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CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

CTCN Technical Assistance
Response Plan

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Country:	Republic of Mauritius
Request Identification Number:	2016000013

Title:	Climate Change Vulnerability and Adaptation Study for Port of Port Louis

Summary of the CTCN Technical Assistance

The port of Port Louis, Mauritius is increasingly exposed to and impacted by risks due to impact from weather and climate change effects such as sea level rise, storm surges, wave and wind impact, precipitation and flooding, and water temperature rise. Already in recent years, port operations have been temporarily suspended due to adverse weather. Flooding of land areas has also caused interruption of operations. With climate changes follows the risk of more frequent stop of operations, just as it carries the risk of increased wear on structures resulting in increased maintenance efforts and costs.

The Ministry of Social Security, National Solidarity and Environment and Sustainable Development (MSSNSESD) on this basis has requested CTCN technical assistance with the aim of clarifying the vulnerability of the Port of Port Louis to climate changes and to undertake a vulnerability study that shall identify specific technologies to mitigate negative effects of climate change on the port of Port Louis.

The objective of the technical assistance is strengthening the resilience and long term sustainability of the port of Port Louis to climate changes.

The main outputs of this technical assistance is to identify primary risks and their potential impact, and to identify mitigating measures, where relevant and necessary, as well as establish an action plan to reduce these risks and impacts

The specific outputs of the present assistance are:

a) Documentation of the existing physical conditions of the port infrastructure at the port of Port Louis, including identification and evaluation of the main risk areas vulnerable to impact from climate changes.

b) Analysis and assessment of the location-specific risks of climate change impact on the port of Port Louis, both land-based and sea-based.

c) Identification of gaps in the existing national plans and strategies related to the port sector in the context of climate change impact and evaluation of needs, as well as opportunities and options to address and fill these gaps.

d) Action Plan for the implementation and adaptation options for the port of Port Louis in relation to climate change, with specific action targets and time frame.

e) Identification of capacity building needs – including engineering, marine and other disciplines of expertise for the port sector – for monitoring of climate change and vulnerability assessment, as well as identification and design of adaptation technologies.

f) Recommendations for appropriate construction standards, codes, specifications and climate resilient legislations for the port infrastructure.

g) Adaption guidelines developed to assist the port authorities.

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1. Overview of the CTCN technical assistance

1.1 Technology aspects

The specific technology support that will be provided through the Technical Assistance is:

1. Review of available background documentation for the study.
2. Identification of main risk areas at the port of Port Louis related to climate change impact.
3. Identification of existing climate and climate impact conditions at the port of Port Louis.
4. Identification of climate change criteria to be considered in the study.
5. Analysis and assessment of vulnerability and climate change impact on main risk areas of the port.
6. Review and identify need for filling gaps in the national plans and strategies related to the port sector in the context of climate change impact.
7. Formulate an action plan and priority timeframes for the implementation of adaptation options and mitigating measures meeting the risk of climate change impact on the port.
8. Identify need for capacity building in the port sector for evaluation and monitoring of vulnerability assessment and adaptation technologies coping with the impact from climate change.
9. Recommend appropriate construction standards, codes, specifications and climate resilient legislations for the port infrastructure and develop adaptation guidelines to assist the port authorities.

1.2 Objectives (outcomes)

The main objective of the CTCN technical assistance to the port of Port Louis of the Republic of Mauritius, is to provide a technology needs assessment and identification of necessary mitigating measures for making the port of Port Louis climate change resilient and sustainable for the long term.

The expected outcomes are:

- Existing plans and strategies to be amended by Stakeholders.
- Basis for identifying, designing and implementing mitigation measure to alleviate climate change impact
- Strengthened capabilities and capacity of Port Louis' harbor stakeholders' organization in relation to climate change impact, mitigation and resilience.
- Improved preparedness of the Port of Port Louis to climate change

The main activities to be undertaken by the technical assistance to the Port of Port Louis are the following, through the specific technology aspects listed above:

- Review of existing national plans and strategies related to the port sector and the port of Port Louis specifically in the context of climate changes with a view to identify gaps that need to be filled
- Undertake a climate change risk assessment for the port of Port Louis, both sea and land based
- Formulate an action plan for the implementation of adaptation options
- Identify capacity building needs of engineers, marine personnel and other cadres of the port and port sector

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- Recommend appropriate constructions standard, codes and guidelines and climate resilient legislation for the port infrastructure

1.3 Results (outputs expected from CTCN assistance)

Port Louis harbour is exposed to risks due to impact from weather and climate change effects such as sea level rise, storm surges, wave and wind impact, precipitation and flooding, and water temperature rise. Already in recent years, port operations have had to be temporarily suspended due to adverse weather resulting in strong winds, including cyclonic winds, and to wave action. Also flooding of land areas has caused interruption of operations. With climate change follows the risk of more frequent stops of operations, just as it carries the risk of increased wear on structures resulting in increased maintenance efforts and costs. There is also a risk of increase in siltation rates and hence potentially an increased requirement for maintenance dredging or other mitigating measures.

