Closure and Data Collection Report for CTCN Technical Assistance

1. Basic information

Title of response plan	**Adaptation to climate change through improved information and planning tools for Lake Victoria**
Country / countries	**Uganda**
NDE focal point and organization	**Uganda National Council for Science and Technology (UNCST)**
Proponent focal point and organization	**Lake Victoria Basin Commission (LVBC)**
Sector(s) addressed	**Water and energy**
Technologies supported	**Basin level planning** **Climate change vulnerability assessment** **Hazard mapping** **Integrated planning** **Open source climate data and tools** **Remote sensing & GIS** **Water allocation** **Water resource assessment**
Implementation period and total duration	**20/04/2017 to 30/06/2018**
Total budget for implementation	**USD 246,243**
Designer of the response plan	**UNEP-DHI**
Implementer of response plan	**UNEP-DHI**

2. Summary of all activities, outputs and products that contribute to the expected impact of the technical assistance.

Description of delivered outputs and products as well as the activities undertaken to achieve them. In doing so, review the log frame of the original Response Plan and refer to it as appropriate.	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, running until June 2018. 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 (Portal address: http://www.flooddroughtmonitor.com), is the platform used to deliver embedded applications each of them in line with the Response Plan objectives, 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 Additionally, the following written deliverables were produced: • Minutes of the first national workshop (15 June 2017) – List of

	relevant stakeholders drafted • Report on Feedback and Case studies – summary of identification of potential case studies for demonstration and testing of the technologies • Technology Specifications and Methodology report – detailed description of the technologies to be included; and description of the testing and demonstration of the tools • The Decision-Making Guidelines document • Web platform tools documentation and user guide • Testing and Demonstration report • Training materials consisting of technical training exercises and presentations • 30 infosheets and attachments sent to the stakeholders and portal user community weekly • Final workshop and training summary report • Roadmap and lessons learned report – describing recommendations for regional transfer of the technology and scaling up within future projects; and evaluate funding options. • CTCN Impact Description; the Technical Assistance Monitoring and Evaluation plan; and the Closure report.doc This platform along with the generation of a user community across 9 different institutions in Uganda is the main achievement of this assistance fulfilling the objective of providing free access to data, information and tools to assist in climate change adaptation planning and decision making. At a regional level, the Lake Victoria Basin Commission's Water Resources Information System, was complemented with climate change projections, and the placement of a procedure to outline the import of seasonal forecast data monthly. Finally, since early on during this technical assistance, a series of information sheets were sent off weekly, about the data, information and tools. Each information sheet or Infosheet for short, consists of a two-page note on different aspects related to the deliverables such as: access to the time series and spatially distributed data for Uganda and the Lake Victoria Basin area, in near real time; climate data, seasonal forecasts and a variety of indicators; or applications such as the drought assessment, reporting and basin planning. Others regarding the functioning of the web portal. This weekly interaction grew and formed a community of interested parties within each organization constituting a major achievement. The Roadmap for regional transfer and upscaling includes a portfolio of proposed projects concepts designed with stakeholder input; as well as technical and gender-related recommendations; sustainability and scale up recommendations; as well as proposed next steps for finding funding options. By the end of this technical assistance 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. The main challenge 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 build on their work with the platform, to sustain it and proceed to regional transfer and scaling up.
Partners organizations	UNEP-DHI, Lake Victoria Basin Commission (LVBC) and UNCST
Beneficiaries	LVBC and UNCST Uganda National Meteorological Authority Ministry of Water and Environment, Climate Change Department Ministry of Energy & Mineral Development, Energy Resources Development, GIS Unit Makerere University School of Public Health Mbarara University of Science and Technology National Association of Professional Environmentalists Nile Basin Initiative Secretariat Indirect beneficiaries are inhabitants of the catchments in Uganda and the Lake Victoria basin
Methodologies applied to produce outputs and products	Meetings and workshops with stakeholders Web development Computer programming Bulk data downloading and processing Data correction procedures Statistical analysis of data including area weighted averaging Hydrologic and water allocation modelling Scenario analysis Robust decision making
Deviations	In addition to the Decision Making Guidelines document, a tool was added to the portal supporting application of the guidelines.
Achieved or anticipated gender benefits from the TA	Gender equality promoted through the impact of the outcomes reducing the vulnerability of women as for example: • The results from the gender sensitivity assessment provided guidance on how to conduct the training and capacity building component. • During capacity building, awareness to gender issues was raised, providing take-away advice to participating stakeholders. • Technical refinements to the portal were obtained resulting from the gender sensitivity assessment. • Recommendations for future scale up projects or TAs of similar nature include specific gender-related recommendations with regards to the project scope and technical specifications.
Achieved or anticipated co-benefits from the TA	Improved water resource management and hydropower production based on climate resilient and robust solutions. Improved water resource management resulting in increased water availability and crop security. Impacts on the energy sector will improve the well-being and livelihood through a more robust and stable energy supply. A robust and climate resilient water resource management will reduce the inequality within and among the countries.

