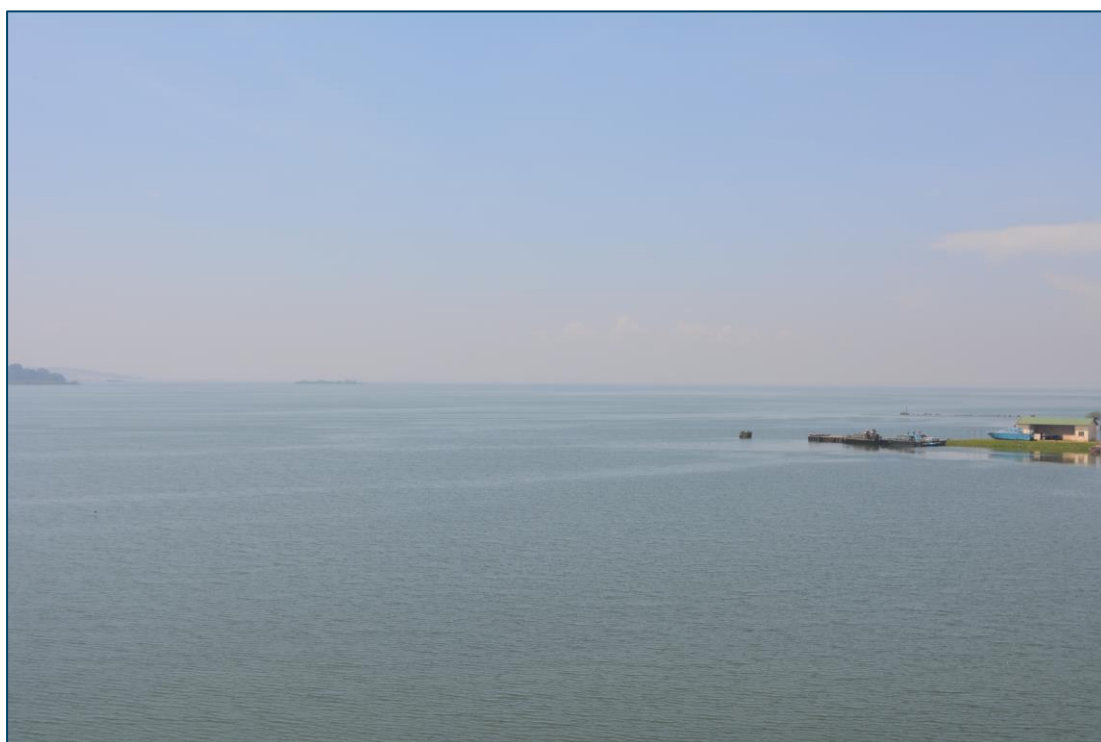


CTCN assistance in Uganda

Adaptation to climate change through improved information and planning tools for Lake Victoria

Deliverables 9 & 10 (activity 3.3) Roadmap and lessons learned



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CTCN assistance in Uganda

Adaptation to climate change through improved information and planning tools for Lake Victoria

Deliverables 9 & 10 (activity 3.3) Roadmap and lessons learned

Prepared for **UNEP**
Represented by **Mr. Manfredi Caltagirone**

Project manager	Sílvia Leirião
Quality supervisor	Oluf Zeilund Jessen
Prepared by	Sílvia Leirião, Christine Kaaya, Niels Riegels, and Oluf Z.Jessen
Project number	11820007
Approval date	19th of July 2018
Revision	Final version
Classification	Restricted



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Acronyms and Abbreviations

ASI	Agricultural Stress Index
CFS	Climate Forecast System
CGLS	Copernicus Global Land Service
CIESIN	Intergovernmental Panel on Climate Change Science Information Network
CORDEX	Coordinated Regional Climate Downscaling Experiment
CTCN	Climate Technology Centre & Network
EAC	East African Community
EDI	Effective Drought Index
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GDP	Gross Domestic Product
GFSAD	Global Food Security Support Analysis Data
IUCEA	Inter-University Council for East Africa
JAXA	Japanese Aerospace Exploration Agency
LMCS	Land Monitoring Core Service
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Project
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MUST	Mbarara University of Science Technology
MWE CCD	Ministry of Water and Environment Climate Change Department
MWE SSD	Ministry of Water and Environment Support Services Department
MWE DWRM	Ministry of Water and Environment Directorate of Water Resources Management
NAPE	National Association of Professional Environmentalists
NASA	National Aeronautics and Space Administration
NBI	Nile Basin Initiative
NCEP	National Centers for Environmental Prediction
NDE	National Designated Entity
NDVI	Normalized Difference Vegetation Index
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NOAA	National Oceanic and Atmospheric Administration
MEaSURES	Making Earth System Data Records for Use in Research Environments
MGLSD	Ministry of Gender Labour and Social Development
RAN	Resilient Africa Network
RCP	Radiative Concentration Pathway
SEDAC	Socioeconomic Data and Applications Center
SPI	Standardised Precipitation Index
SRES	Special Report on Emissions Scenarios
STEPUP	STEPUP Standard Limited
SVI	Standardised vegetation index
SWI	Soil Water Index
TRMM	Tropical Rainfall Measuring Mission
UNCST	Uganda National Council for Science and Technology
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNMA	Uganda National Meteorology Authority
VCI	Vegetation Condition Index
WCRP	World Climate Research Programme
WRIS	Water Resources Information System

