CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Instructions to lead Implementers for drafting the Technical Assistance Closure and Data Collection Report

Objective of the technical assistance (TA) Closure Report and Data Collection Report:

- To communicate publicly in one synthesis document a summary of progress made and lessons learned under the technical assistance (TA) towards the anticipated impact (main template).
- Compile TA-specific information required for internal use in donor and UN reporting (annex 1).

Steps for completing the TA Closure report:

1. The lead TA implementer drafts the report at the end of the assignment as a final deliverable /product. The TA Closure report will capture all activities conducted under the TA hence it is expected that duplication of information will occur from earlier documents. Please copy and summarise relevant material from previous TA outputs/deliverables and the Response Plan, as relevant.
2. A CTCN Manager will review and revise the report before final approval by the CTCN Director.

Important note on public and internal use of the closure report:
Once approved by the CTCN Director, the TA Closure and Data Collection Report will be a public document available on the CTCN website. Annex 1 is for internal use only and will not be publicly available.

Closure and Data Collection Report for CTCN Technical Assistance

1. Basic information

Title of response plan	**Identification and characterisation of potential sand resources for beach rehabilitation**
Country / countries	**Mauritius**
NDE focal point and organisation	**The Ministry of Social Security, National Solidarity and Environment and Sustainable Development (Environment and Sustainable Development Division)**
Proponent focal point and organisation	**The Ministry of Social Security, National Solidarity and Environment and Sustainable Development (Environment and Sustainable Development Division)**
Sector(s) addressed	**Coastal zones**
Technologies supported	**Sediment management** **Coastal monitoring** **Coastal infrastructure rehabilitation** **Beach nourishment**
Implementation period and total duration	**1. Jan 2017 – 2. Dec. 2017, duration: 3 weeks**
Total budget for implementation	68,000$
Designer of the response plan	**DHI**
Implementer of response plan	**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	Site visit report from January 2017. The site visit was intended to identify areas that would be suitable for further investigation of possibilities for sand mining in the coral lagoons. The investigation revealed however that the sand deposits were unsuitable for beach nourishment and that abundant land-based resources might be available near the present coast. The scope of the TA was changesd to compose investigation of land-based sand resources as well as a training course in beach erosion management. A two-week training course was executed from 20. Nov. 2017 – 1. Dec. 2017. The training course composed capacity building of local practitioners in: • Identifying potential land-based sand mining sites • Understanding coastal processes and monitoring the coastline for use in development in beach erosion management plans • Site visits to beaches with the aim of discussing survey methods and assessing coastline conditions Training material (Power Point presentations and Exercise descriptions) were made available as part of the two-week programme. A Technical report encompassing the findings from the site visit in January 2017 and the two-week training course was delivered on Feb. 1st 2018.
Partners organisations	Environment and Sustainable Development Division, Ministry of Social Security, National Solidarity and Environment and Sustainable Development
Beneficiaries	**OOZEERAULLY Yuneeda**, Department for Continental Shelf, Maritime Zones Administration & Exploration, Ministry of Defence and Rodrigues **SAUBA Keshav**, Department for Continental Shelf, Maritime Zones Administration & Exploration, Ministry of Defence and Rodrigues **GOOLAMALLY Mohammad Riyad**, Ministry of Housing and Lands **MUNNAROO Sivanee**, Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping **NICOLAS Arnaud**, Mauritius Oceanography Institute **MURUGHEN Sadien**, Mauritius Oceanography Institute **PAUL Denis**, National Disaster Risk Reduction and Management Centre **NOWBUTH Manta Devi**, University of Mauritius **ENOUF Jean Francois Michael**, Municipal Council of Port Louis **SOOKOOR Akhtar Jamaluddeen**, District Council of Grand Port **HATON Karan Kumar**, District Council of Savanne **LOTUN Mohammad Adjmal**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **TATUR Daisy**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **SAIRALLY Parveen**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and

