# Terms of Reference

## Introduction

Ministry of Fisheries, Marine Resources and Agriculture, is seeking consultancy services in broadening the services of Maldives Industrial Fisheries Company Private Limited's fisheries operations within the country.

In this regard, the government wishes to expand storage capacity for storing frozen tuna in two different islands of Maldives; the established operational centres are Kooddoo Fisheries Complex (KFC) and Kandu oiy giri Fish Village (KFV) and develop new cold storage facilities and operational centres in M. Mulah and Gdh. Thinadhoo.

KFC has a 2000 tons cold storage facility for tuna, a fisheries harbour and a deep water berthing facility for ocean going liners. MIFCO intends to establish an extra 4000 tons cold storage facility at KFC. The additional cold stores may be integrated with existing cold storage or may be installed as separate cold stores but served from the common existing brine freezing system.

KFV is a fresh fish processing facility, mainly for export of fresh tuna loins or whole frozen tuna. A new cold storage facility is needed to be established at KFV comprising of a cold store and a cold air blast freezing system for whole fresh tuna. Storage capacity for the cold store is to be 200 tons and the blast freezer should be able to freeze 40 tons of tuna in two shifts of 10 hours.

Two new Cold stores are needed to be established in the following two islands.

1. Thinadhoo island in Gaafu Dhaalu Atoll
2. Mulah island in Meemu Atoll.

Thinadhoo is an inhabited island in the South Huvadhoo Atoll (Gaaafu Dhaalu Atoll), where MIFCO operates a sea water block ice plant. Mulah is another inhabited island in Mulaku Atoll (Meemu Atoll), where the main occupation of the islanders is fishing.

The whole project includes a total of 4 components, namely:

I. Addition of 4000 tons cold storage capacity and related facilities to Kooddoo
II. Building a cold storage with holding capacity of 200 tons frozen tuna and provision of an air blast freezing system to blast freeze 20 tons of fresh tuna in a 10 hour shift to operate for 2 shifts per day in KFV.
III. Building a cold storage with holding capacity of 1000 tons for frozen tuna and a brine freezing system to freeze 50 tons of fresh tuna per 8 hours to operate 2 shifts per day, in Thinadhoo Island.

IV. Building a cold storage with holding capacity of 500 tons for frozen tuna and a brine freezing system to freeze 50 tons of fresh tuna in 8 hours to operate 2 shifts per day, in Mulah Island.

Consultancy services involves preparation of detailed Tendering and Bidding Documents including Scope of Work, basic engineering drawings and specifications suitable for an Engineering Procurement and Construction (EPC) contract for 4 separate components of the project and supervision of the project activities. Tendering and Bidding Documents are needed to be separate for the 4 components.

## Scope of Consultancy Services

MoFMRA is seeking consultancy services establishing cold storages in four separate locations of Maldives. Scope of consultancy involves preparation of Detailed Tendering and Bidding Documents with Basic Engineering Specifications and drawings Consultancy (BESC) for each of the 4 components of the project and supervision of project activities.

## Project components

### Addition of 4000 tons cold storage space and power improvement for Kooddoo

Scope of consultancy of this component of the project include planning, preparing conceptual design, basic engineering drawings, preparing Employers requirements for an EPC contract and preparing technical documentation of cold storage set-up including machinery and steel structure of cold storage buildings, as described below.

a. There already exists a 2000 ton capacity cold store at Kooddoo for frozen tuna. Additional 4000 tons storage is needed to be added to this storage by adding two separate storages of 2000 tons each adjacent to the existing stores connected by ante rooms. Each of these new 2000 tons storage is to be divided into 4 stores of 500 tons storage capacity. The two new 2000 tons cold storages are to be operated independent of each other. Storage temperature is to be maintained at -25$^{o}$C. Anteroom temperatures are to be maintained at 0$^{o}$C. Cold stores are to be equipped with frozen fish storage baskets which could hold 1000 kg in each basket.
b. Expansion of Cold stores will need extra power as refrigeration capacity will be increased. Kooddoo is electrified by its own power generation. There is an existing power house with diesel powered generators. Existing power generation capacity is not enough to run all facilities together and face power shortage when the refrigeration complex run at full capacity during good fishing season and ice plants have to run at maximum capacity. With added infrastructure and allowance for standby power, it is estimated the 2 megawatt power will be needed to run the plant without

power shortage. For this purpose, 2 generators of 1 Megawatt is needed to be added to upgrade the power grid of Kooddoo.

c. For the purpose of installing 2 generators of 1 megawatt each, the powerhouse building may have to be extended giving consideration to the existing building and control room and control equipment.