Activity 3.3 Roadmap and lessons learned

The technical assistance is being implemented through three main activities forming the scope of work and key deliverables: Activity 1 – Stakeholder outreach; Activity 2 – Data access, model refinement, and development of guidelines for decision support; and Activity 3 – Dissemination and outreach. For more background information please refer to Activity 1 & 2 reports.

The main purpose of Activity 3 is to help stakeholders make use of the components of the technical assistance, and the formulated output from Activity 3 is:

Increased national and regional capacity for planning with focus on climate change impact on Lake Victoria. Roadmap describing recommendations for national and regional upscaling.

The four activities and deliverables of Activity 3 are the following:

- Activity 3.1 – Second national workshop to inform relevant stakeholders and organisations in Uganda about the outputs of the CTCN assistance.
- Activity 3.2 – Technical training to provide detailed knowledge and capacity in using the products of the technical assistance in Uganda on an ongoing basis.
- Activity 3.3 – Regional dissemination to all countries in the Lake Victoria region aims at providing awareness and knowledge of the technology to relevant organizations within the Lake Victoria region. This activity includes:
 - Regional dissemination to key organisations within the Lake Victoria basin through the council of ministers' meetings by the LVBC; dissemination of materials to all relevant national and regional stakeholders through LVBC web site.
 - Lessons learned report; Roadmap documentation describing recommendations for regional transfer of the technology and scaling up within future projects; including an evaluation of funding options through regional partnerships and donors for post response interventions.
- Activity 3.4 Evaluation and Learning will produce a monitoring and evaluation plan to monitor and evaluate the timeliness and appropriateness of the implementation; the update of the CTCN Impact Description; and a closure report.

This report contains the key deliverables under **Activities 3.3**. The first chapter provides a very brief background to the Climate Technology Centre and Network (CTCN) technical assistance and the second chapter lessons learned throughout the technical assistance including stakeholder recommendations. Finally, the third chapter lays out the roadmap that presents regional transfer and scaling up potential opportunities each matched with the appropriate potential funding option.

1 Brief introduction

Upon a request by the Lake Victoria Basin Commission (LVBC), the CTCN funded technical assistance on “Adaptation to climate change through improved information and planning tools for Lake Victoria”. The technical assistance kicked off in June 2017 with the objective to strengthen planning in the water resources and energy sectors in Uganda, at both long-term and seasonal timescales. In February 2018 a web portal was deployed making the data, information, tools and guidelines produced freely accessible online to all national stakeholders. The web portal titled **Adaptation to Climate Change portal – Lake Victoria and Uganda**¹, constitutes the platform provided by the technical assistance used to deliver embedded applications, namely:

Data and information – application providing free access to near real time data and information of relevance for the CTCN assistance

Basin planning – supporting basin planning through evaluation of existing and new investments, climate change and population pressure

Drought assessment – supporting the identification of areas with drought hazard and evaluating the impact on vulnerable sectors or areas

RDM tool and decision-making guidelines –supporting the decision process taking the uncertainty associated with climate change into consideration

Reporting – application to support dissemination of reports or bulletins to stakeholders

