



## **CALL FOR TENDERS**

Lake Tanganyika Authority Secretariat is inviting tenders for the consultancy mission to identify, characterize and map potential sites for the development of cage aquaculture in Lake Tanganyika in the four riparian countries. To this end, it invites all interested persons or firms to submit their tenders, in a sealed envelope, or by email, in accordance with the conditions described in the terms of reference below:

**Terms of reference for the consultancy mission to identify, characterize and map potential sites for the development of cage aquaculture in Lake Tanganyika in the four riparian countries.**

### **General:**

**Entity:** Lake Tanganyika Authority Secretariat

**Subject:** consultancy mission to identify, characterize and map potential sites for the development of cage aquaculture in Lake Tanganyika in the four riparian countries

### **Tender schedule:**

- Publication of the terms of reference : 20 February 2023
- End of submission of file submission at 4 p.m. : 6 March 2023
  
- Date of tender opening : 8 march 2023  
(in the presence of all bidders- physically or online)
  
- Dates of tender review and selection : 14 to 17 March 2023
  
- Signature of the contract (maximum deadline) : 20 March 2023
  
- Kick-off meeting : 27 March 2023  
(to accommodate the comments in the methodological approach proposed in the tender)
  
- Expected start of the mission : 30 March 2023
  
- Submission of the final report : 12 June 2023

### **Supervision: LTA Executive Director**

E-mail : [sylvain.tusanga@lta-alt.org](mailto:sylvain.tusanga@lta-alt.org) [christelle.nijimbere@lta-alt.org](mailto:christelle.nijimbere@lta-alt.org)

Tel : +257 22 27 35 80 \_\_\_\_\_ +257 22 2761 66



**Address:** Lake Tanganyika Authority  
17, Avenue des Etats Unis, Kigobe Sud  
B.P: 4910 – Ngagara / Bujumbura - Burundi

Details of the terms of reference are available at the Lake Tanganyika Authority Secretariat and on its website- [www.lta-alt.org](http://www.lta-alt.org) and/or upon request from: [christelle.nijimbere@lta-alt.org](mailto:christelle.nijimbere@lta-alt.org) with a copy to email: [sylvain.tusanga@lta-alt.org](mailto:sylvain.tusanga@lta-alt.org)

## 1. BACKGROUND

As part of the implementation of the Memorandum of Understanding signed on April 29, 2021 between Lake Tanganyika Authority (LTA) and The Nature Conservancy (TNC) whereby the two parties agreed to collaborate and carry out together some activities relating to biodiversity protection and the sustainable management of the natural resources in Lake Tanganyika and its basin, a budgetary allocation has been availed by TNC to finance consultancy services to identify the main potential sites for the development of cage aquaculture and propose concrete actions to be undertaken.

## 2. RATIONALE

Population pressure in the Lake Tanganyika basin has fostered overfishing, the use of inappropriate and destructive fishing gears, which has rendered fishing catches insufficient to meet the growing demand for fish and support the rapid population growth.

Aquaculture is proving to be a viable option to increase fish production to fill fish supply gaps due to declining wild stocks. However, most land-based fish farming systems, such as ponds, which began around the 1950s in Africa, have not been successful. On the other hand, cage farming, which is well practiced in other parts of the world, only started on Lake Malawi in 2004, followed by Lake Victoria in 2006, has recorded more success in terms of quantities of tonnage produced per unit area compared to land-based aquaculture systems. Data from some of the existing cage fish farms on Lake Victoria show production capacity ranging from 60-75 kg m<sup>3</sup> of fish from low volume high density cages and those of 15-30 kg m<sup>3</sup> from low volume density cages. This is much higher compared to <2 kg m<sup>3</sup> of ponds, and this difference has caused cage aquaculture to spread rapidly to other African lakes.



Cage aquaculture, being a lucrative business, has attracted local and international investment to Lake Victoria within very little time, and has spread to other lakes but with little or no proper planning, site suitability and carrying capacity assessment. It is important cage aquaculture operations and their potential impacts on the environment and biodiversity are assessed and monitored to ensure good cage culture operations, including in Lake Tanganyika.

