REQUEST FOR EXPRESSIONS OF INTEREST

for the selection of a consultant (firm) for the for the Preparation of a Feasibility Study and elaboration of a Plan for the setup of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius.

1. The Indian Ocean Commission (IOC) is an intergovernmental regional cooperation organization which brings together the Union of the Comoros, France, on behalf of Réunion, Madagascar, Mauritius and Seychelles. Its mission is to strengthen the bonds of friendship and solidarity between peoples and to contribute through regional cooperation to the sustainable development of its member states. The IOC has received a grant from the World Bank to support the SWIOFish2 regional project. It intends to use part of this grant to make payments under the Consultant (firm) contract " for the Preparation of a Feasibility Study and elaboration of a Plan for the setup of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius.".

2. The Consultant's mission is to evaluate the available options for in-berth vessel emission reductions at the Cruise Terminal of Port Louis Harbour. The scope is intentionally broad, aiming to cover a wide range of options to ensure the best available method is selected and implemented. In particular, the scope includes,:
    i. a review of all available emission reduction schemes and technologies to determine their suitability for Port Louis Harbour Cruise Passenger Terminal; and
    ii. an assessment of the feasibility and cost effectiveness of shore power and, for cruise ships berthed at Cruise Passenger Terminal.

3. It is in this context that the Indian Ocean Commission (IOC) is inviting eligible Consultants (Consulting Firms) for submission of Expression of Interest (EOI) for the provision of consulting services in respect of the above assignment. Interested Consultants must demonstrate that they are qualified to perform the services. The criteria for short-listing the consulting firm are:

    • Officially registered legal entity with a valid registration; • appropriate and sufficient capabilities, resources, and experience to execute the full extent of the scope of services to a very high quality; • have proven record of collaboration with national organisations; • have a proven record in successfully completing similar assignments. The formation of consortiums is permitted for the purpose to reinforce the qualification to be informed.

4. A version of the terms of reference is available on the website of the Indian Ocean Commission https://www.commissionoceanindien.org/sw2-y4-c001/

5. Expressions of interest must be filed electronically in uncompressed format at the address below by Wednesday 30 June 2021 at 4:30pm (Mauritian time UTC+4):

    e-mail: innocent.miada@coi-ioc.org and njiva.r@coi-ioc.org

    Reference: " (SW2/Y4-C001) *Preparation of a Feasibility Study and elaboration of a Plan for the setup of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius "*

6. The Consultant will be selected in accordance with the provisions of clause 3.7 (CQS) of section III of the Guidelines Selection and Employment of Consultants under IBRD loans and IDA credits & Grants by World Bank Borrowers edition January 2011 Revised July 2014.

7. All clarifications/information sought by the Consulting Firm in respect of the Expression of Interest shall be addressed to the Indian Ocean Commission (IOC) by e-mail to the addresses referred in paragraph 5.

AVIS DE MANIFESTATION D'INTÉRÊT

en vue de la sélection d'une firme ou d'un cabinet (service de consultants) pour «la préparation d'une étude de faisabilité et l'élaboration d'un plan pour la mise en place d'un système d'alimentation électrique à quai pour les navires au port de Port Louis, Maurice»

1. La Commission de l'Océan Indien (COI) est une organisation intergouvernementale de coopération régionale qui regroupe l'Union des Comores, La France/Réunion, Madagascar, Maurice et les Seychelles. Elle a pour mission de resserrer les liens d'amitié et de solidarité entre les peuples et de contribuer à travers la coopération régionale au développement durable de ses Etats membres. La COI a obtenu un don de la Banque mondiale pour financer le projet SWIOFish 2 Regional (Second South West Indian Ocean Fisheries Governance and Shared Growth Project). Elle se propose d'utiliser une partie de ce don pour effectuer des paiements autorisés au titre du contrat de Consultant (firme) qui assurera « la mise en place d'une plateforme web collaborative régionale dédiée à l'émergence d'entreprises et de projets innovants pour promouvoir l'économie circulaire et réduire la pollution marine dans les Etats insulaires en développement d'Afrique et de l'océan Indien (African and Indian Ocean Developing Island States, AIODIS) ».