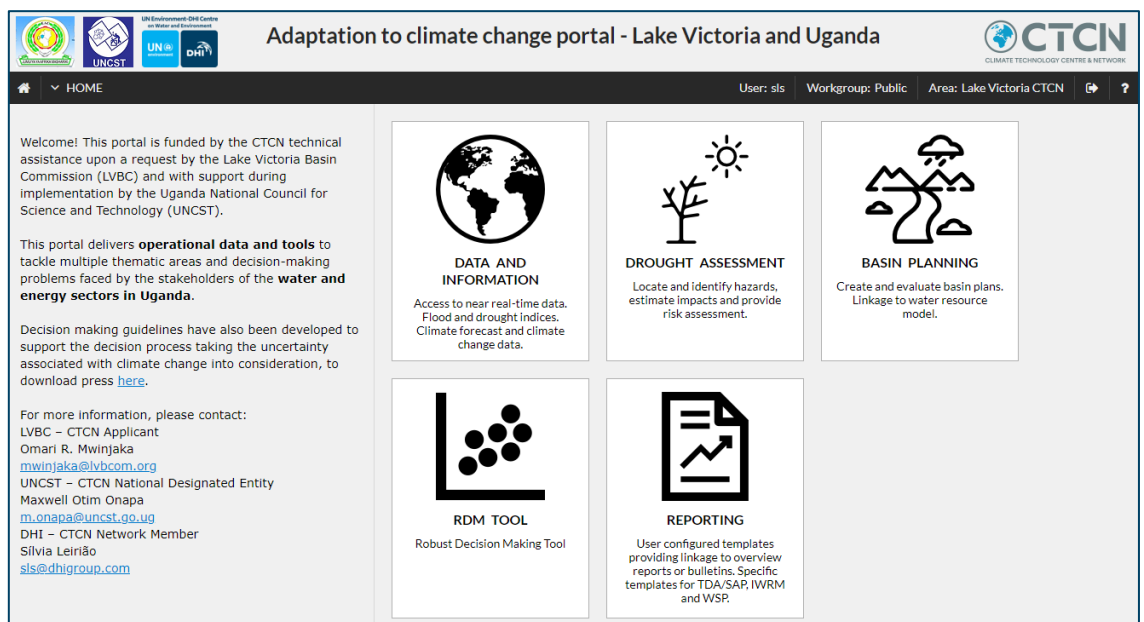


Figure 1 Screenshot of the home page of the web portal displaying the introductory welcome message, the link to the guidelines document and the four data and tool applications.

Simultaneously, the LVBC Water Resources Information System has been updated with static data consisting of climate change projections, and a procedure has been put in place to outline the import of seasonal forecast data monthly. This procedure is described in **Deliverable 6 (activity 2.2) Testing and demonstration report**.

¹ Portal address: <http://www.flooddroughtmonitor.com>

Engagement and preparation meetings with stakeholder institutions in Uganda – 5th to 9th of February 2018 – followed by a testing, validation and demonstration workshop – 21st and 22nd of March 2018 – with LVBC staff held at the UNCST premises.

From the 5th to 7th of June 2018 the final workshop and technical training took place in Entebbe as a residential event. Both the workshop and technical training were attended by the same participants, a total of 21 participants from 9 institutions.

A series of information sheets consisting of a two-page note on different aspects related to the deliverables were sent every week via email. This weekly interaction sprung a community of interested parties within each organization. It was also used for testing and demonstration purposes.

Activity 3 ended on the 30th of June bringing this technical assistance to closure.

2 Lessons learned

The following subchapters present the lessons learned during this technical assistance (TA). The expectation is that these will be applied when defining and structuring future responses to similar CTCN technical assistances as well as projects nationally and regionally that follow.

2.1 Gender mainstreaming in IT based TAs

The importance of gender mainstreaming was not obvious from the beginning as this technical assistance and its outputs do not require any field incursions or direct community interventions in climate change adaptation. The deliverables are part of an online platform and the data centrality and IT nature of the implementation seemed to be far from tangible gender sensitive impacts.

Our gender expert was brought in during the middle of Activity 1, and her main role in the technical assistance was to follow the final workshop and technical workshop which lasted three days to monitor and report on gender dimensions. The application of our gender expert's gender sensitivity assessment methodology resulted in much more than that:

- Initial intervention after the official opening of the event was crucial to introduce the participants to the component and putting them at ease, framing it from the start as being about freedom of speech for both female and male genders in general; this led to increased efficiency in stakeholder interventions during the events;
- Raising awareness to gender issues, providing take-away advice to participating stakeholders;
- Perception of going to the portal to see the future not the past must be addressed by emphasizing that the past informs the future and demonstrating with clear examples, especially looking at the individual level, men and women;
- Technical refinements to the portal were collected, namely including datasets with gender breakdown, and including gender in weekly communication and adding advice to advisors that include female targeted elements; highlighting the importance of pictorials such as the application buttons in the homepage;
- By the end of the event, stakeholders were pointing out the lack of female professionals in meteorology and hydrology related disciplines.

The input of the gender expert, though initially designed thinking only of capacity building, turned out to deliver very important recommendations for content and technical components of the portal, and it is strongly believed if more time and budget had been allocated, the input could have potentially influenced functionality. The integration of gender aspects in the usage of the system was accomplished through the capacity building and training component.

It is believed that if gender experts have their time provisions extended, even for a technology natured TA such as this one, many more benefits can be accrued.

2.2 Stakeholder mapping feedback loop

The success of this technical assistance was dependent on the engagement of identified stakeholders. The role of the UNCST was unequivocally crucial, and we managed to reach out to the stakeholders which are not only getting the most out of the deliverables but also being local champions in the use of the portal. These are the Uganda National Meteorological Agency,

the Climate Change Department of the Ministry of Water and Environment, the GIS Unit of the Ministry of Energy and Mineral Development, the National Association of Professional Environmentalists (NAPE). Two universities MUST and MUSPH were also engaged however the trickling of usage of the portal within class room or innovators would have to be ascertained following the training and further supported.

