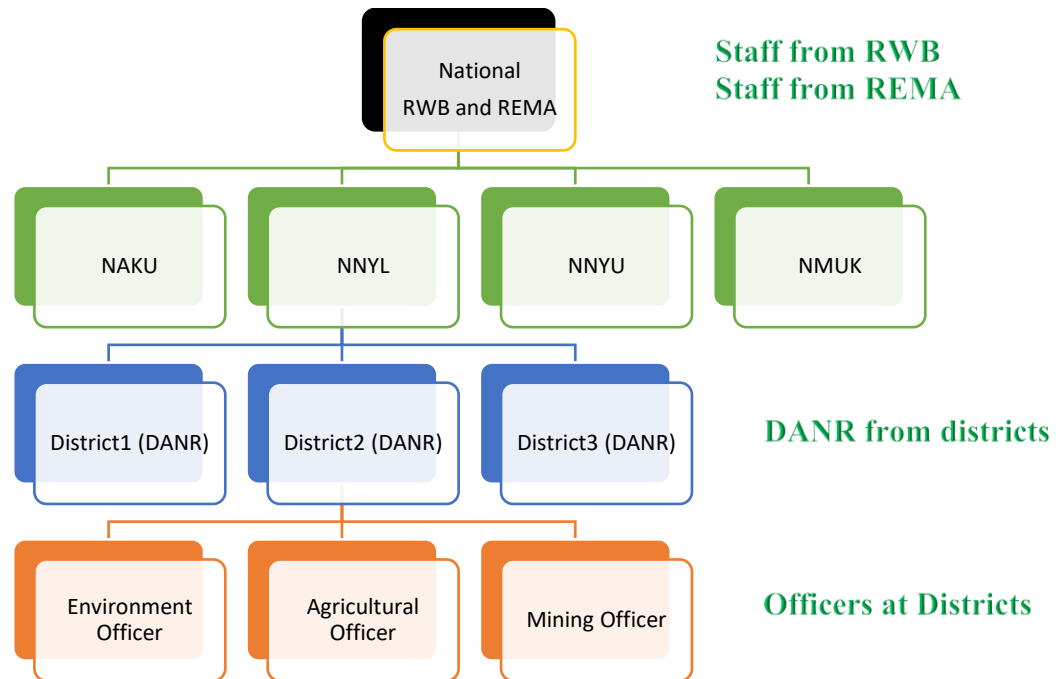

Figure 1 Diagram of the M&E system users. This diagram is based on the discussion with stakeholders during the Validation Workshop of 21-24 July 2020.

The trainees were composed by the staff from multidisciplinary services and units.

- Staff from REMA
- Staff at National level at Rwanda Water Board, RWB and at Rwanda Environment Management Authority, REMA
- Staff representing Catchment
- Directors of Agriculture and Natural Resources from 21 districts
- Environmental Officers at district level
- Agricultural Officers at district level
- Mining Officers at district level

The users' manuals and troubleshooting guide documents have been produced and uploaded to the platform. This is also part of protecting our environment by reducing the use of printed papers.

5. Trained staff and their districts.

The targeted users will come from 21 districts, but since the platform will expand to other catchment and districts, RWB and REMA can invite everyone who is considered as the stakeholder for this project and from other districts.

Table 2 Districts which will be included in the users of the M&E system.

No	DISTRICTS
1	BUGESERA
2	BURERA
3	GAKENKE
4	GASABO
5	GATSIBO
6	GICUMBI
7	KAMONYI
8	KAYONZA
9	KICUKIRO
10	KIREHE
11	MUHANGA
12	MUSANZE
13	NGOMA
14	NGORORERO
15	NYABIHU
16	NYAMAGABE
17	NYANZA
18	NYARUGENGE
19	RUHANGO
20	RULINDO
21	RWAMAGANA

6. Conclusion and Recommendations

According to the terms of references, the system will be accessed by registered users and each user should be registered based on their level of work. This means that partners and stakeholders should first request the permission to access data from the system administrator. For later improvements of the Monitoring and Evaluation tool, we recommend that any user who is registered should leave the feedback targeting to improve the functionalities of this system.