2. La mission du consultant est d'évaluer les options disponibles pour réduire les émissions des navires amarrés au terminal de croisière du port de Port Louis. Le champ d'application est intentionnellement large, visant à couvrir un large éventail d'options pour garantir que la meilleure méthode disponible est sélectionnée et mise en œuvre. Le périmètre comprend notamment :

   - i. un examen de tous les programmes et technologies de réduction des émissions disponibles pour déterminer leur pertinence pour le terminal de croisière du port de Port Louis ; et
   - ii. une évaluation de la faisabilité et de la rentabilité de l'alimentation à quai et, pour les navires de croisière amarrés au terminal de croisière.

3. La Commission de l'océan Indien (COI) invite les consultants (firmes ou cabinets) éligibles à soumettre leur manifestation d'intérêt pour la prestation de services de consultants dans le cadre de la mission susmentionnée. Les Consultants intéressés doivent fournir les informations démontrant qu'ils possèdent les qualifications requises et une expérience pertinente pour l'exécution des Services. Les critères de présélection du consultant sont les suivants :

   • Être une personne morale légalement constituée et enregistrée ; • être doté des capacités, des ressources et de l'expérience appropriées et suffisantes pour exécuter l'intégralité des services à un niveau de qualité très élevé ; - avoir des expériences avérées de collaboration avec des organisations nationales ; • ayant fait leurs preuves de réussite dans des missions similaires. Les firmes ou cabinets peuvent se mettre en consortium dans le but de renforcer la qualification du soumissionnaire.

4. Une version des termes de référence est disponible sur le site web de la Commission de l'océan Indien https://www.commissionoceanindien.org/sw2-y4-c001/

5. Les manifestations d'intérêt doivent être envoyées en version électronique sous format non compressé aux adresses ci-après au plus tard le mercredi 30 juin 2021 16heures 30 minutes (heures de Maurice GMT+4):

   e-mail : innocent.miada@coi-ioc.org et : njiva.r@coi-ioc.org

   Référence : " (SW2/Y4-C001) *Preparation of a Feasibility Study and elaboration of a Plan for the setup of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius"*

6. Le consultant sera sélectionné en accord avec les dispositions de la clause 3.7 (QC) de la section III des Directives sur la Sélection et l'Emploi des Consultants par les emprunteurs de la Banque mondiale dans le cadre des prêts de la BIRD, des crédits et don de l'AID, édition janvier 2011 révisée en juillet 2014.

7. Les consultants intéressés peuvent obtenir de plus amples informations auprès de la Commission de l'océan Indien (COI) en envoyant un courriel aux adresses visées au paragraphe 5.

INDIAN OCEAN
COMMISSION

Promotion of African & Indian Ocean Island Developing States Blue Economy through the South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish2)

Terms of Reference for the recruitment of a Consulting Firm for the preparation of a Feasibility Study and elaboration of a Plan for the set-up of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius.

Assignment title	**Consultancy on** **Preparation of a Feasibility Study and elaboration of a Plan for the setup of an Onshore Power Supply System for Berthing Vessels at Port Louis Harbour, Mauritius.**
Contract duration	**60 person days over 3 months (July-September 2021)**
Primary assignment location	**Mauritius**
Financed by	**IDA**

Mauritius, June 2021

1. Background

A Financing Agreement (Grant No. D1720) was signed between the International Development Association (IDA) and the Indian Ocean Commission (IOC) on 30 May 2017 to support the Second South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish2).

This consultancy is in the context of the implementation of the subcomponent of the project that supports the African and Indian Ocean Developing Island States (AIODIS).

The AIODIS sub-component of SWIOFish2

The sub-component will support the group of African and Indian Ocean Island Developing States (Cabo Verde, Guinea Bissau, São Tomé & Príncipe, Comoros, Mauritius, Madagascar, Maldives and Seychelles) in collaborating and sharing their own experiences to address some of their specific challenges such as improving the sustainable management of their vast maritime territory; innovating and developing their Blue Economy in the context of climate change; and collaboratively mobilizing financing for addressing those challenges. Activities include the organization of high-level meetings to discuss specific challenges and issues of regional interest; the creation and exchange of knowledge; the provision of a preparation facility for project proposal; and support to the AIODIS Secretariat to be hosted by the IOC.