The outputs of the technical assistance shall fit with and supplement on issues related to climate change resilience of the port, the Port Master Plan for the next 25 years that the Port is having produced at this moment. The main outputs of the technical assistance are to identify main risks and their potential impact and to identify mitigating measures, where relevant and necessary, and establish an action plan. Furthermore, capacity building needs with the Port will be identified, and recommendations for guidelines, standards and climate resilient legislation will be provided.

The specific outputs of the present assistance are:

h) Documentation of the existing physical conditions of the port infrastructure at the port of Port Louis. Identification and evaluation of the main risk areas vulnerable to impact from climate changes.

i) Analysis and assessment of the location-specific risk of climate change impact on the port of Port Louis both land-based and sea-based.

j) Identification of gaps in the existing national plans and strategies related to the port sector in the context of climate change impact and evaluation of needs, opportunities and options to address and fill these gaps.

k) Action Plan for the implementation and adaptation options at port of Port Louis in relation to climate change for the port sector with specific action targets and time frame.

l) Identification of capacity building needs – engineers, marine personnel and other cadres of the port sector – on monitoring of climate change and vulnerability assessment and evaluation of adaptation technologies.

m) Recommendations for appropriate construction standards, codes, specifications and climate resilient legislations for the port infrastructure.

n) Adaptation guidelines developed to assist the port authorities.

1.4 Expected use of outputs

The outputs shall be used by the Mauritius Port Authority and the port of Port Louis for enhancing their development and implementation of short-term and long-term plans and strategies for the climate change adaptation. The climate change adaptation shall cover initiatives and measures within technological, engineering, planning, design, legal/regulatory, insurance/financial and management. Adaptation to climate changes shall be incorporated in future design specifications of all port infrastructure elements, implementation of mitigating measures and the daily port management, monitoring and operations.

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The findings of the study will be duly considered:

i. In future updates of the Port Master Plan;
ii. Reporting under National Communications;
iii. Policy making and formulation of National Adaptation Plan including the Strategy and Action Plan; and
iv. Sharing of knowledge and Capacity Building with relevant stakeholders within the Republic with the possibility for same at the regional/international level.

2. Description of the Assistance

2.1 Activities

Activity 1 – Background documentation and existing situation

Activity 1.1 - Review of available background documentation

Review existing national plans and strategies related to the Mauritian port sector in general and to the port of Port Louis specifically in the context of projected impact from climate change and extreme weather conditions. Two specific reviews will be conducted:

i. -Review available port infrastructure documentation.

ii.-Review available port operation and performance documentation.

A basis for this work shall be a visit to the site during week 3 to interface with the stakeholders and collect relevant necessary information.

Activity 1.2 – Port infrastructure and operations mapping

Definition of port infrastructure to be covered by the study.

Mapping of concerned existing port infrastructure at the port of Port Louis and documentation of its physical conditions, based on information available from port of Port Louis.

If available at the time of initiation of this activity, the new masterplan (2015 -2040) under preparation for MPA shall be reviewed, and areas of this, which are relevant to the present technical assistance shall be incorporated in this activity as well as in subsequent activities.

A mapping of the concerned infrastructure as defined in Activity 1.2 shall be made. Concerned infrastructure are major areas of the port identified by this technical assistance study as being potentially at risk to climate change impact as well as areas having already been impacted by adverse weather conditions in the recent past years such that port operations have been significantly impeded or suspended for shorter or longer durations of time.

This activity shall be made on the basis of information including GIS-based information available from the MPA and on information collected by the implementer during a visit and visual site inspection to port of Port Louis.

The activity shall incorporate consultation with the main stakeholders of the project, being the Mauritius Port Authority (MPA) and the MSSNSESD. A visit to Port Louis for meetings with stakeholders including, but not limited to, the above is thus envisaged being part of this activity.