The LVBC was very engaged in the persons of Water Resources Management Officer and the WRIS operator and IT expert. The procedure created to allow import of seasonal forecast into the WRIS is in effect. However, as part of the roadmap the need to enhance the WRIS is proposed.

Despite efforts made in Activity 1 – Stakeholder outreach, the Ministry of Agriculture, Animal Industry and Fisheries was not included and is recognized as the missing key stakeholder in the technical assistance.

Therefore, to prevent this from happening in the future, it is suggested that a stakeholder mapping review task is added to the second activity of the scope of work, to make allowance for any extra efforts needed to in case there are stakeholders missing or not yet successfully engaged at that stage in the assistance. Bringing in a new stakeholder will be easier in the middle of the implementation than at the end before the final workshop and technical training. A robust stakeholder review task with allowance for 2 days of work and a potential extra mission, in the middle of Activity 2 would be most efficient in adding to the permanent and sustained user community of the portal.

2.3 Mentoring task

Closing the technical assistance was Activity 3 – Dissemination and outreach, designed to help stakeholders make use of the different components of the technical assistance, with a workshop and a technical training event.

Through stakeholder feedback it has been concluded that as part of this activity an additional time for mentoring interventions in the form of institutional one-on-one meetings after the final training, would greatly increase the uptake of the tools and would be a minor expenditure that could generate great impact on sustainability.

The impact of this task comprising skype mentoring and institutional workshops would be two-fold. Firstly, it would help combat the usual and existing perception that “help is gone” after the last training. Changing this perception that the last training is the last chance for help, would deeply impact the user community’s collective mindset, and increase sustained use of the technology.

The challenge would then be how to cap the mentoring task to an appropriate time following the final training event: an example could be minimum of 1 field intervention and 1 days’ worth of skype mentoring over a period of 3 months.

Learning and incorporating a new tool into our everyday work is very hard to do, however with the existing need for the deliverables of this technical assistance, the first step has been taken. The second and very cost efficient step would be the push needed for effective integration of the new tool. Within the Roadmap a proposed project responds to this need.

2.4 Advice to advisers

Dissemination has been a great focus of this technical assistance and it has been successfully addressed, with the development of a reporting application with automatic update and emailing of reports to users.

In the future, when carrying out work based on providing data and information, along with the dissemination task, it is recommended that a section on advisories is added. This additional component within the dissemination activity of the assistance would make room for focused and targeted preparation of written advisories for advice providers to use, in parallel with the user centric reporting experience.

This component would focus on providing “Advice to advisers” through the implementation of guidelines for how to use the outcome for specific purposes.

Advisers being the consumers of portal data and information with disseminating mandates themselves. A straight forward example is a Ministry of Agriculture official, or a member of a Civil Society Organization, who provides advice to farmers in rural areas based on drought indicators from the portal. Another one is for example, a Meteorological Authority official who uses seasonal forecasts from the portal as a complement to the ones produced by her/his office, and needs to relay the data and information to a team of Meteorologists for further analysis.

Additionally, the advisory section for advice to advisers would be a perfectly placed deliverable to include and specifically address gender sensitive issues such as:

- Promote the use of female appropriate mechanisms for dissemination (women groups, appropriate time slots appropriate during the day, etc);
- Promote decision making that highlights the most preferred and economical rewarding to women;
- Make detailed recommendations for regional dissemination use of appropriate and gender sensitive media, language, mechanism (radio, tv).

This component could be further complemented by training of champions who should be able to further advise and train other organisations.

3 Roadmap for regional transfer and scaling up

This roadmap is a tool designed to guide post response interventions. It results from discussions with key stakeholders nationally, regarding needs that can be met by scaling up the data, information and tools this assistance has delivered; and, discussions with the Lake Victoria Basin Commission regarding regional transfer. The roadmap consists of a key focus; a portfolio of projects aligned with stakeholder needs; technical, regional transfer and scale up recommendations; and proposed next steps.

Roadmap focus

- **Regional transfer and scaling up** of the capacity building and technology within future proposed projects and their conceptualization
- **Recommendations and proposed next steps** for technical improvements, sustainability and funding options

Regional transfer and scaling up

The proposed projects are presented across the next pages, showing the key parameters for the conceptualization of each project, namely, background, stakeholders involved, deliverables (what and why), funding options, known risks and range for project size (rough estimates: small 4 months, medium 6 months to 1 year, large over 1 year). All proposed projects are formulated for the first time and presented next. In some cases, lead institutions exist, in other cases these have not yet been identified. These are listed below:

- Decision making under uncertainty in agriculture in Uganda
- WRIS enhancement and capacity building with lessons learned from Uganda
- Development of MRV system for NDC Implementation
- Climate operational data enhancement for Uganda
- Adaptation to climate change portal from Uganda to Kenya, Tanzania, Rwanda and Burundi.
- Regional capacity building and gender mainstreaming

Barrier for scaling up

By the end of this technical assistance the biggest achievement pointed out by all parties, is multilevel buy-in, from high up management to very technical staff, ownership of the portal created, as well as a strong user community. Therefore, part of the conditions required for scaling up is in place: needs assessed and solutions found; portal implemented with data, information and tools; user community established; and projects wanted and drawn up. Thus far, the barrier has been identifying the correct funding option and allocation of resources to carry out the application process. The institutional setting and existing capacity is well understood and does not pose any barrier to the realistic implementation of the proposed projects. However, accessibility to funds jeopardizes the ability of the key stakeholders involved to bring this roadmap to fruition.