	The response plan ensures improved technologies and information to combat climate variability and climate change. The technologies for improved water resource management could assist in reversing land degradation and desertification through improved water management during the dry season. The response will interact with regional organisations with the aim of strengthening synergies in building resilience to climate change in the region. A co-benefit of better informed management of the water resources is the reduction of negative impacts to the fishery resources from the Lake such as decline in fish stock. Another co-benefit is the positive impact water quality of the lake, specifically in fighting the water hyacinth infestation estimated to have US$ 4.5 million in costs for Uganda (East African Community, Transboundary Diagnostics Analysis of the Lake Victoria Basin, 2007). Indirectly and at a large time scale, should the assistance succeed to foster larger projects informed by seasonal and climate projections and planning tools made available, this will impact the 7.5 million inhabitants of the Ugandan Lake Victoria basin area.
Anticipated follow up activities and next steps	The outcome of the CTCN assistance has been a community of users from 9 institutions applying the free data, information and tools to their daily activities. The capacity building regional proposed project would expand this user community. The linkage to regional organisations and institutes will be used to pursue further collaboration on climate change adaptation in the region. The Proponent will actively facilitate that the outcomes of the CTCN assistance is embedded in future projects related to climate change adaptation. The developed roadmap documentation in transfer of technology and scale up will be used actively to pursue further funding within climate change adaptation for a total of 6 proposed national or regional projects.

1. Lessons learnt

Instruction: Per lesson, indicate which stakeholders would benefit most from what you have learned. In formulating your lessons, see them as recommendations for those that will be put in a similar situation like yourselves in the future. What would they need to do (or not do) based on your learning? This will enable CTCN to incorporate your lessons in other technical assistances.

	Lessons learnt	**Recommendations**
Lessons learnt in the area of the TA *Instructions: Indicate essential factors contributing to successful implementation, as well as specific challenges. Recommendations include considerations on what would need to be in place for*	• The importance of gender mainstreaming in IT based TAs; the application of our gender expert's gender sensitivity assessment methodology resulted not only in the training and capacity building component being imparted	• 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

increasing success of similar efforts (i.e. regulatory, legal, stakeholders, communication, etc.)	with guidance from the assessment; or on awareness to gender issues was raised, providing take-away advice to participating stakeholders; it also resulted in technical refinements to the portal being gathered forming now part of the technical recommendations for future scale up projects or TAs of similar nature. • The need for a stakeholder mapping feedback loop; the success of this technical assistance was dependent on the engagement of identified stakeholders. It is suggested that a stakeholder mapping review task is added in the middle of the implementation activity of future projects to make sure the list stakeholders is updated and missing entities added before it is too late.	should be expanded beyond capacity building and training. • 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: • As well as the inclusion of gender sensitive and health related datasets, 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 and case studies. • 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. • It is recommended that a stakeholder mapping review task is added to scopes of work in the future, 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;
Lessons learnt related to climate technology transfer *Instructions: Indicate Opportunities, challenges and barriers for the use and deployment of the technology or technologies supported by the TA. The objective is to identify specific success factors for technology transfer. This information will feed the CTCN technology library and will contribute to increase learning on specific technologies*	• The need for a mentoring task, in the form of institutional one-on-one meetings after the final training; this would greatly increase the uptake of the tools and would be a minor expenditure that could generate great impact on sustainability. • The need for more specific and targeted dissemination task, such as the 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 outcomes for specific purposes.	• 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; • It is recommended that future scoped of work have an added 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.
Lessons learnt related the CTCN process for TA		