For the sustainability and for the maintenance of this tool, we recommend the strong partnership between University of Rwanda through the Center of Excellence in Biodiversity and Natural Resource Management and the School of ICT, with the Rwanda Environment Management Authority, Rwanda Water Board and with the Ministry of Environment, where the Center of Excellence in Biodiversity and Natural Resource Management will keep overseeing the growth of the system by maintaining communications between the University of Rwanda relevant units and the Center's nodes and partners, which include REMA, RWB, etc This will facilitate the continuous upgrading of the system as needed and the maintenance of its relevance for reporting, planning and management.

Prepared By:
MBONABUCYA Celestin
Phone: 0788695862
Email: cembonace@gmail.com
M&E IT Specialist

7. Annexes

7.1 The Training Schedule

Day and Date	Time	Activities	Responsible
2nd December 2020	8h00-8h30	Registration of Participants	All
	8h30-10h00	Demonstrate different types of users and their roles in the system As System Administrator Login s the user at District level	UR Team
	10h00-10h30	Coffee break	All
	10h30-12h00	Demonstrate how to Login as the user at Catchment level Demonstrate how to Login as the user at National Level	UR Team
	12h00-13h00	Lunch	All
	13h00-16h00	Practices, adding, updating, removing data, images and maps in the system, Planning, reporting and monitoring, Trends analysis based on the available images and uploaded maps	Trainees and Trainers
3rd December 2020	8h00-8h30	Registration of Participants	All
	8h30-10h00	Practices and support	Trainees and Trainers
	10h00-10h30	Coffee break	All
	10h30-12h00	Training summary and supporting manuals	UR IT Team
	12h00	Closing remarks	REMA and RWB
	12h00-13h00	Lunch and departure for RWB and REMA Team. The UR team will stay to finalize and adopt the	RWB and REMA

Day and Date	Time	Activities	Responsible
		comments provided during the training period.	
	13h00-17h00	Compiling, analyzing and adopting the provided comments on the Monitoring and Evaluation tool	UR Team
4th December 2020	8h00-12h00	Implementing the comments adopted during the training on the Monitoring and Evaluation System.	UR Team

7.2 The List of User Manuals

➢ User Manual at District Level Version 1.0

➢ User Manual at Catchment Level Version 1.0

➢ User Manual at National Level Version 1.0

➢ User Manual for the System Administrator Version 1.0

All of the above documents have been uploaded on the system to be accessible by end users.

7.3 The List of Trainees

The list of trainees have scanned and it is here attached.

7.4 The temporary M&E system Link

http://134.122.95.150/: This link will be used temporary and it will be replaced by the

permanent link which will be communicated later by REMA and RWB.

7.5 Recommended Camera for capturing the best images

Name: NIKON D3500 **Type:** Single-lens reflex digital camera **Effective pixels:** 24.2 million **Image size (pixels):** (L) 6000 x 4000 (24.0 million) (M) 4496 x 3000 (13.5 million) (S) 2992 x 2000 (6.0 million) **File format**: NEF (RAW): 12 bit, compressed JPEG: JPEG-Baseline compliant with fine (approx. 1:4), normal (approx. 1:8), or basic (approx. 1:16) compression NEF (RAW)+JPEG: Single photograph recorded in both NEF (RAW) and JPEG formats More: http://www.nikon.rw/en_RW/product/digital-slr-cameras/d3500#tech_specs
Name: NIKON D7200 **Type:** Single-lens reflex digital camera Image size (pixels): DX (24x16) image area (L) 5568 x 3712 (20.6 million) (M) 4176 x 2784 (11.6 million) (S) 2784 x 1856 (5.1 million) 1.3x (18x12) image area (L) 4272 x 2848 (12.1 million) (M) 3200 x 2136 (6.8 million) (S) 2128 x 1424 (3 million) Photographs with image area of DX taken during movie recording (L) 5568 x 3128 (17.4 million) (M) 4176 x 2344 (9.7 million) (S) 2784 x 1560 (4.3 million) Photographs with image area of 1.3X taken during movie recording (L) 4272 x 2400 (10.2 million) (M) 3200 x 1800 (5.7 million) (S) 2128 x 1192 (2.5 million) Photographs taken during movie recording at a frame size of 3840 x 2160: 3840 x 2160 (8.2 million) **File format**: NEF (RAW): 12 or 14 bit, lossless compressed or compressed JPEG: JPEG-Baseline compliant with fine (approx. 1:4), normal (approx. 1:8), or basic (approx. 1:16) compression; optimal quality compression available NEF (RAW) + JPEG: Single photograph recorded in both NEF (RAW) and JPEG formats