Project name	Decision making under uncertainty in agriculture in Uganda
Leverage	Flood & Drought Management Tools project funded by GEF through UNEP Adaptation to climate change portal - Lake Victoria and Uganda funded by CTCN
Stakeholders	UNMA; MAAIF; MWE CCD; NAPE UNCST; no lead identified.
Background and objective	Agriculture is the most important economic sector in Uganda. Many of the stakeholders engaged in the current technical assistance need to provide advice to farmers. Considering uncertainty at this level will place this stakeholder group at the forefront of innovation in climate technology. The main objective would be to add the ability to assess a crop growth module for evaluation of crop water demand and crop yield for agriculture seasonal planning
Deliverables	Extension of the existing Lake Victoria and Uganda portal with access to the FAO AquaCrop model allowing users to calculate crop growth and retrieve results as crop water demand and crop yield.
Proposed scope of work	Activity 1 Inception Project inception and kick off meetings. Stakeholder outreach and selection of use cases for decision making under uncertainty with focus on agriculture. Activity 2 Implementation Carrying out the necessary web development to plug in the crop tool from the Flood & Drought UNEP project to the Lake Victoria and Uganda portal. Carrying out the development of the use cases entailing workshops (minimum 2 interventions of 1 day) and testing and application of the crop and RDM tools. Development of specific advisories, that are appropriate for farmers and gender sensitive, to disseminate the results from the use cases Activity 3 Training and mentoring A technical training (minimum 3 days) for selected staff within the key organizations (maximum 20 participants) will be organised with the objective of providing detailed knowledge and capacity in using the new crop application. Remote mentoring to be done after the training (minimum of 2 days' worth of skype mentoring over a period of 3 months).
Project size range	Small (approx. < 120,000 USD)
Known risks	Inability to obtain workable use cases; unsuccessful engagement of agriculture stakeholders.
Funding option	National funding / To be determined
Useful links	http://fdmt.iwlearn.org/about http://www.flooddroughtmonitor.com https://www.ctc-n.org/technical-assistance/submit-request

Project name	WRIS enhancement and capacity building with lessons learned from Uganda
Leverage	<p>Development of a Water Resources Monitoring Information System (WRMIS) for Monitoring Surface Water, Groundwater and Water Quality including a GIS-based Database for Land-use, Hydrology and Biodiversity in the Lake Victoria Basin, LVBC, EAC, 2014</p> <p>Flood & Drought Management Tools project funded by GEF through UNEP</p> <p>Adaptation to climate change portal - Lake Victoria and Uganda funded by CTCN</p>
Stakeholders	LVBC (lead)
Background and objective	After three years in operation of the WRIS system, many lessons have been learned and enhancement and improvement is not only needed but required, to continue fostering exchange of data and information, users (such as with any IT software) need continuous added value and need to feel like technology is up to date.
Deliverables	Enhanced WRIS with up-to-date technology, data, information and tools.
Proposed scope of work	<p>Activity 1 Inception Project inception and kick off meetings. Engagement of high level and technical staff. Review of existing WRIS system. Review of country exchange of data. Review of system operation roles. Technical specifications design, and data exchange rules and regulations.</p> <p>Activity 2 WRIS enhanced pilot system In this activity a pilot system will be quickly implemented to allow exposure to the new system from the beginning. Based on the current limitations of the WRIS, and the data and tools which are now available, it is expected that the pilot system will be focused on improvement of the User Interface with added functionality to allow comparison of spatially distributed grids; added time series data analysis functionality similar to what has been done in the Adaptation to climate change portal - Lake Victoria and Uganda assistance; and added remote sensing data and information that is automatically and continuously updated also similarly to the leveraging previous projects.</p> <p>Activity 3 Refinement of specifications and methodology for testing Refining technical specifications, data exchange, rules and regulations, and operational roles. Use cases for testing.</p> <p>Activity 4 Development and testing of the enhanced WRIS Based on the refined technical specifications, in this activity the final version of the enhanced WRIS will be finalized. A testing phase at country level with specific use cases should be included.</p> <p>Activity 5 Capacity building To run throughout the project: from a first intervention for training at each country in using the pilot system; several national workshops to test and refine the specifications; minimum 2 technical training sessions at LVBC and 2 per country. High level workshops for approval of data exchange rules, operational roles and overall system buy-in.</p>
Project size range	Medium (approx. up to 250,000 USD) to Large (approx. > 250,000 USD)