4. Illustration of the TA and photos

Instruction: For communication purposes, please provide 2-4 Power Point slides with illustrations or charts showing the TA process, applied methodology, activities, outputs and achieved results. The illustrations must be copied into the TA Closure report but must also be delivered as power point files. Also, please provide at least five high-resolution pictures in jpg format, capturing technical assistance (to be used as communication materials on the website, in progress report, etc.). The pictures should illustrate how the TA has impacted the lives of the beneficiaries in particular and the communities in general.

5. Information for TA impact description (for public use)

Instruction: The information in the table below will be used by the CTCN to produce the CTCN TA Impact Description. The TA Impact description is a 2-page summary document for communication purposes. Please copy information from sections above and technical delivery reports as required.

Challenge (approx. 500 characters with spaces)	The hydrology of Lake Victoria is mostly a function of the balance of rainfall and evaporation on its surface. Historical climate variability has resulted in fluctuations in water volume (UNEP 2013). Climate models predict changes to this balance with potentially serious impacts that have implications for the approx. 30 million inhabitants and key economic sectors. Improved technologies for making climate resilient decisions are critical for the sustainability of water use in the basin.

CTCN Assistance (2 to 4 bullet points. Approximately 450 characters with spaces)	• Access to state-of-the-art ensemble climate projections, seasonal forecasts, and satellite-based historical data through a web based interface. • Refine existing hydrological and water allocation model for use in the Lake Victoria basin. • Guidelines for using ensemble projections of climate variables in decision-making under uncertainty. • Demonstration to local use cases. • Gender sensitive dissemination and outreach activities.
Anticipated impact (2 to 4 bullet points. Approximately 250 characters with spaces). As a minimum, please include one of the following: i) Quantity of greenhouse gas emissions reduced, avoided or sequestered; or ii) Number of people with increased capacity to adapt to the impacts of climate variability and change.	• Over 15 participants from government institutions were impacted, now having free access to data they can apply from day-to-day operations to research projects or desktop studies. • Narrowed the gender gap in terms of access to information, through workshop and training activities. • Approximately 43 people with increased capacity to adapt due to access to improved data, information and tools, these are the main user community of the
Linkages and contribution to NDC (2 to 4 bullet points. Approximately 350 characters with spaces).	• Developing vulnerability risk mapping by using the ensemble climate projections and satellite based data for the basin. • Providing alternatives to guide decision making in Uganda's prioritized NDC adaptation and mitigation options of the agriculture and energy sectors. • Contributing to the realization of Priority area A of the UNFCCC Gender Action Plan (GAP) • Priority D subsection b) • And Priority area E sub section b).
The narrative story (Approximately 1200 characters with spaces)	The Lake Victoria Basin Commission (LVBC) and key institutes in Uganda have very specialised knowledge and focus on climate change adaptation. The CTCN technical assistance was developed as a natural part of the outcomes of previous projects related to this topic: for e.g. Flood and drought management tools project (GEF & UNEP 2014-2018), the Nile Basin Adaptation to Water Stress (UNEP 2013) and Lake Victoria Environmental Management Plans-I and II (LVBC 2009), all having shown a need for further refining and adjusting the existing technologies for climate change impact and planning within the Lake Victoria region. The CTCN technical assistance (TA) resulted in a free basin planning online application to serve as a valuable tool with the ability to simulate impacts of climate scenarios on existing and/or planned interventions. The TA generated valuable insight to the decision makers by providing access to ensemble climate projections and seasonal forecasts in conjunction with guidelines for their application and other drivers in decision-making under uncertainty. The CTCN assistance was facilitated by CTCN's partner UNEP-DHI collaboration center utilizing the technical expertise at DHI. <u>Reports currently being informed by the CTCN Uganda and Lake Victoria portal</u> - Water quality status for Lake Victoria, bulletin shared by the LVBC amongst member states