However, despite the potential for increased fish production, cage aquaculture can pose social, economic and environmental challenges, including competition with other lake uses, pollution from uneaten food, fecal materials, chemicals (antifoulants and antibiotics) with high concentrations of phosphorus and nitrogen and the disruption of hotspots and potential breeding grounds for biodiversity as most cage fish farms are usually located in coastal areas

Because of these potential threats, and since Lake Tanganyika is physically and ecologically dynamic as well as sensitive to climatic and environmental variations, it is necessary to carry out a proper assessment of site suitability and possibility for the development of cage aquaculture to preserve the integrity of Lake Tanganyika and its dependent ecosystem services. This is in line with various guidelines such as the Regional Environmental Management Framework for Sustainable Aquaculture Development in East Africa and the Great Lakes Region, FAO Code of Conduct for Responsible Fisheries as well as FAO's Ecosystem Approach to Aquaculture. It is envisioned to generate information to guide policy and decision makers to ensure environmental integrity and sustainability in cage aquaculture production.

LTA plans to support cage aquaculture as one of the main alternative sources of food security and economic livelihoods that will alleviate the already strong pressure on declining fish stocks. The resulting cage culture is expected to contribute to poverty reduction, job creation, community development as well as food and nutrition security.

### **3. PURPOSE OF THE ASSIGNMENT**

The overall objective of the mission is to identify, map and select potential sites and areas suitable for socially and environmentally responsible cage aquaculture in Lake Tanganyika in Burundi, DRC, Tanzania and Zambia and define a capacity building program, guidelines and other requirements for the development of cage aquaculture in the lake.



The study should build on existing national and regional experiences in cage aquaculture and international best practices, including but not limited to FAO's Code of Conduct for Responsible Fisheries (CCRF) (1995), frameworks supporting policies /continental regional such as the Regional Environmental Management Framework for the Sustainable Development of Aquaculture in East Africa and the Great Lakes Region (2016), FAO's Ecosystem Approach to Aquaculture (2010), FAO and World Bank Aquaculture Zoning, Site Selection and Area Management under the Ecosystem Approach to Aquaculture (2017).

The study will involve close consultation and interface with the main stakeholders, such as the Directorates of Fisheries and Aquaculture in the four Lake Tanganyika riparian countries, fishermen and private sector fish farmer associations, research institutions, the Ministry of Water and Environment, the Ministry of Energy, and other stakeholders identified during the process.

#### **4. ACTIVITIES TO BE CARRIED OUT (the duration of the mission is 70 days)**

The detailed mission activities include:

**(i) *Situational Analysis:*** This activity includes: (a) a review of relevant national and regional institutions and key actors, laws, policies and development strategies relating to cage aquaculture, in Burundi, DRC, Tanzania and Zambia; (b) a review of the cage aquaculture sub-sector, which is based on each country's comparative benefits, market opportunities and investment priorities; (c) a review of the status and geo-referencing of all existing or planned cage aquaculture projects in Lake Tanganyika, including their current or planned production parameters; (d) identification of constraints, opportunities and lessons relating to cage aquaculture development that can inform the next steps of the assignment.

**(ii) *Site Selection:*** This will include identification, characterization and mapping of at least fifteen (15) suitable sites for cage aquaculture on Lake Tanganyika and proposal of the intended fish species to be farmed. This will include bio-physical-chemical, environmental, social and cultural, economic and fish market analyses, as well as an assessment of potential private sector investments. The study shall also include the assessment of existing infrastructure and support services (nurseries, grain mills,



aquaculture extension services, water supply, electricity, roads, labor, markets, access to loan and finance, security of planned cage aquaculture facilities, etc.).

**(iii) Other site analyses:** detailed analyzes of the selected sites on the lake should be carried out, including (a) a thorough technical and socio-economic assessment of suitability for cage culture and its production capacity; (b) identification and analysis of relevant stakeholders, community(ies) and/or actors who will benefit or be negatively impacted as a result of potential implementation of cage aquaculture; (c) analysis of potential environmental and social impacts of cage culture development with recommendations on mitigation measures for negative impacts and site environmental management plans; d) estimation of inputs, outputs, sources of inputs and labor needed, potential production levels, possible assessment of markets for cage culture products (value addition), access to loan and financing for potential development of cage aquaculture; and (e) identification of possible challenges/limitations and obstacles to their intended operations and proposing possible mitigating measures.