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Activity 1.3 –Review and mapping of registered climate and extreme weather conditions

Experience mapping of conditions over recent decade(s) (due to wind and cyclones, rainfall, waves, water levels).

Preliminary study of non-cyclonic and cyclonic wind and wave conditions at the port, based on available data and information and numerical modelling.

Identification of the weather conditions being key issues and criteria for the port operability and infrastructure resilience.

Activity 1 – Deliverables

Deliverables	Delivery
Inception Report – Review of background documentation, existing conditions and main risk areas identification	*Week 5*

Note: Delivery is counted in number of weeks after initiation of study.

Activity 2 – Identification of Climate change impacts on the port of Port Louis

Activity 2.1 – Identification and review of climate change scenario and projections

This activity shall identify and review the climate change scenario selected by MPA / MSSNSESD for use in this technical assistance. Depending on the outcome of the review, alternative scenarios may be recommended by the technical assistance consultant. An assessment shall be made of aligning of the chosen scenario(s) with i) MSSNSESD 'Disaster Risk Reduction Strategic Framework and Action Plan' 2013 and ii) other relevant Mauritian government policies and strategies.

Activity 2.2 – Analyses of challenges to the port due to climate change effects

Identification and evaluation of the risk areas within the port of Port Louis being vulnerable to impact from climate changes.

Evaluate impact on the port of Port Louis due to weather and climate change effects e.g.:

- Impact on port operations and operability
- Impact on structural resistance and resilience

Challenges to the Port due to adverse weather conditions including climate change shall be identified and analysed. The timeframeto be considered by the study shall be recommended for approval by MSSNSESD and MPA. Further work shall be based on the agreed timeframe. Considerations will be given to relevant gender related dimensions of challenges to the port due to climate change effects.

Part of the basis for this task shall be available key reports on climate changes including, but not limited to, most recent IPCC reports, and recent work by MSSNSESD, MPA, Mauritius Meteorological Services (MMS) and Mauritius Oceanography Institute (MOI). The analysis shall be aligned with MSSNSESD's 'Disaster Risk Reduction Strategic Framework and Action Plan', 2013, and with other relevant Mauritian government policies and strategies.

A workshop shall be held with the key stakeholders which are MSSNSESD, MPA, MMS and MOI; additional stakeholders identified in previous activities may also be involved.

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Activity 2.3 – Evaluation of climate change risks, and identification of adaptation technology and mitigating measures

Analyse and evaluate the risk of climate change impact on the main risk areas of port of Port Louis. Considerations will be given to relevant gender oriented approaches.

The risks will be prioritised based on a multi-criteria methodology enabling the comparison and relative valuation of environmental, technical, social, economic and other implications caused by climate changes.

Activity 2 – Deliverables

Deliverables	Delivery date
Climate Change Report – Scenario, projections, effects, challenges and risk evaluation	*Week 11*

Activity 3 – Mitigating solutions and initiatives

Activity 3.1 – Identification of gaps and opportunities in National legislation, planning and strategies

Identify possible gaps in the national legislation, planning and strategy for sustainable port development related to climate change and extreme weather conditions.

Identify opportunities and options to address the main gaps and the needs for mitigating measures.

Specify possible solutions and evaluate the sustainability for mitigating measures and initiatives deemed necessary.

Activity 3. 2 Workshop on mitigation solutions

Identify and present adaptation solutions for the mitigating climate change impact in workshop with key stakeholders. The main participant in this workshop is MPA and the Port of Port Louis.

Activity 3.3 – Adaptation technologies, construction standards and codes of practice

Based on the outcome of the workshop in Activity 3.2, prioritise solutions through the multi-criteria analysis.

Assess and recommend the most sustainable use of construction standards and codes of practice for the planning and design of climate change impact mitigation measures and adaption options. Considerations will be given to relevant gender oriented aspects of planning and design of climate change impact mitigation measures adaptation options.

Establish a baseline programme for monitoring the future climate change development.

Activity 3.4 – Preliminary assessment of effects of mitigation solutions

Numerical wave modelling shall be used if deemed relevant as part of the analysis and evaluation of sustainable design criteria for mitigating measures and adaption options related to impact from extreme wind and wave impact.

Activity 3 – Deliverables

Deliverables	Delivery date
Interim Report – Identification of gaps and opportunities, mitigation solutions and Preliminary assessment of effects of mitigation solutions	*Week 17*

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Activity 4 – Identify needs for capacity building in the port sector

Capacity building requirements shall be identified and specified within the port sector staffing and its related cadres for the future development of sufficient capacity to enhance, implement and monitor the necessary mitigating solutions and adaptation options for making the port climate resilient.