	- Seasonal forecast report automatically generated and sent weekly to the LVBC - UNMA was using CHIRPS rainfall dataset for their own assessments - Uganda Climate Change Vulnerability Assessment Report written with data from the portal by the CCD - User community has their own private reports set up, being automatically updated and sent to their emails weekly. For example, NAPE is monitoring the Lake Albert valley communities and uses SPI forecast to supplement their assessment. Note: LVBC: Lake Victoria Basin Commission MWE CCD: Ministry of Water and Environment Climate Change Department UNMA: Uganda National Meteorology Authority NAPE: National Association of Professional Environmentalists
Contribution to SDGs (to the extent possible, please include contribution to +/- 3 SDGs) , describing the contribution with a few sentence for each SDGs concerned). A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/.	SDG 6: Ensure availability and sustainable management of water and sanitation for all • Improved ability to evaluate impacts from climate change on the water resources, which is a critical aspect of sustainable management SDG 7: Ensure access to affordable reliable, sustainable and modern energy for all • Strengthened planning and robust decision making tools supporting the decision process with guidelines for inclusion of climate change impact in national and regional planning SDG 13: Take urgent action to combat climate change and its impacts • Enable decision makers and stakeholders to use the transferred knowledge, practices and technologies

Note: Please see example of a TA Impact Description at the following link:
https://www.ctc-n.org/sites/www.ctc-n.org/files/benin_a_ag_forestry.final_.pdf

Annex 1 (for internal use in donor and UN reporting)

A. Standardised CTCN performance indicators for donor and UN internal reporting

Instruction:

Please add quantitative values for indicators relevant to the particular TA in the list below. Non-relevant indicators should be left blank.

Please only fill in the table for activities and outputs conducted or produced directly by the CTCN assistance, and that are verified by the end of the assistance.

CTCN standardised performance indicators	**Quantitative value**	**Qualitative description** *List the various elements corresponding to the quantitative value*
1. Overview		
Number of active person-days (not full duration) of assistance provided to counterparts or stakeholders by international experts and consultants	**184**	**2 international experts participating in all activities**
Number of active person-days (not full duration) of assistance provided to counterparts or stakeholders by national experts and consultants	**5**	**1 national gender expert participated in Activities 3.1 and 3.2**
Number of for external communication and outreach activities conducted to showcase the assistance (news release, newsletters, articles on website, etc.)		
2. Events (other than trainings) held as part of the assistance		
Number of international and multi-country (at regional or sub-regional level) technology and knowledge sharing events	**1 meeting**	**Activity 3.3 Dissemination to all 5 countries in the Lake Victoria region through LVBC council**
Number of participants in the events above	**Approx. 11 participants**	**Dissemination meeting Activity 3.3**
Number of national technology and knowledge sharing events	**5**	**Activity 1.1 National workshop** **Activity 2.1 Round of meetings at different stakeholder's offices** **Activity 2.2 Testing and validation workshop** **Activity 3.1 National workshop** **Activity 3.2 Technical Training**
Number of participants in the events above	**57**	**26 for Activity 1.1 National workshop** **9 for Activity 2.2 Testing and validation workshop** **22 for Activity 3.1 National workshop / Activity 3.2 Technical Training**
Number of public-private events related to technologies		
Number of participants in the events above		