### Building a 200 ton cold storage and blast freezing facility at Kan'duoigiri.

Scope of consultancy of this component of the project include planning, preparing conceptual design, basic engineering drawings, preparing Employers requirements for an EPC contract and preparing technical documentation of cold storage set-up including machinery and steel structure of cold storage building, as described below.

a. Building a new cold storage with capacity to store 200 tons of frozen tuna at -25$^{o}$C. The cold store should include ante room and fish sorting area for frozen fish removed from blast freezer. Temperature of ante room is to be maintained at 0$^{o}$C.
b. Appropriate storage containers for cold stores should be provided. Each container should be able to hold about 1000 kg of frozen fish
c. The cold store building is to include a cold air blast freezer with appropriate movable freezing racks for keeping whole tuna for blast freeing. The blast freezer should be able to freeze 20 tons of average size whole tuna (about 2.5 – 3 kg) to a backbone temperature of -20$^{o}$C in less than 10 hours.
d. The blast freezer is to have automatic defrosting.

### Building a 1000 tons cold storage facility at Thinadhoo

Scope of consultancy of this component of the project include planning, preparing conceptual design, basic engineering drawings, preparing Employers requirements for an EPC contract and preparing technical documentation of cold storage set-up including machinery and steel structure of cold storage building, as described below.

a. Building of a 1000 ton storage capacity cold storage for frozen tuna to maintain temperature at -25$^{o}$C.
b. The cold storage is to be built with 2 stores each with capacity 500 tons in each store
c. Appropriate storage containers for cold stores should be provided. Each container should be able to hold about 1000 kg of frozen fish
d. The cold store has to have ante room capable of maintaining room temperature at 0$^{o}$C.
e. The cold store is to be provided with brine freezing facilities.

f. Brine freezing is to be provided for 50 tons of fresh tuna per 8 hours shift and to be operated for 2 shifts daily.
g. Fresh fish is needed to be frozen to a backbone temperature of -10$^{o}$C in less than 8 hours.
h. Brine freezers are to be constructed in units of 10 tons capacity each.
i. Loading and unloading facilities for brine tanks should be provided by means of overhead gantry cranes.
j. Frozen fish are needed to be sorted into different sizes or weight, and facilities should be provided for the purpose.

## Building a 500 tons cold storage facility at Mulah

Scope of consultancy of this component of the project include planning, preparing conceptual design, basic engineering drawings, preparing Employers requirements for an EPC contract and preparing technical documentation of cold storage set-up including machinery and steel structure of cold storage building, as described below.

a. Building of a 500 ton storage capacity cold storage for frozen tuna to maintain temperature at -25$^{o}$C.
b. The cold storage is to be built with 2 stores each with capacity 250 tons in each store
c. Appropriate storage containers for cold stores should be provided. Each container should be able to hold about 1000 kg of frozen fish
d. The cold store has to have ante room capable of maintaining room temperature at 0$^{o}$C.
e. The cold store is to be provided with brine freezing facilities.
f. Brine freezing is to be provided for 50 tons of fresh tuna per 8 hours shift and to be operated for 2 shifts daily.
g. Fresh fish is needed to be frozen to a backbone temperature of -10$^{o}$C in less than 8 hours.
h. Brine freezers are to be constructed in units of 10 tons capacity each.
i. Loading and unloading facilities for brine tanks should be provided by means of overhead gantry cranes.
j. Frozen fish are needed to be sorted into different sizes or weight, and facilities should be provided for the purpose.

# Description of Scope for Consultancy Service during Project Planning and Tendering Stage

The Consultant is required to prepare Engineering Specifications, Tender Documents and Contract Documents for 4 components of the project. Each component of the project is required to be tendered separately and hence required to prepare 4 separate sets of documents for the 4 cold store.