The capacity building shall firstly include sufficient expertise and monitoring capacity to verify how climate changes actually develop in time compared with the selected climate change scenario and projections for the Port of Port Louis. Registration of actual climate change development with time shall lead to a periodical (5 – 10 years interval) update assessment of the risk evaluation, relative priorities and effects of mitigation measures.

Secondly, capacity building shall ensure qualified capacity for the implementation of adapted mitigation measures in a time schedule securing the port climate resilience in a sustainable manner.

Thirdly, the capacity building shall provide the sufficient expertise to monitor the effects of mitigating measures and their impact on the port resilience.

In addition to identify capacity building needs, this activity shall also identify how and where the necessary skills can be obtained and developed.

Activity 4 – Deliverables

Deliverables	Delivery
Capacity Building Needs Input to Final Study Report	*Week 25*

Activity 5 – Estimating costs of the recommendations outlined in activity 3.4 and 4.1

Budget and cost structure shall be assessed and outlined for the recommended / selected initiatives for making the port of Port Louis climate resilient and long term sustainable.

The cost estimates shall relate to implementation of mitigating measures and adaptation options as well as to the longer term monitoring of the effect of implemented initiatives.

Activity 5 – Deliverables

Deliverables	Delivery
Cost Budget Input to Final Study Report	*Week 25*

Activity 6 – Guidelines, action plan and priority time frames

Guidelines shall be developed for the adaptation and implementation of mitigation measures and adaptation options selected/recommended for the implementation of initiatives for making the port of Port Louis climate resilient and long term sustainable.

A proposed action plan shall cover the adequate and timely prioritised planning, design, implementation and monitoring of mitigating measures and adaptation options deemed necessary to enhance the climate resilience of port of Port Louis.

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Activity 6 – Deliverables

Deliverables	Delivery
Guidelines and Action Plan Input to Final Report	*Week 25*
Final Study Report – Risk evaluation, Budget and Action Plan	*Week 26*

2.2 Synergies and Baseline Setting

It is mentioned in the Request Submission that the latest World Risk Report 2014 has ranked Mauritius as the 14th country with the highest disaster risk and 7th on the list of countries most exposed to natural hazards. Reference is made to analyses of Port Louis data on mean sea level rise for the period 1987 – 2007 (Source: Mauritius Meteorological Services).

These references together with other references mentioned to data on sea level rise and extreme weather events are expected to provide the bearing documentation for establishing the baseline climate change settings and background documentation for the study.

The following on-going projects can have an input in this technical assistance:

(i) Project under the Adaptation Fund

The Adaptation Fund Project 'Climate Change Adaptation Programme in the Coastal Zone of Mauritius Coastal which aim to increase climate resilience of communities and livelihoods in coastal areas of the Republic of Mauritius including coastal adaptation works at 3 pilot sites; Mon Choisy, Riviere des Galets and Quatre Soeurs.' The project started in August 2012 and expected to end in August 2018.

(ii) Project at the level of the National Disaster Risk Reduction Management Centre

The National Disaster Risk Reduction and Management Centre (NDRRMC) was established in October 2013 with the mandate to establish a strategic and coordinated approach to disaster management for RoM, including for flood events.

The Government has enacted a National Disaster Risk Reduction and Management Act in April 2016. The Act provides a legal framework for the prevention and reduction of the risk of disasters; the mitigation of the adverse impacts of disasters; disaster preparedness; effective response to disasters; and, management of post-disaster activities, including recovery and rehabilitation. The NDRRMC is presently working on the establishment of an early warning system for flooding.

(iii) Potential future projects under the Agence Française de Développement

The Agence Française de Développement is in the process of formulating a project proposal to the tune of Euro 32.8M, as grant request, on adaptation to climate change, on behalf of Mauritius, for submission to the Green Climate Change Fund for consideration. The objectives of the project are, interalia, to reinforce climate monitoring and climate policy, improve disaster risk reduction with a focus on flood management and foster sustainable water resource management. The project proposal is presently being drafted.

(iv) Potential future projects under the Indian Ocean Commission

The Indian Ocean Commission (IOC) is presently engaged in the preparation of a regional Climate and Risk Reduction Action Plan. The action plan will be based on the Sendai Framework for Disaster Risk Reduction, as well as on decisions under the United Nations Framework Convention for Climate Change and the Paris Agreement. The draft action plan comprises two distinct aspects namely; the fight against the adverse impacts of Climate Change and Disaster Risk Reduction. So far only a preliminary concept note has been drafted for this project.