Known risks	Finding the best solution for exchange of national data; setting up rules and regulations approved by the countries to guide the exchange.
Funding option	To be determined
Useful links	https://www.lvbcom.org/index.php/node/48 http://lvbc.wris.info

Project name	Development of MRV system for NDC Implementation
Leverage	Adaptation to climate change portal - Lake Victoria and Uganda, CTCN Flood & Drought Management Tools project
Stakeholders	MWE – CCD (lead)
Background and objective	<p>Article 13 of the 2015 Paris Agreement establishes the Enhanced Transparency Framework (UNFCCC 2015). The framework was established to enable the tracking, comparing and understanding of national commitments worldwide to fight climate change. The “transparency framework” requires countries to regularly provide: (i) A national inventory of greenhouse gas emissions (by sources) and removals (by sinks) (ii) Information necessary to track progress toward achieving their Nationally Determined Contribution (NDC) (iii) Information related to climate change impacts and adaptation (iv) information on financial, technology transfer and capacity building support needed and received and (v) information on any support they provide to developing countries.</p> <p>Thus, the need to develop a functional Measurement Reporting and Verification (MRV) system that will support the country in tracking the GHG Emissions, the amount of resources coming into the country in terms of support and the number of climate change activities/interventions/projects happening in the country</p>
Deliverables	Functional MRV System in place Capacity built for officers to operationalize the system
Proposed scope of work	<p>Activity 1 Inception Project inception and kick off meeting. Outline of datasets to be improved, materials and methods, as well as best practice methodologies.</p> <p>Activity 2 Stakeholder engagement Identify the key public and private sector stakeholders necessary for its design, development and sustainability. Engage the MRV working group from the key institutions, sectors and development partners</p> <p>Activity 3 Capacity building needs and technical specifications Review and determine the short, medium to long-term capacity building needs to support implementation of the MRV system and develop capacity building modules. Establish the scope and structure of the system including the data, models, techniques and accounting methods, that are part of the Measurement, Reporting and Verification (MRV) system</p> <p>Activity 4 Deployment and data testing Establish the MRV system template. Run MRV system developed, monitor and review performance, take note of challenges, design and implement improvement strategies. Design and conduct capacity building trainings and workshops on the implementation of the MRV system</p>
Project size	Medium (approx. up to 250,000 USD)
Known risks	Limited institutional collaboration, and release of required information might be a source of delays in development.

Funding option	National funding / To be determined
Useful links	http://www.ccd.go.ug/

Project name	Climate and forecast data enhancement for Uganda
Leverage	Flood & Drought Management Tools project funded by GEF through UNEP Adaptation to climate change portal - Lake Victoria and Uganda funded by CTCN
Stakeholders	UNMA (lead); UNCST;
Background and objective	The Lake Victoria and Uganda portal developed as part of the current TA has brought to the UNMA access to a wealth of data; and the UNMA as the mandated institution to curate, manage and produce weather and climate related data has the unique capability to enhance it. The UNCST can leverage the scientific development component of the project.
Deliverables	Improved quality of the available climate forecast data, where the specific details will have to be decided but it could include bias-correction of climate forecast based on ground stations, adding performance indicators etc.
Proposed scope of work	<p>Activity 1 Inception Project inception and kick off meeting. Outline of datasets to be improved, materials and methods, as well as best practice methodologies. Setup of online communication structure to facilitate safe and sound exchange of national data and information to be used, as well as efficient IT development framework. Outline of data testing methodology.</p> <p>Activity 2 Methodological test Activation of the communication and testing of the methodology set out together with the UNMA with pilot dataset enhancement case. Meetings potentially in Uganda and Denmark. Evaluation of data performance. Refinement of materials and methods and methodological approach.</p> <p>Activity 3: Capacity building for UNMA staff in numerical modelling, tailored products development, seasonal forecast production at centres of excellence at ICPAC, Nairobi.</p> <p>Activity 4 Dataset enhancement with UNMA This will be the most time expensive activity for the application of tested and refined methodology. Meetings and team work sessions at UNMA. Integration of new datasets in UNMA data management systems.</p> <p>Activity 5 Deployment and data testing New datasets deployed and operational. Need for minimum 6 months monitoring and remote interactions between the teams during the testing phase of the operational data.</p> <p>Activity 6 Awareness creation and Dissemination of weather and climate information to enable users have access to the information. This will be done using Radio, talk shows, Workshops, surveys, end users community meetings.</p>
Project size range	Medium (approx. up to 250,000 USD)
Known risks	Inappropriate data quality, and methodological approach refinement is the source of a lot of uncertainty. Might be the source of delays in development.