The scope for preparation of Tender Documents and provision of assistance during the tender stage shall broadly include but not limited to the following:

**A) Project Planning and pre-tender stage**

1. The consultant is to assess the present condition of the existing facilities of Kooddoo and Ka'nduoigiri including the harbours and their present condition for a realistic plan and design of facilities.
2. Availability of land for building the cold storages at Thinadhoo and Mulah be ascertained. Relevant survey of the site must be conducted.
3. Consultant must assess access to the islands and project sites for material transport, suitability of equipment, machinery to propose.
4. EIAs must be done by Maldivian consultants approved by the Environmental Protection Agency (EPA) of Maldives.
5. Produce preliminary designs, basic engineering drawings, employer's requirements, specifications, schedule of rates and cost estimates suitable for an Engineering Procurement and Construction (EPC) contract.
6. The consultant should prepare 1 separate document for each component of the project.
7. Each document should include, but not limited to:
    a. Drawings for cold stores that depict the layout of all major buildings, structures along with all major services reticulations.
    b. Floor plans, roof plans, elevations and cross sections of all buildings that show arrangement of major items, critical dimensions, anticipated structural system and key features such as floor waste and drains.
    c. Major pipes and electrical services reticulations.
8. The consultant shall provide clarifications regarding these documents and make necessary amendments based on comments received from the Client.

9. Notwithstanding any specific references, there is presumption that all of the design services for the project shall be carried out in accordance with the latest Euro Codes.
10. Each Tender Document should include the following key elements:
    Documentation to include, but not limited to:
    - Instructions to Bidders
    - General and Particular Condition of Contract for FIDIC EPC silver Book 2017 Edition.
    - Employer requirement
    - Form of Bid and Bid Security
    - Tenderers Technical detail and price schedules
    - Form of Agreement
    - Appendices

**B) Assistance during tendering stage**

a. Assistance in providing Tender clarifications, conducting pre-bid meetings, Tender evaluation and recommendation of award of Engineering Procurement and Construction (EPC) contract for each component of the project.

**C) Supervision of project activities**

a. The consultancy will also cover supervision of project activities and its implementation during the project implementation phase and the consultant will provide advice and feedback on the implementation of the project activities. The consultant will also ensure that the implementation is inline with the employers' requirements and standards.

## 5.1.5 Project Team

Project team for the preparation of Tender documents may be comprise as tabulated.

| **Position** | **Nos. Required** | **Academic Qualification** | **Specialization** | **Years of experience** |
|---|---|---|---|---|
| Project Manager | 1 | Bachelor's Degree in Fisheries or related field. | Fisheries Project Management | 15 |

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| Civil and Structural Engineer | 1 | Bachelor's Degree in Civil Engineering or related field. | Civil and Structural Engineering, | 10 |
| Architect | 1 | Bachelor's Degree in Architecture / Urban Planning or related field | Industrial buildings | 10 |
| Refrigeration Engineer | 1 | Bachelor's Degree in HVAC Engineering or related field. | Refrigeration Engineering | 10 |
| Electrical Engineer | 1 | Bachelor's Degree in Electrical Engineering or related field. | Electrical Engineering specializing in power distribution | 10 |

# Deliverables

## Tendering Services

a. Preparation and Submission of Draft preliminary designs, basic engineering drawings, employer's requirements, specifications, schedule of rates and cost estimates suitable for an EPC contract within 60 days from commencement of services. The consultant shall provide clarifications regarding these documents and make necessary amendments based on comments received from the Client.

b. Preparation and Submission of draft Bidding Documents and Contract Documents for EPC within 60 days from commencement of services. The consultant shall provide clarifications regarding these documents and make necessary amendments based on comments received from the Client.

c. Preparation and Submission of final preliminary designs, basic engineering drawings, employer's requirements, specifications, schedule of rates and cost estimates suitable for an EPC contract, including any amendments, within 80 days from commencement of services.

d. Preparation and Submission of Final Bidding Documents and Contract Documents for EPC selection, including any amendments, within 80 days from commencement of services.

e. Assistance in providing Tender clarifications and conducting pre-bid meetings during the tendering stage.
f. Assistance in evaluation of bids submitted for EPC.
g. Preparation and Submission of bid evaluation report for EPC
h. Supervision of the project activities during the implementation phase

## Consultancy Services & Reporting Services

The consultants should submit a weekly report at the end of each period within 3 working days of the preceding period, in a format agreed with the MIFCO representative. At the end of the

## Duration of the Assignment

The period of total engagement will be **200 days** upon the signing of the contract agreement with the selected Consultant and the breakdown of this duration is as follows.

a. Tender Documents Preparation Stage – 80 days
b. Tendering Services Stage – 120 days.
c. Project implementation – (as decided during the tendering phase)