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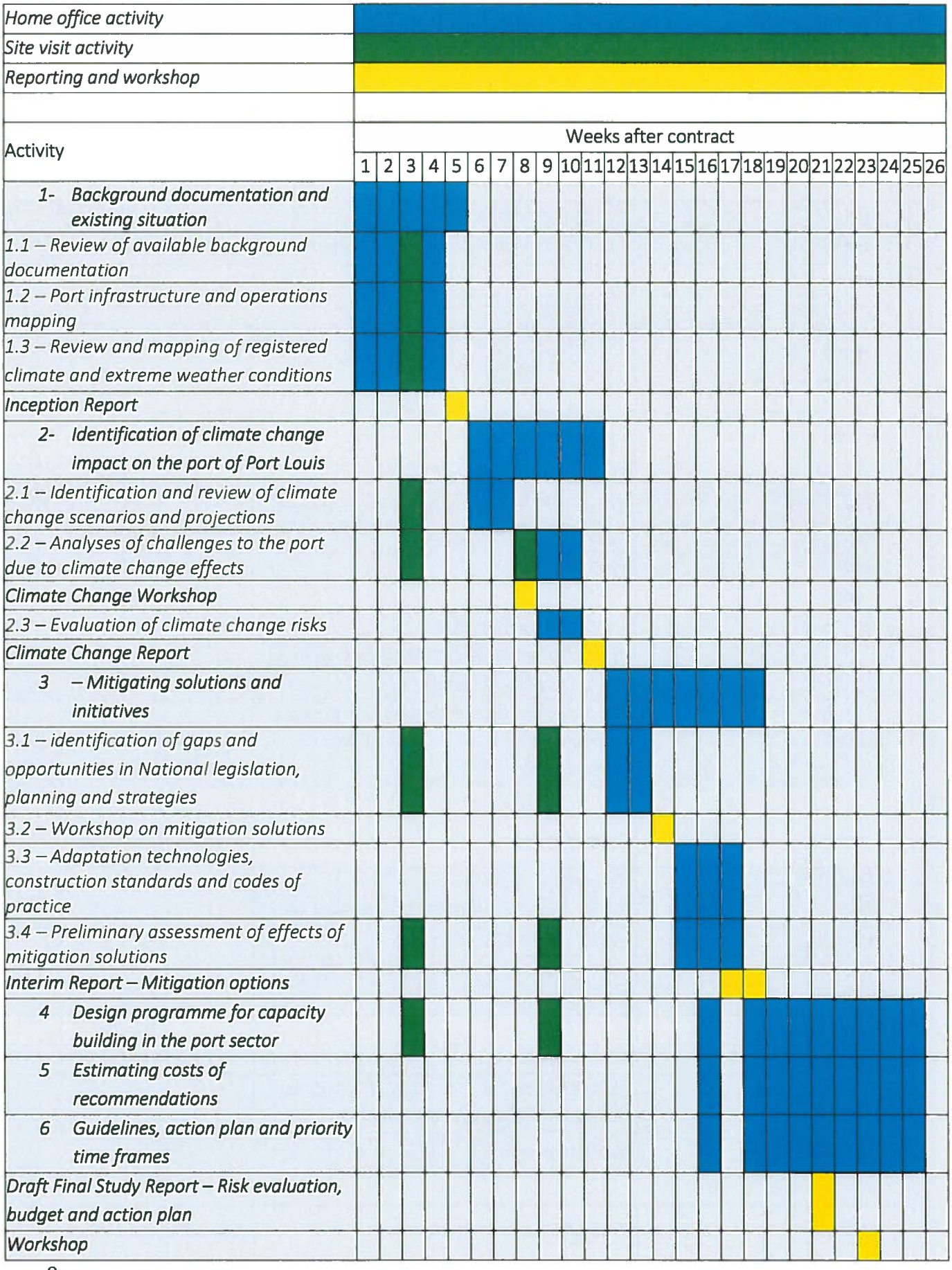
2.3 Timeline



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2.4 Expertise required

Activity 1	*Type of Expert*	*Number of man/days*
Expert 1	*Senior Ports Engineer*	*15*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*15*
Events		*Number*
Event 1	*Int. travels to Mauritius*	*2*
Event 2	*Hotel and per diem, man/days Estimation of resources needed, number of participants*	*10*