	Sustainable Development Division) **DHOOMUN Anand Kumar**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **SEENAUTH Ramchurn,** Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **MAGHO Luqman**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **SOOGUN Nashreen**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **JHEENGUT Amit**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **RAMDOUR Henna**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **DEENA-JOWAHIR, Sandhya**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division) **THUMMANAH Bheemul**, Ministry of Social Security, National Solidarity, and Environment and Sustainable Development (Environment and Sustainable Development Division)
Methodologies applied to produce outputs and products	Site visits (land-based and by boat) Onsite instruction of course participants
Deviations	A recent site visit supported by the CTCN and made by a coastal expert from DHI has concluded that the original idea of finding suitable sand for beach nourishment offshore is not feasible. It was also determined that plenty of good quality sand can be found on-shore from where it can be excavated and placed on the beaches using local contractors. Therefore, the original scope of work has been change from a marine geophysical survey to a technical assistance focusing on helping MSSE to draw up plans and permits for using land based sand as a source for beach nourishment, also including Environmental Impact Assessment considerations
Achieved or anticipated gender benefits from the TA	The benefits of the activities are expected to contribute to women employed in the tourism sector – particularly in the coastal areas, where tourism activities may be compromised in the absence of beach nourishment activities, and thus valuable jobs and income opportunities lost. This is particularly relevant for women employed in the service sector, and women self-employed in tourism and related sectors that heavily rely on continued inflow of tourists (such as garments and crafts).
Achieved or anticipated co-benefits from the TA	The activities will contribute to ensuring sustainability of the economic activities and growth reliant on the natural resources in the coastal areas of Mauritius, including Tourism. Beach erosion can contribute to increased severity of coastal storm and flooding impacts, as well as impacts of sea level rise. Properly planned and executed nourishment activities can mitigate these risks.
Anticipated follow up activities and next steps	The capacity building intends to strengthen the Ministry of Environment in the monitoring of the Mauritius coastlines as well as in the development of beach erosion management plans. Future activities required before actual nourishment can be initiated,

	such as: • Identification of long-term quantity of sand likely to be required for beach replenishment • To undertake an environmental impact assessment for potential exploitable sites • Produce a good practice guide for the activities of sand mining and beach replenishment

3. Lessons learnt

	Lessons learnt	**Recommendations**
Lessons learnt for this TA. Describe essential factors contributing to successful implementation, as well as specific challenges. Recommendations include considerations on what would need to be in place for increasing success of similar efforts (i.e. regulatory, legal, stakeholders, communication, etc.)	Training courses require active participation from the beneficiaries (as was the case in Mauritius)	Ask that beneficiaries take care of meeting venues and transportation to and from site visits
Lessons learnt related to climate technology transfer Describe 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	The background of the participants was very different because a large number of participants from many different institutions were gathered. The heterogeneous background of the participants mean that the combined capacity of the group was relatively high which lead to changes in the scope of the course during planning and execution of the course. The changes in scope were introduced, because a large degree of tailoring of the course was required to address the combined capacity of the trainees.	Training courses of this type require a large scale of multidisciplinary fields of expertise • Technical (e.g. coastal processes, Climate Change) • Legislative • Practical (e.g. desktop tools such as GIS, Numerical models, Survey practice, Database structuring) • Social and Economy In order to ensure optimum outcome of the training it is important to clarify what is already known, and what are the areas, which needs to be addressed during the training. This will allow the training to be tailored to match the needs of the trainees.
Lessons learnt related the CTCN process for TA	*The original scope of the TA was quite different because extraction of sand resources in the lagoon was not recommended by DHI. Instead DHI proposed to prepare a*	*Some flexibility in changing the scope of the TA during implementation will allow for more effective use of the budget.*

	course in beach erosion management and a course in assessing the capacity of land-based sand resources. *The fact that the scope could be changed, even after starting the TA, meant that the budget already assigned for the original study could be diverted to a more beneficial use.*	

4. Illustration of the TA and photos

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. The pictures should illustrate how the TA has impacted the lives of the beneficiaries in particular and the communities in general.

Beach inspection at Pomponette, Mauritius

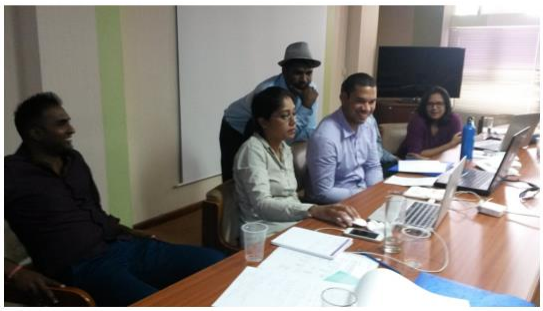
CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Meeting with local developers of existing land-based sand quarries