3. Training and capacity building activities conducted during the assistance		
Number of training sessions and capacity strengthening activities	**2**	**Second national workshop Activity 3.1; Training session Activity 3.2.**
Number of people who received the training	**22**	**Participants enrolled and actively engaged in the training Activity 3.2**
Number of men	**15**	
Number of women	**7**	
Total number of organizations trained	**9**	**National stakeholder organizations actively engaged and expressing interest in using the technologies on specific use cases after the CTCN assistance. Activities 3.1 and 3.2**
Number of research organizations, laboratories and universities	**2**	**MUSPH and MUST**
Number of private companies		
Number of cities and local government		
Number of communities		
Number of ministries	**2**	**MWE and MEMD**
Number of specialized governmental institutions	**4**	**MWE CCD, MEMD GIS unit, UNMA, UNCST**
Number of non-profit organizations	**1**	**NAPE**
Level of satisfaction of participants after the training (from training feedback form). *From very satisfied, satisfied, not really satisfied, not satisfied at all*	**Above 75%**	**Very satisfied with the training provided, estimated by speaking with participants**
Percentage of participants that increased their capacities thanks to the training (from training feedback form) *From significantly, very, moderately, to none*	**Above 75%**	**Significantly increased their capacities, estimated by speaking with participants**
Percentage of men	**39%**	
Percentage of women	**31%**	
4. Tools, technical reports and information material supported by the assistance		
Total number of tools, technical reports and information material supported by the assistance (excluding mission, progress and internal reports)	**8**	**Technical components include via the online web portal:** - **Access to ensemble climate projections, seasonal forecasts, and satellite-based historical data through a web based interface.** - **Drought assessment tool** - **Robust Decision Making (RDM) tool** - **Basin planning using the refined impact model used for simulating hydrology and water use in the Lake Victoria basin; and** - **Reporting tool.**

		As reports delivered: - **Guidelines for using ensemble projections of climate variables and other drivers in decision-making.** - **Technology testing and demonstration report.** **Roadmap with recommendations for transfer of the technology and scaling up & Lessons learned.**
Number of tools strengthened, revised or developed	**5**	**Through the online portal:** **Data & information** **Drought assessment** **Robust Decision Making (RDM)** **Basin planning, and** **Reporting tool.**
Number of technical reports strengthened, revised or created	**3**	**Technology testing and demonstration, Guidelines for decision making, Roadmap with recommendations for transfer of the technology and scaling up & Lessons learned.**
Number of other information materials strengthened, revised or created		
5. Policies, laws and regulations supported by the assistance		
Number of policies, strategies, and plans drafted addressing climate change adaptation		
Number of policies, strategies, and plans drafted addressing climate change mitigation		
Number of documents developed to inform other policies, strategies, and plans on climate change adaptation (sectoral strategies, national development plans, etc.)	**1**	**National Vulnerability Assessment report by the Ministry of Water and Environment Climate Change Department**
Number of documents developed to inform other policies, strategies, and plans on climate change mitigation (sectoral strategies, national development plans, etc.)		
Number of laws, agreements, or regulations drafted addressing climate change adaptation		
Number of laws, agreements, or regulations drafted addressing climate change mitigation		
Number of documents developed to inform laws, agreements, or regulations on climate change adaptation		
Number of documents developed to inform laws, agreements, or regulations on climate change mitigation		
6. Institutional strengthening supported by the assistance		

Number of institutional arrangements in place to coordinate near and long-term national adaptation plans (NAPs)		
Number of organizations with increased technical capacity to advance near and long term national adaptation plans (NAPs) which integrate EbA	**3**	**LVBC, MWE**
Number of organizations with increase awareness and knowledge among countries to better own and drive national adaptation planning processes	**5**	**LVBC, UNMA, NAPE, MWE and MEMD in Uganda**
7. Partnerships and cooperation		
Number of private companies directly engaged in the assistance (that partnered with the proponent, the beneficiaries or the CTCN to implement the assistance)		
Number of South-South collaboration enabled during or through the assistance, when stakeholders from other countries were involved in the assistance		**Possibly with neighbouring countries but not to our knowledge yet**
Number of North-South collaboration enabled during or through the assistance, when stakeholders from other countries were involved in the assistance		
Number of Triangular collaboration enabled during or through the assistance, when stakeholders from other countries were involved in the assistance		