Activity 2	*Type of Expert*	*Number of man/days*
Expert 1	*Senior Ports Engineer*	*22*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*27*
Expert 3	*Water Resources Specialist*	*10*
Expert 4	*Gender specialist*	*2*
Events		*Number*
Event 1	*Int. travels to Mauritius*	*2*
Event 2	*Hotel and per diem, man/days Estimation of resources needed, number of participants*	*6*
Event 3	*Workshop on climate changes; 2-day event anticipated with participation by main stakeholders*	*(included above)*

Activity 3	*Type of Expert*	*Number of man/days*
Expert 1	*Senior Ports Engineer*	*22*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*15*
Expert 3	*Water Resources Specialist*	*5*
Expert 4	*Senior Institutional and Legislative Expert*	*10*
Expert 5	*Gender specialist*	*2*
Events		*Number*
Event 1	*Int. travels to Mauritius*	*4*
Event 2	*Hotel and per diem, man/days Estimation of resources needed, number of participants*	*20*
Event 3	*Workshop on mitigation solutions*	*2*

Activity 4	*Type of Expert*	*Number of man/days*

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Expert 1	*Senior Ports Engineer*	*5*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*3*
Expert 3	*Water Resources Specialist*	*0*
Expert 4	*Senior Institutional and Legislative Expert*	*2*

Activity 5	*Type of Expert*	*Number of man/days*
Expert 1	*Senior Ports Engineer*	*5*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*3*
Expert 3	*Water Resources Specialist*	*0*
Expert 4	*Senior Institutional and Legislative Expert*	*0*

Activity 6	*Type of Expert*	*Number of man/days*
Expert 1	*Senior Ports Engineer*	*5*
Expert 2	*Senior Port Hydraulics/Metocean Engineer*	*4*
Expert 3	*Water Resources Specialist*	*0*
Expert 4	*Senior Institutional and Legislative Expert*	*3*
Events		*Number*
Event 1	*Int. travels to Mauritius*	*2*
Event 2	*Hotel and per diem, man/days Estimation of resources needed, number of participants*	*6*

2.5 Main partners

Stakeholder	Role to support the implementation of the CTCN assistance
Ministry of Social Security, National Solidarity and Environment and Sustainable Development (MSSNSESD)	Supply of local experience and of data and local liaison with other stakeholders. As NDE, support the implementer of the technical assistance in terms of logistics and guidance.
Mauritius Ports Authority (MPA)	As request proponent, supply information, discuss all steps of response plan work and assist in the logistics. Also support in the selection and liaison of relevant institutions/participants attending the workshops.
Mauritius Oceanography Institute	Collaboration partner on marine geophysical surveys and data analyses, may provide survey and sampling equipment. Supplier of local knowledge on sediment deposits.
Local/regional authorities	Contacts as appropriate and guided by MOESDDBM

2.6 Indicative budget

Activities	Estimated Budget (USD)
Activity 1	45,000
Activity 2	83,000
Activity 3	82,000
Activity 4	10,000
Activity 5	15,000
Activity 6	15,000
Measures, evaluation and learning	Included above (*Recommended to be 5-8% of the overall budget)*
Total	250,000

Implementation of this Response Plan will be led by the Climate Technology Centre (including selection, contracting, supervision and monitoring of implementation partners) in close coordination with the corresponding National Designated Entity and relevant national actors. Implementation will be led by an International Consortium or Network Partner of CTCN.

2.7 Gender considerations

Consideration will be given to relevant gender considerations for the challenges and risks related to the impacts of climate change on the port of Port Louis. Consideration will also be given to gender considerations in of planning, design and prioritisation of climate change impact mitigation measures and adaptation options, to strengthen design of this port to the adverse effects of climate change.