**(iv) Prioritization of Pilot Cage Sites:** It is expected that fifteen (15) of the potential sites (2 in Burundi, 6 in DRC, 5 in Tanzania and 2 in Zambia) will be prioritized as pilot cage aquaculture production sites with a species to be proposed (demonstration) based on a technical and socio-economic feasibility analysis. In view of this, the consultant should facilitate the prioritization and selection of the 15 sites. For these 15 sites, the consultant will also map the likely impacted communities and other relevant stakeholders and provide an indication of the support required for a successful implementation and operation of these pilot cages

**(v) Capacity Building Program:** This program includes defining, cost assessing and establishing a capacity building program for identified key stakeholders at district/territory/province and community level (fisher, fisher groups, relevant women's groups, extension workers, etc.) in cage aquaculture management aspects and appropriate technologies, research, extension services, impact monitoring, biosecurity and disease control, etc.



This activity will also include (a) identification of possible areas (policies, available technologies, aquaculture practices, etc.) improving/strengthening or correcting gaps requiring research during the value chain production and recommendations for best practices including international guidelines or instruments for the sustainable development of aquaculture; (b) defining appropriate strategies to encourage private and foreign investment in aquaculture.

**(vi) Preparation of guidelines:** This activity will include the preparation of technical guidelines and requirements for: (a) selection of suitable sites for cage aquaculture; (b) best cage aquaculture management practices to minimize environmental impacts; (c) monitoring the effects/impacts of cage aquaculture operations on the environment and society; d) the procedures and requirements for obtaining licenses, permits and regulatory authorizations required for cage aquaculture farms in the four countries; (e) biosecurity and disease control measures and strategies; f) funding and management requirements for successful aquaculture operations.

The guidelines will be drawn from the Consultant's experience and best practices, but they should be accommodated to the Lake Tanganyika context.

## 5. TECHNICAL AND FINANCIAL PROPOSALS

The consultant shall submit a technical and financial proposal to Lake Tanganyika Authority Secretariat. The proposal should include the following components:

### **A) The technical proposal must indicate:**

**(i) The methodology** he/she proposes for carrying out the mission with explanation of how he intends to carry out the activities and achieve the expected results. It should highlight the issues to be addressed and their importance and briefly explain how it will do so.

**(ii) The work plan** which should include the mission activity program on the ground and in the office as well as report submission dates. The work plan should demonstrate that the terms of reference have been understood and can be translated into a practical work plan. A list of final documents, including reports that make up the final product, should be included.



(iii) **The mission execution time frame:** The consultant must present a schedule that complements the methodology and work plan detailed above by indicating, in a sequential manner, the activities to be carried out with their corresponding durations or dates.

(iv) Prove the ability of the team to carry out the activities by providing a rationale and CV(s)

**B) The financial proposal must indicate:**

- The total costs of the mission components in US dollar (all taxes included)
- Payment terms (schedule)
- The planned total budget for this mission is **USD 20,000 (TWENTY THOUSAND US DOLLARS)**; therefore the total costs of all the mission activities must not exceed this amount.

**6. EXPECTED RESULTS**

The consultant and his team are expected to produce quality reports in English and French (the report will be reviewed by TNC experts before submitting to the LTA riparian countries), and it should include:

| Report   | Content   | Number of copies                                |
|--|---|---|
| Inception report – 1 week after signing of the contract) | Conceptual/logical flow of the mission work; a clear methodology and approach; a detailed work plan; an outline of the structure of the main mission reports; a draft review of the status of aquaculture in the Lake Tanganyika Basin, including relevant stakeholder institutions, policies, laws and strategies  | 2 copies in English and French submitted to LTA |
| Interim Report – 35 days after start of the study        | Detailed review of the status of aquaculture development in the Lake Tanganyika basin, including relevant institutions and stakeholders, policies, laws and strategies for Burundi, DR Congo and Zambia (this task had already done in Tanzania. The consultant will need to consult TNC experts and Aquaculture department). Preliminary results of site identification, characterization, selection, analysis and mapping, including relevant stakeholders, (likewise this as above.)<br><br>At each stage of report submission, LTA, in collaboration with TNC, will organize a stakeholder workshop (online) to review and validate the reports (inception and interim) | 2 copies in English and French submitted to LTA |