Investigation of potential new sand quarries

Coast inspection

Group work



5. Information for TA impact description

The information in the table below will be used 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 (36 per line)	Many of the sandy beaches along the Mauritius coastline are eroding and the erosion will be aggravated due to the impact of Climate Change. The sandy beaches along the Mauritius coastline are eroding and the importance for Mauritius, partly as an integrated part of the marine, coral and lagoon environment and partly as an important landscape resource of great importance for the tourism industry. Consequently, CTCN assisted Mauritius in identifying sustainable ways of protecting the beaches against

	historical and future erosion.
CTCN Assistance: 2 to 4 bullet points. Approximately 450 characters with spaces	• Capacity building of local stakeholders to identify and quantify capacity of new land-based sand resources • Capacity building of local stakeholders to identify erosion problems and assess the source of the problems • Capacity building of local stakeholders to develop plans for protecting the beaches
Anticipated impact: 2 to 4 bullet points to summarise anticipated impact. 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.	• Cross-institutional knowledge sharing between local stakeholders (ministries, municipal councils, district councils, University and Private sector) • Increased awareness for monitoring of the marine area (as well as cross-institutional standardization of monitoring methods) • Capacity building of 22 local stakeholders: Beach erosion management and identification of local sand resources.
Linkages and contribution to NDC: 2 to 4 bullet points. Approximately 350 characters with spaces	Mauritius identified 12 priority adaptation measures in its INDC (2015), one of them being on “Coastal Zone Management” in the way the measure should “Improve awareness, enhance rehabilitation and strengthen regulatory framework for protection of beach, dunes and vegetation”
The narrative story: Approximately 1200 characters with spaces	Site visits to the most promising areas in the coral lagoons where marine sand may be found in sufficient quality and quantity were made in the beginning of January 2017. These areas were identified in cooperation with Ministry of Social Security, National Solidarity, and Environment and Sustainable Development. Sand extraction from the coral lagoon was however not recommended for a number of reasons, the main one being that the quality of sand available offshore is not suitable for beach nourishment as it is too coarse and sharp grained. The presence of large coral pieces in all samples taken indicates that the layer

	of sand is thin. Also the only port which can accommodate a sea-going dredger is Port Louis. At all other places, sand will have to be pumped ashore The access for dredgers to areas behind the reefs is dangerous so the risk of having a major oil spill is high. Finally, plenty of sand of good quality is available on land near all beaches. The site visit and a subsequent study of historical satellite images indicate that the visited beaches are stable under normal conditions, and only minor maintenance in form of re-locating some minor amounts of sand is necessary. Should a beach be severely eroded during a cyclone, the sand can be replaced by sand from a land quarry. Local contractors using local labour force can make the beach nourishment as required, whereas using sea-going dredgers suitable for navigating around Mauritius will involve foreign contractors with specialised crew. Staff from interested stakeholders have been given a comprehensive course in beach erosion management. Two sites were selected for site visits to be used for development of beach erosion management plans. Results from the site visits were analysed and presented as part of the training course.
Contribution to SDGs: Always include contribution to SDG 13, and to the extent possible, please include contribution to 2 other 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/	Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation • 9.1 Develop quality, reliable sustainable and resilient infrastructure… The training course has increased the awareness for assessing whether coastal protection is needed or if a more natural development of the landscape should be prioritized. • 9.3 Increase the access of small-scale industrial and other enterprises…. The recommendation to use land-based sand resources as an alternative to sand mining in the coral lagoon opens up the

	possibility of having local contractors and employment of local work force. Sand extraction in the lagoon would require foreign work force and risk damage to the coral lagoon. Goal 13 – Take urgent action to combat climate change… • 13.2 Integrate climate change measures into national policies, … The training course has increased the understanding for dealing with rising water levels and eroding beaches. • 13.3 Improve education, awareness-raining and human … Capacity building of stakeholders was done to improve the ability of local authorities to understand sources of erosion problems and develop plans for dealing with the erosion.

CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

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

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

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.

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 technical assistance provided to counterparts or stakeholders by international experts and consultants	**180-230**	
Number of active person-days (not full duration) of technical assistance provided to counterparts or stakeholders by national experts and consultants		
Number of for external communication and outreach activities conducted to showcase the assistance (news release, newsletters, articles on website, etc.)	**2**	**One on CTCN homepage** **One case story on DHI homepage**
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		
Number of participants in the events above		
Number of national technology and knowledge sharing events	**1**	**Meeting with MOI (Mauritius Oceanographic Institute)**
Number of participants in the events above	**15**	
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	**10**	Two week programme with full days. Refer to the programme in the report delivered as part of the TA.
Number of people who received the training	**23**	
Number of men	**19**	
Number of women	**4**	
Total number of organisations trained	**11**	
Number of research organisations, laboratories and universities	**3**	• Mauritius Oceanographic Institute • University of Mauritius • National Disaster and Risk Reduction and Management Centre
Number of private companies		
Number of cities and local government	**3**	• Municipal council, Port Louis • District council, Grand Port