2.8 Risk identification and risk mitigation

Risk	Consequence	Probability	Mitigation measure
Delay or lack of adequate information and data from stakeholders in Mauritius	Delay of Response Plan; work carried out on non-optimal basis; budget being exceeded	Considered only little probable	Involment of relevant stakeholders from the beginning of the technical assistance to ensure ownership – seek assistance of the NDE and MPA in reaching the appropriate target

3. Long-term impacts of the assistance

3.1 Expected climate change-related benefits

	CTCN climate technology impact	Anticipated contribution from CTCN assistance
1	Climate technologies adapted to national	Consequences of climate change impact on port infrastructure and port operations will

	context are identified and prioritized to enable their deployment and/or transfer in the requesting countries	be minimized or eliminated
2	New national Technology Needs Assessment (TNA) and Technology Action Plan (TAP) as a result of the response	Guidelines to be developed for mitigation measures and adaptation options recommended for the implementation of initiatives for making the port of Port Louis climate resilient and long term sustainable.
3	Progress made against mitigation objectives (i.e. energy and carbon intensity reduction) as a result of the response	-
4	Progress made against adaptation or resilience objectives (e.g. climate vulnerability index improvement) as a result of the response	Response plan will contribute to enhance the climate resilience of the port.
5	New mitigation or adaptation technology projects/initiatives implemented as a result of the response	Based on the technical assistance outputs, the proponent will have the necessary information for building a resilient port infrastructure
6	New or strengthened policies/ laws developed, approved and enacted as a result of the response	
7	New policies/laws where climate change was mainstreamed as a result of the response	-
8	Country integrating climate change mitigation and/or adaptation issues into its planning and policies as a result of the response	Country to integrate relevant parts outcome of response plan into planning and policies.
9	New or strengthened Public-Private Partnerships (PPP) created directly as a result of the response	Not envisaged
10	New or strengthened twinning arrangement created as a result of the response	Not envisaged
11	Capacities to access and attract public and private finance increase to enable financing of technology deployment	Not envisaged
12	Post-response intervention funding attributable to the response.	
13	Framework and analysis of local production developed to enable deployment of national	

	production of climate technologies	

3.2 Co-benefits

	Sustainable Development Goal	Contribution from CTCN assistance
1	End poverty in all its forms everywhere	N/A
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	N/A
3	Ensure healthy lives and promote well-being for all at all ages	N/A
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	N/A
5	Achieve gender equality and empower all women and girls	N/A
6	Ensure availability and sustainable management of water and sanitation for all	N/A
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	N/A
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	A climate resilient port will benefit economic growth
9	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	Assists in building resilient port infrastructure
10	Reduce inequality within and among countries	N/A
11	Make cities and human settlements inclusive, safe, resilient and sustainable	By providing an analysis of the climate vulnerability of the port and solutions to address it, this technical assistance will contribute to a more resilient and sustainable port activity, having direct consequence on the country's trade (import/export) capacity.
12	Ensure sustainable consumption and production patterns	N/A
13	Take urgent action to combat climate change and its impacts	Response will recommend short-term and long-term action on addressing climate impacts on the port of Port Louis
14	Conserve and sustainably use of the oceans, seas and marine resources for sustainable development	N/A
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage	N/A

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	forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	N/A
17	Strengthen the means of implementation and revitalise the global partnership for sustainable development	N/A

3.3. Post-assistance plans and actions

Implementation of recommendations for mitigating measures and guidelines resulting from the CTCN assistance are expected done by recipient, but no specific information about such plans is available at present.

The Port is contemplating to carry out the following works with the support of donor agencies:

a. Design and Construction of an Island Terminal with a break water
b. Break waters for Caudan Basin and Fort William
c. Second oil jetty
d. Extension of MCT quay to 960 m

Measures pertaining to mitigation of risks due to present climatic conditions and based on projected climate change scenarios will be reasonable mitigated to meet international safety standards.

3.4 Monitoring and reporting of technical assistance results and impacts

Upon contracting of the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. The monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation. The Response LogFrame in Annex 1 and the performance indicators table below serve as a basis for the monitoring and evaluation plan.

The CTCN Technology Manager responsible for the technical assistance will monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance (TA closure and data collection report and TA impact description – templates to be provided by the CTCN); and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.