| Report   | Content  | Number of copies  |
|--|--|---|
| Final Report (Provisional)<br>55 days after start of the study | Detailed results of selection, analysis and mapping, potential risks, impacts and mitigation measures, potential benefits, capacity building program, technical guidelines and relevant appendices.<br><br>A workshop (physical with stakeholders) shall be held to review the draft final report. | 2 electronic copies in English and French submitted to LTA                      |
| Final Report<br>70 days after start of study                   | Will have the same structure as the draft interim report but will be amended with feedback from the Client and stakeholder workshop.   | 4 hard copies in English and French,<br><br>1 electronic copy submitted to LTA. |

## 7. CONSULTANT QUALIFICATIONS AND EXPERIENCE

The consultant and each team member must have the following qualifications in their specialty:

### 7.1 Qualifications required

- At least a Master's degree or Advanced degree in aquaculture or equivalent in Aquaculture Environment or related fields (with background in fisheries biology).
- Master's degree in ichthyology
- Diploma in aquatic environment / advanced
- Degree in environment
- Engineering degree/graduate degree
- University degree/Degree in Aquaculture/Aquatic Environment/
- Aquatic Science

### 7.2 Experience:

- The consultant must have at least 10 years of sound professional experience in research on/or aquaculture management
- Proven experience in cage aquaculture in development agendas
- Professional experience in freshwater fish biology (ichthyology) in Lake Tanganyika region would be an advantage.



- Advanced skills in data analysis, information technology, including internet communication systems,
- Proven skills in carrying out mapping in freshwater ecosystem
- Demonstrated skill in writing and editing reports and presenting results to a specialised audience using visual techniques.

### 7.3 Team Composition

The consultant is responsible for setting up his team to conduct the task and making changes to the team composition as needed. The composition of the team must reflect the specialties and skills required to carry out the mission successfully.

- Team leader (consultant)
- Environmental specialist
- Social scientist
- Economist
- Technicians
- GIS specialist
- Research officers

## 8. SUBMISSION OF PROPOSALS

Your proposal should be submitted to the Lake Tanganyika Authority Secretariat or sent by email to the Personal Assistant to the Executive Director, Ms. Christelle Nijimbere email address [christelle.nijimbere@lta.alt.org](mailto:christelle.nijimbere@lta.alt.org) with a copy to the Executive Director, email: [sylvain.tusanga@lta-alt.org](mailto:sylvain.tusanga@lta-alt.org) not later than **6 March, 2023, at 4:00 p.m.** Burundian time.

## 9. Tender schedule:

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Tel : +257 22 27 35 80 \_\_\_\_\_ +257 22 27 61 66

**10. THE ASSIGNMENT-RELATED REFERENCES INCLUDE:**

- A. Convention on the Sustainable Management of Lake Tanganyika and its Basin of 2003
- B. Strategic Action Program for the Protection of Biodiversity and Sustainable Management of Natural Resources in Lake Tanganyika and its Basin of 2003;
- C. The Lake Tanganyika Framework Fisheries Management Plan (FFMP) for the transboundary fishery resources of 2020;
- D. Fisheries Acts and Fisheries Regulations of the four LT riparian countries;
- E. Environmental Management Acts, National Guidelines for Strategic of the four LT riparian countries;
- F. Environmental Assessment and Guidelines for aquaculture of countries, SADEC,
- G. Guidelines for the Establishment and Operation of Cage Fish Farming in the East African Community of 2018 issued by Lake Victoria Fisheries Organization;
- H. Aquaculture zoning, site selection, and area management under the ecosystem approach to aquaculture of 2017. A handbook edited by Aguilar Manjarrez, J. Soto, D. & Brummett, R., through FAO, and World Bank Group, and
- I. Site selection and carrying capacities for inland and coastal aquaculture of 2013 edited by Ross, L.G., Telfer, TC, Falconer, L, Soto, D. & Aguilar-Manjarrez, through FAO/Institute of Aquaculture, University of Stirling.
- J. J. FAO and World Bank (2017). Aquaculture Zoning, Site Selection and Area Management under the Ecosystem Approach to Aquaculture: Full Document.