Funding option	National funding / To be determined
Useful links	http://www.unma.go.ug/ https://uncst.go.ug/

Project name	Adaptation to climate change portal from Uganda, to Kenya, Tanzania, Rwanda and Burundi
Leverage	Flood & Drought Management Tools project funded by GEF through UNEP Adaptation to climate change portal - Lake Victoria and Uganda funded by CTCN
Stakeholders	LVBC and National stakeholders including Ugandan counterparts for knowledge sharing (no lead identified)
Background and objective	Access to data and information, tools and guidelines for decision-making under uncertainty must be replicated to the countries of the basin to promote innovation and technological alignment, as well as knowledge sharing.
Deliverables	Adaptation to climate change portal and user community development in each of the Lake Victoria Basin countries applying the lessons learned from Uganda.
Proposed scope of work	<p>Activity 1 Inception Kick off meeting at the LVBC, Kisumu Kenya. Workshop in each of the countries for stakeholder outreach. Identification of key issues for each country and revise offerings of the Flood and Drought Management Tools project by UNEP. Selection of use cases for decision making under uncertainty.</p> <p>Activity 2 Implementation Establishment of Adaptation to climate change portal for each country based on what was created for Uganda. Carrying out the necessary web development to plug in tools from the Flood & Drought UNEP project. Carrying out the development of the country use cases entailing workshops (minimum 2 interventions of 1 day) and testing and application.</p> <p>Activity 3 National training Technical training (minimum 3 days) for selected staff within the key organizations (maximum 20 participants) will be organised with the objective of providing detailed knowledge and capacity in using the data, information and tools.</p> <p>Activity 4 Regional knowledge sharing and mentoring Regional closing workshop at LVBC in Kisumu and remote mentoring to be done after the training (minimum of 1 week of skype mentoring over a period of 3 months).</p>
Project size range	Medium (approx. up to 250,000 USD) to Large (approx. > 250,000 USD)
Known risks	Incorrect selection of participating staff members, jeopardizing the sustained use of the portal within the countries. Different IT conditions within different countries can affect implementation and effective dissemination of tools.
Funding option	To be determined
Useful links	https://www.lvbcom.org/index.php/node/48

Project name	Regional capacity building and gender mainstreaming
Leverage	Flood & Drought Management Tools project funded by GEF through UNEP Adaptation to climate change portal - Lake Victoria and Uganda funded by CTCN
Stakeholders	LVBC and national water, energy, agriculture and meteorology agencies (no lead identified)
Background and objective	To help regional stakeholders make use of the different components of the portal and increase the national and regional capacity for with focus on climate change impact on Lake Victoria.
Deliverables	Training events in the Lake Victoria countries replicating the capacity building component of the CTCN technical assistance to Uganda on using the portal.
Proposed scope of work	Activity 1 Stakeholder outreach Stakeholder outreach, introduction to the portal tools and selection of participants. Activity 2 Capacity building and mentoring A technical training (minimum 3 days) for selected staff within the key organizations (maximum 20 participants) for each of the member countries. Remote mentoring to be done after the training (minimum of 1 week of skype mentoring over a period of 3 months).
Project size range	Small (approx. < 120,000 USD)
Known risks	Incorrect selection of participating staff members, jeopardizing the sustained use of the portal within the countries.
Funding option	To be determined
Useful links	https://www.lvbcom.org/index.php/node/48

Recommendations and proposed next steps

Recommendations coming out of the lessons learned during this technical assistance as well as proposed steps are presented below.

Technical recommendations

The following are recommendations by stakeholders made after the implementation and refinement stage. These could be implemented if further development of the portal is taken forward. These recommendations would not be performed by stakeholders, but by developers, and would be adopted as improvement specifications by any of the scaling up proposed projects. The recommendations are grouped per section of the portal:

Data and Information

- Adding datasets on fishery, endangered vegetation species (IUC or UNEP?)
- Allow toggling between districts versus catchments, or allow display of what districts fall within each catchment;
- Include other denominations for variables such as “frequency of rain in a week”;
- Exploring and adding more datasets on water quality to the portal;
- Use of radio buttons instead of check boxes when only one selection is possible (for example, for raster data).

Basin planning

- Outputs from the basin planning application linked to reporting tool;
- Options for downloading basin planning indicator values.
- Include local currencies

Reporting

- Added functionality of sub-workgroups.

General

- Further testing of data to include mountainous areas; varying distances from Lake Victoria, positioning of weather stations, impacting on correlation to observed data; in general, there should be provision for a more extensive and comprehensive data validation component;
- More pictorials should be included in the design of the platform and if possible in the tools to improve understanding and better use of functionality;

Recommendations related to gender

First and foremost, it is recommended that all proposed national and regional projects include gender experts and that the inputs of gender experts are used during design of specifications of IT deliverables, hence their expected effort should be expanded beyond capacity building and training.