The AIODIS component of the SWIOFish2 project aims to support the development of the Blue Economy by providing opportunities for south-south exchange and increased access to needed expertise for the formulation of actions for the purpose.

This consultancy addresses the provision of a preparation of a facility for project proposal by AIODIS countries. The proposed project is to have potential for replication in the other AIODIS.

2. Context of the assignment

International shipping contributes with approximately 2.4% of global anthropogenic greenhouse gas (GHG) emissions. Ships are recognised as major air polluters, with associated climate change, and adverse socio-economic and health related impacts as well. Shipping activities at port are highly pollutive, and over 93% of the world's shipping fleet is diesel (HFO) engine powered, with even modern marine engines producing higher emissions per power output than regulated on-road diesel engines.

However, the shipping sector has significant abatement potential, and environmental gains can be achieved through appropriate measures. Amongst other measures to reduce ship emissions in port and city environments, Onshore Power Supply (OPS) has been suggested and implemented in many global advanced ports. OPS is a land-to-ship electricity connection that allows ships to switch off onboard diesel powered generated while berthed. OPS is an option for reducing the unwanted environmental impact of ships while in the port, that is, GHG emissions, air quality emissions and noise pollutions. The extent of the emissions reduction depends mainly on the type of fuel burned from the ships as reference value and on the energy mix used for electricity generation onshore. The costs and benefits of OPS are dependent on characteristics such as grid factor, electricity price, grid conditions, etc.

Ships that have a high electricity demand overall and per berth are the first ones for which OPS will be beneficial. As a first step, the Mauritius Ports Authority has decided to focus on cruise ships as it is on the point of developing the infrastructure for a cruise terminal. In this regard, cruise ships present the best candidate for OPS, as in average the peak power demand per ship is relatively high. Cruise ships, in addition to transferring passengers, also assumes the simultaneous function of a luxurious resort hotel and a leisure centre throughout their journeys. The "hotelling" function is mainly responsible for the excessive energy demand of cruise ships, especially during their staying at berth.

The cruise traffic is expected to recover post Covid-19 once travel restrictions are lifted although there is no clear timeline for cruise operations to start again. With a view to enhancing cruise reception facilities, the

Mauritius Ports Authority (MPA) is proceeding with the construction of a Passenger Terminal Building having a floor area of 7,325 m^2 to accommodate both Cruise and the Inter-Island passenger traffic in the Western Indian Ocean. The facilities are designed to accommodate peaks of 4000 cruise passengers while up to 2000 cruise passengers is expected to be handled for each call.

The energy consumption of cruise ships is currently covered by onboard generators which run on heavy fuel oil (HFO) to provide electrical power for their onboard amenities, equipment and passengers. This form of electricity production is among the most polluting for the air and seawater, thus impacting environmental quality of the port city and neighbouring fishing communities. There is therefore an environmental benefit to be obtained if the ships can use a less polluting energy source while they are at the quay. Cruise vessels have the highest individual power demand at berth and associated air emissions at berth when compared with other vessels. Studies have highlighted direct correlations between some of the emission components and public health implications.

Benefits of Onshore Power Supply

Onshore power enables ships at berth to use shoreside electricity to power onboard electrical systems, such as lighting, ventilation, communication, cargo pumps, and other critical equipment, while turning off their auxiliary engines. These ships can be connected to onshore power supplies so ship operations can proceed uninterrupted while eliminating diesel emissions resulting from auxiliary engines.

Ports are increasingly conscious of emissions generated from port operations that can strain the relationship between ports and nearby communities. This then compels ports to voluntarily implement a variety of clean port initiatives to minimize the adverse impacts. Despite the initial high investment cost, onshore power, consequently, has become more attractive as it eliminates emissions from ships at berth, often the biggest polluters at a port. As more ports build shore power infrastructure, the networking effect increases the utilization rate of the shore power equipment by ships, reduces the overall cost, and reinforces the appeal of shore power.