B. Indicators of anticipated impacts that may occur after the TA is completed

CTCN standardised performance indicators	**Quantit-ative value** *Insert the request value and unit*	**Content** *List the elements included in the number provided*	**Expected timeline** *Indicate when the indicator and value are expected to be achieved*	**Responsible institution** *Indicate the institution(s) that will play leading role in enabling the indicators and anticipated values to be achieved*
16. Anticipated finance mobilised				
a) Anticipated amount of public/donor investment mobilized (in USD) from the beneficiary country for climate change activities as a result of the TA	Approx. up to 120,000 USD	Decision making under uncertainty in agriculture in Uganda Activity 1 Inception Activity 2 Implementation Activity 3 Training and mentoring	To be determined	Suggested institutions are: UNMA; MAAIF; MWE CCD; NAPE UNCST;
	Approx. up to 250,000 USD	Development of Measurement, Reporting and Verification (MRV) system	To be determined	MWE - CCD

		for Nationally Determined Contribution (NDC) implementation Activity 1 Inception Activity 2 Identify the stakeholders necessary for its design, development and sustainability. Activity 3 Implementation. Review and determine the short, medium to long-term capacity building needs. Activity 4 Deployment and data testing		
	Approx. up to 250,000 USD	Climate and forecast data enhancement for Uganda Activity 1 Inception Activity 2 Methodological test Activity 3: Capacity building for UNMA staff Activity 4 Dataset enhancement with UNMA Activity 5 Deployment	To be determined	UNMA

		and data testing Activity 6 Awareness creation and Dissemination		
b) Anticipated amount of public/donor investment mobilized (in USD) from international and regional sources for climate change activities as a result of the TA	From up to 250,000 USD to larger amount	WRIS enhancement and capacity building with lessons learned from Uganda Activity 1 Inception Activity 2 WRIS enhanced pilot system Activity 3 Refinement of specifications and methodology for testing Activity 4 Development and testing of the enhanced WRIS Activity 5 Capacity building.	To be determined	LVBC
	From up to 250,000 USD to larger amount	Adaptation to climate change portal from Uganda, to Kenya, Tanzania, Rwanda and Burundi Activity 1 Inception. Activity 2 Implementation. Activity 3 National training. Activity 4 Regional knowledge	To be determined	Suggested institutions are: LVBC and National stakeholders including Ugandan counterparts for knowledge sharing

		sharing and mentoring.		
	Approx. up to 120,000 USD	Regional capacity building and gender mainstreaming Activity 1 Stakeholder outreach, introduction to the portal tools and selection of participants. Activity 2 Capacity building and mentoring.	To be determined	Suggested institutions are: LVBC and national water, energy, agriculture and meteorology agencies
c) Anticipated amount of private investment mobilized (in USD) from the beneficiary country for climate change activities as a result of the TA.				
d) Anticipated amount of private investment mobilized (in USD) from international and regional sources for climate change activities as a result of the TA.				
17. Policies				
a) Anticipated number of policies, strategies, plans, addressing climate change mitigation officially proposed, adopted, or implemented as a result of the TA.				
Anticipated number of policies, strategies, plans, addressing climate change adaptation officially proposed, adopted, or implemented as a result of the TA.				
b) Anticipated number of laws, agreements, or regulations addressing climate change mitigation officially proposed, adopted, or implemented as a result of the TA.				
Anticipated number of laws, agreements, or regulations addressing climate change adaptation officially proposed, adopted, or implemented as a result of the TA.				

c) Anticipated laws, policies, regulations, strategies and plans where climate change mitigation will be mainstreamed as a result of the TA				
Anticipated laws, policies, regulations, strategies and plans where climate change adaptation will be mainstreamed as a result of the TA				
18. Anticipated number of public-private partnerships created				
19. Anticipated twinning arrangements created as a result of the TA	1 arrangement	Arrangement through peer to peer activities.	30 June 2018	LVBC and beneficiary Ugandan organizations
20. Anticipated number of technology projects prepared and implemented to support action on low emission and climate-resilient development	6 technology projects	1.Decision making under uncertainty in agriculture in Uganda 2. Development of MRV system for NDC Implementation 3. Climate and forecast data enhancement for Uganda 4. WRIS enhancement and capacity building with lessons learned from Uganda 5. Adaptation to climate change portal from Uganda, to Kenya, Tanzania, Rwanda and Burundi 6. Regional capacity building and gender mainstreaming	All to be determined	1.Suggested institutions are: UNMA; MAAIF; MWE CCD; NAPE UNCST; 2. MWE CCD 3. UNMA 4. LVBC 5. and 6. LVBC and national water, energy, agriculture and meteorology agencies