Secondly, in future projects that deal with access to data and information, in the case it is possible include datasets that have gender break down (in the current assistance all data must be free, and finding this type of detailed information from a source considered reliable was not possible), such as:

- Population layer break down
- % female in farmer work force
- Regional interest livelihood options, identify the most preferred crop by females

As well as the inclusion of gender sensitive and health related datasets, such as:

- Cholera dataset (WHO?)
- Feeding patterns;

And when relevant and appropriate, in technical assistances or projects of similar nature and socio-economic context, mention women farmers directly, for example:

- In decision making methodology
- In case studies.

Furthermore, due to the broad spectrum of stakeholders involved, covering government institutions to universities, future projects can take advantage of the congregated forum to promote gender sensitive action such as the need to increase female graduates in the disciplines of Meteorology and Hydrology; as well as looking at the individual level, men and women, working and collaboration methods and ethics.

Sustainability and scale up recommendations

Within the scope of future projects scaling up this technical assistance or of implementations of similar nature, to increase the level of sustainability, it is recommended that the following activities are included due to lessons learned:

- A stakeholder mapping review task, to make allowance for extra time needed in case there are stakeholders missing or not yet successfully engaged at that stage in the project/assistance;
- A mentoring activity that follows the final training and capacity building efforts; this component could be further complemented by training of champions who should be able to further advise and train other organizations;
- A component designed to provide “Advice to advisers” with workshops for production of written advisories for how to use outcomes for specific purposes, and targeting specific audiences; this task and deliverables should address directly gender sensitive issues.

Nationally, two institutions have prepared and co-wrote two of the projects concepts, having established firm institutional lead, namely, the UNMA in proposed project **Climate and forecast data enhancement for Uganda**; and the CCD in proposed project **Development of MRV system for NDC Implementation**. It is recommended that priority is given to these projects and next steps are taken to direct funding and setup project proposals. These are two technical assistance and climate change adaptation technology projects, laid out by the lead institutions, that are focused and in line with very specific needs.

Regionally, it is recommended that the WRIS operation continues to integrate the procedure for import of the seasonal forecast data. It is also recommended an information note is disseminated in the countries, informing on the new data available, namely climate change projections and seasonal forecasts, and how to interpret the datasets.

Additionally, regional transfer would be most efficiently implemented by moving forward with proposed project **Regional capacity building and gender mainstreaming**. Firstly, it is a project in the small size range, as it does not include the country focused activities of the proposed project which would result in a climate change adaptation portal for each individual country. It would focus on creating a user community within the region. Secondly, should the WRIS be further enhanced with components from “Adaptation to climate change portal Lake Victoria and Uganda” or the “Flood and Drought Management Tools” project, by having this initiative implemented beforehand, the WRIS relevant institutions from this regional user community created, would then be very well prepared to uptake the enhanced system.

Considering the LVBC’s interest and need to enhance the system put in place in 2015, it is highly recommended efforts are made to bring proposed project **WRIS enhancement and capacity building with lessons learned from Uganda** to fruition. The technology needs an update, and considering it can build on the tools and data that are already developed, the project would be time efficient, giving leverage to the other project activities such as gender

mainstreaming and input during technical implementation, strengthening of stakeholder engagement, and capacity building that includes a mentoring activity.

Finally, regarding sustainability of the current portal, it will be maintained by DHI for 2 to 3 years. In parallel, if any of the proposed projects are taken forward, uptake of data and tools developed would not only be ensured, it would be so by direct integration into institutions own systems. This clearly points to the real need that existed for data and tools, and the importance of this technical assistance.

Next steps and funding options

The next proposed steps are needed to secure the funding and move forward.

- i. Identify leads: it is proposed that the LVBC takes the lead regionally and the UNMA, CCD and UNCST take the lead nationally.
- ii. Leads to perform a prioritization of which project to be pursued regionally:
 - WRIS enhancement and capacity building with lessons learned from Uganda
 - Adaptation to climate change portal from Uganda to Kenya, Tanzania, Rwanda and Burundi.
 - Regional capacity building and gender mainstreaming
- iii. and nationally:
 - Decision making under uncertainty in agriculture in Uganda
 - Development of MRV system for NDC Implementation
 - Climate operational data enhancement for Uganda

ID	Project	Rationale	Prioritization
P1	WRIS enhancement and capacity building with lessons learned from Uganda		?
P2	Decision making under uncertainty in agriculture in Uganda		?
...			...

- iv. Identify most feasible funding option and process for accessing funds for full project proposal preparation
- v. Select staff members to spearhead the process
- vi. Laying down milestones and corresponding dates

ID	Milestones	Responsible	Target date	Status
P1	Institutional contact established, proposal team kick off meeting	?	01/09/18	Completed
P1	Detailed scope of work		01/10/18	Ongoing
...	...			?

- vii. Application for funding, proposal writing, approval and submission.