The MPA intends, with the technical assistance from the IOC and funding of the World Bank through the SWIOFish2 project, to commission a feasibility study to define the preferred/best approach for reducing emissions from ships and in particular hotelling cruise vessels. As part of the initiative plans, the project also foresees a study to determine the feasibility and sustainability of shore supply installations for the provision of electrical shore sourced power to ships when berthing in ports rather than using heavy fuel oil, by connecting to the national electricity grid to provide ships with the necessary energy to power on board facilities such as cargo handling machinery and hospitality needs for both crew and passengers on board ships. This initiative is also the result from an appreciation of increasing concerns regarding potential health and environmental implications.

It is also believed that this project could be of benefit to the region if replicated as the promotion of the Indian Ocean region is at the heart of the Port Association of Indian Ocean Islands (APIOI) mission, which aims to transform it in an attractive zone. In this regard, cruise industry is an important area of cooperation between the different port authorities. Aware of the challenges of the cruise industry represent for the Indian Ocean, APIOI member ports are working to support its development, promote the establishment of common objectives and to act in a concerted manner for the development of the whole region.

2.1 Overall Objectives

The objective of the feasibility study is to evaluate the available options for in-berth vessel emission reductions at the Cruise Terminal of Port Louis Harbour. The scope is intentionally broad, aiming to cover a wide range of options to ensure the best available method is selected and implemented. In particular, the scope includes:

(i) a review of all available emission reduction schemes and technologies to determine their suitability for Port Louis Harbour Cruise Passenger Terminal; and

(ii) an assessment of the feasibility and cost effectiveness of shore power and, for cruise ships berthed at Cruise Passenger Terminal.

The output of the study will include a project proposal to be presented to the Government and donors and will provide the MPA with recommendations to help deliver long term sustainability goals that will reduce port's operations dependability on non-renewable energy sources. In this respect, the MPA has already embarked on a solar PV project for its administrative buildings. The Consultant is expected to undertake a feasibility study that would enable policy makers to decide on the actual viability of the provision of shore-side energy supply service from the Cruise Passenger Terminal to vessels utilising these facilities. The study will assess how the Cruise Passenger Terminal can best support this service by realistically assessing the economic, social, environmental and technical issues related to the installation of the necessary infrastructure.

Scope of Work/Tasks to be undertaken by Consultant:

The Consultant is required, inter alia, to carry out the following: -

(i) An assessment of power consumption by each ship category, their call frequency, duration of stay at Port Louis Harbour and establish the power profile of the different vessels;

(ii) An assessment of the power requirements when ship is at berth, and the power supply availability by the Central Electricity Board (CEB) for shore power;

(iii) An inventory of all cruise ships currently calling at the Port capable of connecting to shore power, their power and connection requirements;

(iv) Assess the readiness of the vessels calling at Port Louis Harbour to use shore power including those with appropriate technology required to be installed under the global IEC/ISO/TEEE 80005-1 Standard for utility connection in ports;

(v) An assessment of the worldwide cruise ship fleet trend for shore power capability and estimated timeline for the worldwide cruise ship fleet conversion to shore based;

(vi) An assessment of the capital cost estimates of retrofit for the vessels which are not ready to use shore power;

(vii) An assessment of shore power infrastructure requirements, including transformers, switchgear, conduits, cabling requirements, and receptacle pits and the costs thereof;

(viii) An assessment of the operation & maintenance requirements including manpower needs & skills to handle and operate the facility;

(ix) An assessment of environmental benefits of the shore power in terms of the estimated reduction of ship related greenhouse gas emissions, air pollution and noise pollution as well as in terms of GHG emissions by the necessary electricity generation in Mauritius to assess potential for "carbon leakage";

(x) An assessment of capital cost estimates of the shore power infrastructure required at Passenger Terminal;

(xi) An assessment of the cost-effectiveness and feasibility analysis of shore power systems, including a discussion of various options for shore power infrastructure for Passenger Terminal;

(xii) Assess and propose a competitive pricing structure for the provision of shore power in line with best international practices;

(xiii) Study the commercial aspects of selling power to ships;

(xiv) Recognizing that ships do not operate independently from shore-based entities in the marine transportation systems, the Consultants are required to analyze activities, more specifically those of harbour tugs and cargo handling equipment creating air pollutant emissions in Port Louis Harbour and examine various technological and operational solutions for reducing the pollution and compare their feasibility. The Consultant is encouraged to refer to the Port Emissions Toolkit Guides from the GEF-UNDP-IMO Global Maritime Energy Efficiency Partnership (GloMEEP) and IAPH while conducting the assessment of port emissions.