		• District council, Savanne
Number of communities		
Number of ministries	**5**	• Department for Continental Shelf, Maritime Zones Administration & Exploration, Ministry of Defence and Rodrigues • Ministry of Housing and Lands • Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping • Ministry of Social Security, National Solidarity, and Environment and Sustainable Development • (Environment and Sustainable Development Division)
Number of specialised governmental institutions		
Number of non-profit organisations		
Level of satisfaction of participants after the training (from training feedback form). Categories include: From very satisfied, satisfied, partly not satisfied, not satisfied at all	**Very satisfied**	
Percentage of participants that increased their capacities thanks to the training (from training feedback form). Categories include: Significantly, very, moderately, to none.	**Significantly**	
Percentage of men		
Percentage of women		
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)		
Number of tools strengthened, revised or developed		
Number of technical reports strengthened, revised or created	**2**	
Number of other information materials strengthened, revised or created	**14**	**9 presentations and 1 document with exercise descriptions 4 presentations with exercise motivation**
5. Policies, laws and regulations supported by the assistance		
Number of policies, strategies, and plans drafted addressing climate change adaptation	**4**	**2 descriptions of potential sites for land-based sand quarries 2 beach erosion management**

		plans
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.)		
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 organisations with increased technical capacity to advance near and long term national adaptation plans (NAPs) which integrate EbA		
Number of organisations with increase awareness and knowledge among countries to better own and drive national adaptation planning processes		
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)	**1**	**A local sand analysis laboratory**
Number of South-South collaboration enabled during or through the assistance, when stakeholders from other countries were involved in the assistance	**1**	**Discussions for possibilities for additional capacity building with regards to numerical modelling (among all the island states)**
Number of North-South collaboration enabled during or through the assistance, when stakeholders from other countries were involved in the assistance	**1**	**Collaboration with University of Mauritius for developing new M.Sc. programmes (pending acceptance)**
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	**Quantitative value** Insert the request	**Content** List the elements included in	**Expected timeline** Indicate when the	**Responsible institution** Indicate the institution(s) that

	value and unit	the number provided	indicator and value are expected to be achieved	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 mobilised (in USD) from the beneficiary country for climate change activities as a result of the TA				
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				
c) Anticipated amount of private investment mobilised (in USD) from the beneficiary country for climate change activities as a result of the TA				
d) Anticipated amount of private investment mobilised (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	1	Improved knowledge sharing, standardisation of survey methods and database structure	During the next year	MOI and the Ministry of Environment
19. Anticipated twinning arrangements created as a result of the TA				
20. Anticipated number of technology projects prepared and implemented to support action on low emission and climate-resilient development				
21. Anticipated number of strengthened National Systems of Innovation and technology innovation centres in recipient country	1			MOI
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 $CO_{2\text{-}e}$, anticipated to be reduced or sequestered as a result of projects supported by the TA				
24. Anticipated clean energy generation capacity supported by the TA that has achieved financial closure				
25. Anticipated and projected greenhouse gas emissions reduced or avoided through 2030, in metric tons of $CO_{2\text{-}e}$, from adopted laws, policies, regulations, or technologies				

related to clean energy/sustainable landscapes as a result of the TA				
26. Anticipated number of people improving their livelihood as co-benefits as a result of the TA				
27. Anticipated technology types effectively deployed in the country	4	Sediment management Coastal monitoring Coastal infrastructure rehabilitation Beach nourishment		
28. Anticipated UNFCCC processes implemented as a result of the TA (NAMA, NAPA, NDC, etc.)				
29. Anticipated Technology Needs Assessments (TNA) and technology Action Plans (TAP) as a result of the TA				
30. Anticipated cooperative research, development and demonstration programmes within and between developed and developing country Parties facilitated as a result of the TA	1	Collaboration with University of Mauritius for developing new M.Sc. programmes (pending acceptance)		
31. Anticipated improved climate change observation systems and related information management in developing country Parties.				

Annex 2 (for internal use – to be filled in by the CTCN)

CTCN evaluation

This section will be completed by the relevant CTCN Technology Manager.

- Evaluation of the timeliness of the TA implementation as measured against the timeline included in the response plan;
- Evaluation of TA quality as defined in the response plan;
- Overall performance of the Implementers;
- Overall engagement of the NDE and Proponent;
- Lessons learned on the CTCN process and steps taken by the CTCN to improve.