Performance indicators of CTCN Assistance				
Response output *(linking to sec 1.2)*	How output will be used to ensure creation of result	Expected result	Expected outcome of result *(linking to sec 1.1)*	Anticipated impact that outcome will produce *(linking to section 3)*
Review of existing national plans and strategies related to the port sector and the port of Port Louis specifically in the context of climate changes with a view to identify gaps that need to be filled	Current plans and strategies may need to be amended. Output will identify and recommend such needs.	Identification of possible needs to amend existing plans and strategies related to climate change resilience in the port sector and to port of Port Louis	Existing plans and strategies to be amended by Stakeholders.	Updated and improved plans and strategies related to climate change resilience in the port sector and to port of Port Louis
Undertake a climate change risk assessment for the port of Port Louis, both sea and land based	Climate change risk assessment forms essential basis for developing solutions both on plans and strategies and mitigating measures	Expanded knowledge about and understanding of climate change risks and their impact on the port	Basis for identifying, designing and implementing mitigation measure to alleviate climate change impact	Updated and improved understanding of climate change risks for the port of Port Louis
Formulate an action plan for the implementation of adaptation options	Action plan is to be adopted by stakeholders for implementation in their plans and planning	Stakeholders are expected to have developed their own implementation and adaptations plans following the Response Plan.	Basis for implementing adaptations and mitigation measures	Clear action plan for stakeholders to base forthcoming activities on
Identify capacity building needs of engineers, marine personnel and other cadres of the port and port sector	Stakeholders will adopt and implement identified recommendations for capacity building	Knowledge and expertise of stakeholders' concerned staff will be updated.	Strengthened capabilities and capacity with Stakeholders' organization in relation to climate change impact, mitigation and resilience.	Capability of the Mauritian port and port sector to more effectively deal with and mitigate climate change risks and impact.
Recommend appropriate constructions standard, codes and guidelines and climate resilient legislation for the port infrastructure	Stakeholders will adopt and implement suggested standards, codes and guidelines	Climate resilient legislation drafted and passed	Improved preparedness of the Port of Port Louis to climate change	Capability and preparedness of the Mauritian port and port sector to more effectively deal with and mitigate climate change risks and impact.

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Signatures

Signatures of the requesting country

NDE	Request Proponent
Name: Mrs. Sin Lan NG Yun Wing	Name: Mr. Shekur Suntah
Title: Director of Environment	Title: Director General, Mauritius Ports Authority
Date: 07/04/17	Date: 19/5/17
Signature:	Signature:

Signatures of the CTCN

CTCN Director	Climate Technology Manager
Name: RASIV GARG.	Name: JASIN SPENSLEY
Title: OIC	Title: MANAGER
Date: 30/03/2017	Date: 30/03/2017
Signature: (OIC.)	Signature:

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Annex 1: Response Logframe

Activity *(link to sec 2)*	Description of sub-activities conducted by the CTCN	Output/ Deliverable *(link to sec 2.9)*	Expected Outcome *(link to sec 3)*	Main national partners involved	Objectively Verifiable Indicator *(see Annex 5 guidance)*	Means of Verification (data source, method of collection, responsibility and periodicity)
Activity 1:	*Act. 1.1: Review of background information.* *Act. 1.2: Port infrastructure and operations mapping.* *Act. 1.3: Registered climate and extreme weather conditions.*	Review of existing national plans and strategies, port infrastructure documentation, and port operation and performance documentation. Workshop with partners.	Establish basis for the implementer's further work.	MOESDDBM, MPA	Input from partners/stakeholders	Report on Activity to be prepared by Implementer
Activity 2:	*Act. 2.1: Climate change scenarios and projections* *Act. 2.2; Challenges to the port due to climate change effects* *Act. 2.3: Main risks and vulnerability to climate changes* *Act. 2.2: Risk evaluation and priority*	Review of relevant climate change forecast recommendations. Analysis of climate change challenges to the port and risk analysis. Workshop with partners.	Report forming basis for subsequent activities	MPA	Input from partners/stakeholders	Report on Activity to be prepared by implementer
Activity 3:	*Act. 3.1: National legislation, planning and*	Identification of gaps in current legislation, planning and	Report forming basis for subsequent	MOESDDBM, MPA	Input from partners/stakeholders	Report on Activity to be prepared by Implementer

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	strategies *Act. 3.2: Adaptation technologies, construction standards and codes of practice* *Act. 3.3: Preliminary assessment of effects of mitigation solutions*	strategies. List of possible mitigating measures. List of recommended technologies, standards and codes.	activities			
Activity 4:	*Capacity building in the port sector*	Recommendations for capacity building in sector	Report for partner considerations and implementation	MPA, MOESDDBM	Input from partners/stakeholders No, of participants	Report on Activity to be prepared by Implementer
Activity 5:	*Cost budgeting*	Budget estimates for mitigating measures	For partner considerations and onward planning	MPA, MOESDDBM	Input from partners/stakeholders	Budget estimate prepared by Implementer
Activity 6:	*Guidelines, action plan and priority time frames*	Guidelines and action and time plan for mitigating measures adaptation and implementation. Workshop for presenting outcome.	For partner onward planning and execution	MPA, MOESDDBM	Response from partners	Report on Activity to be prepared by Implementer

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