21. Anticipated strengthened National Systems of Innovation and technology innovation centres in CTCN recipient country.	1 national innovation centre	UNCST	31 May 2018	UNCST
22. Anticipated Clean Energy Generation Capacity Clean supported by the TA that has achieved financial closure				
23. Anticipated and projected GHG reductions Quantity of greenhouse gas (GHG) emissions, measured in metric tons of CO2e, anticipated to be reduced or sequestered as a result of projects supported by the TA.				
10. Clean Energy Generation Capacity Clean energy generation capacity supported by the TA that has achieved financial closure.				
24. Anticipated and projected GHG reductions to 2030 Projected greenhouse gas emissions reduced or avoided through 2030, in metric tons of CO2e, from adopted laws, policies, regulations, or technologies related to clean energy/sustainable landscapes as a result of the TA.				
25. Anticipated co-benefits Number of people receiving livelihood co-benefits as a result of the TA.	7.5 million inhabitants of the Ugandan Lake Victoria basin area.	Indirectly and at a large time scale, should the assistance succeed to foster larger projects	Long term through continued use and application of technology	LVBC, MWE, UNMA, NAPE, MEMD, UNCST
26. Anticipated technology types effectively deployed in the country	At least 2 types	5 tools included in the online portal: data&information, drought assessment, RDM, basin planning, and reporting tool. 2 reports: technology testing and demonstration and guidelines for decision making.	31 May 2018	LVBC

27. Anticipated UNFCCC processes implemented as a result of the TA (NAMA, NAPA, NDC, etc.)				
28. Anticipated Technology Needs Assessments (TNA) and technology Action Plans (TAP) as a result of the TA				
29. Anticipated cooperative research, development and demonstration programmes within and between developed and developing country Parties facilitated as a result of the TA				
30. Anticipated improved climate change observation systems and related information management in developing country Parties.	1 opportunity	Future funding opportunity identified	30 June 2018	LVBC and UNCST

Supplementing GEF UNEP project

The deliverables of the CTCN assistance to Uganda built on the efforts under the Global Environment Facility (GEF) and UN Environment funded project *Flood and Drought Management Tools* (for more information on the project please visit the project homepage at http://fdmt.iwlearn.org/en). The project is being implemented from 2014 - 2018. The main project output are a series of web applications published on the Flood and Drought Portal (http://www.flooddroughtmonitor.com) to support basin level and local (water utility) level organisations to better manage and plan for the impacts of flood and drought events. The project outputs, in the form of web-based technical applications and guidelines, are being tested and validated at both the basin (basin/catchment organisations) and local level (water utilities) in 3 different pilot basins (Volta, Lake Victoria and Chao Phraya).

The CTCN technical assistance supplemented the large GEF funded project by creating Guidelines and an added tool for Robust Decision Making (RDM), plus documented experience, on the ground implementation and further refinement of the planning application. The latter can be used to support basin planning through evaluation of existing and new investments, climate change and population pressure. The users interact with a behind-the-scenes water allocation model and submit different plans for later evaluation via MCA.

The RDM tool and decision-making guidelines in turn support the decision process taking the uncertainty associated with climate change into consideration. The guidelines are appropriate for use in two different, but related, contexts. The first is seasonal planning, where decisions are made based on forecasts of conditions up to one year in the future. The second is long-term planning, where decisions are made based on forecasts of conditions up to 50 years ahead.

These developments have been made available as well on the website of the GEF UNEP project with corresponding user guides.