(xv) A potential schedule of implementation; and

(xvi) Based on the feasibility study, prepare a project proposal which will include a conceptual design of the project, project budget, project implementation schedule, procurement strategy, list of information requirements, etc.

3. Deliverables

The main deliverables of the consultancy are: -

(i) Inception Report, including a programme of work and methodology to be used.

(ii) A report addressing tasks (i), (ii) and (iii)

(iii) A draft report, including addressing tasks (iv) to (xv) above to be circulated to relevant stakeholders.

(iv) Final Report, including an Executive Summary at the end of the assignment, in which the comments from stakeholders on the above draft report have been incorporated.

4. Duration

The level of effort required for the completion of the tasks should not exceed a total of forty (60) person days), including travel to Mauritius, over a period of three months. The assignment is expected to start in July 2021 and be completed by September 2021.

5. Supervision Responsibility

The Consultant shall report to the Officer in Charge for AIODIS via the SWIOFish2 Coordinator based at the Indian Ocean Commission, throughout the duration of the project and shall maintain constant liaison with them to discuss on matters pertaining to progress of works as well as for eventual claims for payment.

7. Required Level of Expertise of Consultant

7.1 The following requirements are a broad description of the expertise needed for this assignment.

7.2 The Consultant is expected to: -

(a) be a firm with appropriate and sufficient capabilities, resources, and experience to execute the full extent of the scope of services to a very high quality;

(b) collaborate with national organisations

(c) have a proven record in successfully completing similar assignments.

7.3 The following expertise will be required for the implementation of this assignment:-

(a) a **Shore Power Expert** (Team Leader, approx. 40 man-days)

(b) a **Financial Expert** (approx. 15 man-days)

(c) an **Environmental Expert** (approx. 5 man-days)

The **Shore Power Expert** should have the following qualifications and skills:-

- At least a bachelor's degree or equivalent in electrical engineering and/or in a related discipline;
- At least 10 years of demonstrable working experience in electrical development projects and a minimum of 5 years' experience in shore power related studies for berthed vessels;
- Proven track record of having undertaken similar assignments;
- Strong report writing and analytical skills;
- Experience in working with high-level stakeholders and in an international environment;
- Experience working with World Bank and Small Islands Developing States will be an advantage;
- Good communications skills both written and spoken with full proficiency in English.

The **Financial Expert** should have the following qualifications and skills:-

- At least a bachelor's degree or equivalent in Economics, Finance or Business
- At least 10 years of demonstrable working experience and a minimum of 5 years' experience in carrying out financial and economic analysis, studies for shore power and other related projects.
- Proven track record of having undertaken similar assignments;
- Strong report writing and analytical skills;
- Experience in working with high-level stakeholders and in an international environment;
- Experience working with World Bank and Small Islands Developing States will be an advantage;

The **Environmental Expert** should have the following qualifications and skills: -

- At least a bachelor's degree or equivalent in Environmental Science, Environmental Engineering or any other relevant degree from a recognised university;
- At least 10 years of demonstrable working experience and a minimum of 5 years' experience in carrying out environmental assessment in maritime transport and other related projects.
- Proven track record of having undertaken similar assignments;
- Strong report writing and analytical skills;
- Experience in working with high-level stakeholders and in an international environment;
- Experience working with World Bank and Small Islands Developing States will be an advantage;

The Consultant will work with the IOC to implement the work plan for the successful conclusion of the tasks as detailed above.

8. Payment schedule

- 10% - Upon submission and approvalof an Inception (work) Plan inclusive of a programme of work (within 2 weeks of start of assignment)
- 50% - Upon submission and approval of a first draft of the report (after the workshop).
- 40% - Upon approval of final version of the of the report.