



TERMS OF REFERENCE

IRRIGATION SYSTEM

28 February 2023

Issued by:

Agro National Corporation

A. Background

Agro National Corporation (AgroNat) was formed 21st April 2020 as a State-Owned Enterprise (SOE) with the overall mandate to assist in developing the agricultural sector in the Maldives. AgroNat is working towards enforcing objectives such as enabling an efficient supply-chain for agriculture, providing technical expertise and training to farmers, expanding the role of women in farming, and facilitating access to quality fertilizers across islands. AgroNat will also aim to achieve economic targets relating to food security, import substitution, creation of jobs and improving the trade balance.

The Government of Maldives, in its Strategic Action Plan devised for 2019 – 2023, had proposed to establish a dedicated SOE for agricultural development, with an objective of revitalizing the agriculture sector as per the Blue Economy vision. Despite being an integral part of Maldivian society for ages, the agriculture sector has remained under-developed and unexposed to modern developments in farming techniques and technology. The government under its agenda for economic diversification aims to promote agriculture as a meaningful sector in the Maldivian economy.

To work with more farmers and give opportunity to more farmers and people interested in collaborating with AgroNat, the company is planning to lease land from selective islands and develop these lands for farming. Under this project, AgroNat will develop minimum 100,000.00 square feet of land from the islands.

AgroNat will work with farmers of the island to implement medium scale farming models using environmentally sound methods. These farms will act as a model which can be replicated by local farmers in designing and engaging best practices for farming on their own farmlands.

Leveraging Nationally Determined Contributions (NDCs) to achieve net-zero emissions and climate-resilient development, in response to the climate emergency better known as *Climate Promise 2* seeks to augment the efforts of the Maldivian government in reaching the NDC (Nationally Determined Contribution) targets through the development of a measurable, reliable, and verifiable (MRV) system in emissions tracking, and facilitating further proliferation of renewable energy sources in three key industries: agriculture, and transportation. To this end, the project seeks to provide support in installing cold-storage facility with renewable energy (RE) sources for agricultural contract farmers in selected islands as well as support in the procurement and Installation of solar energy sources for irrigation systems in 2 islands. This would directly provide storage facilities for the entire island community as such islands are primarily involved in agriculture, and indirectly benefit the entire atoll region as the availability of facilities for storing perishable goods greatly enables further market proliferation and availability of food-sources across the region. The project also seeks to provide support to the government of Maldives in procuring and setting up a RE-powered minibus system by directly and indirectly contributing to more-streamlined commuting and energy-conscious methods of transportation for the densely populated urban centre of the Greater Male' Region.

The project will be implemented through partnership with the United Nations Development Programme (UNDP) in Maldives, Ministry of Environment, Climate Change and Technology, Ministry of Transport and Civil Aviation and Agro National Corporation (AgroNat).

B. Objectives

AgroNat intends to hire a firm to supply irrigation systems for 2 (two) sites.

C. Scope of Services and Expected Deliverables

- a. Supply of irrigation system as per the requirement specified in Annex 1.
- b. Supplier to put forward their irrigation design and material BOQ for each site separately.
- c. Items to be delivered to AgroNat warehouse in Male’.

D. Quotation

The firm is to submit quotation for;

1. Supply of irrigation systems.

E. Marking Criteria for Supply of Irrigation Systems

#	Details	Marks
1	Price	45
2	Delivery period	10
3	Warranty	10
4	Technical evaluation	35

F. Technical Evaluation Criteria

#	Details	Marks
1	Design	50
2	Materials	30
3	Aftersales services	20

G. Payment Terms

#	Description	Percentage
1	Advance payment for supply of irrigation system	15
2	After the supply of all materials of irrigation system	85

Annex 1

INFORMATION SHEET

1. DRIP IRRIGATION SYSTEM:

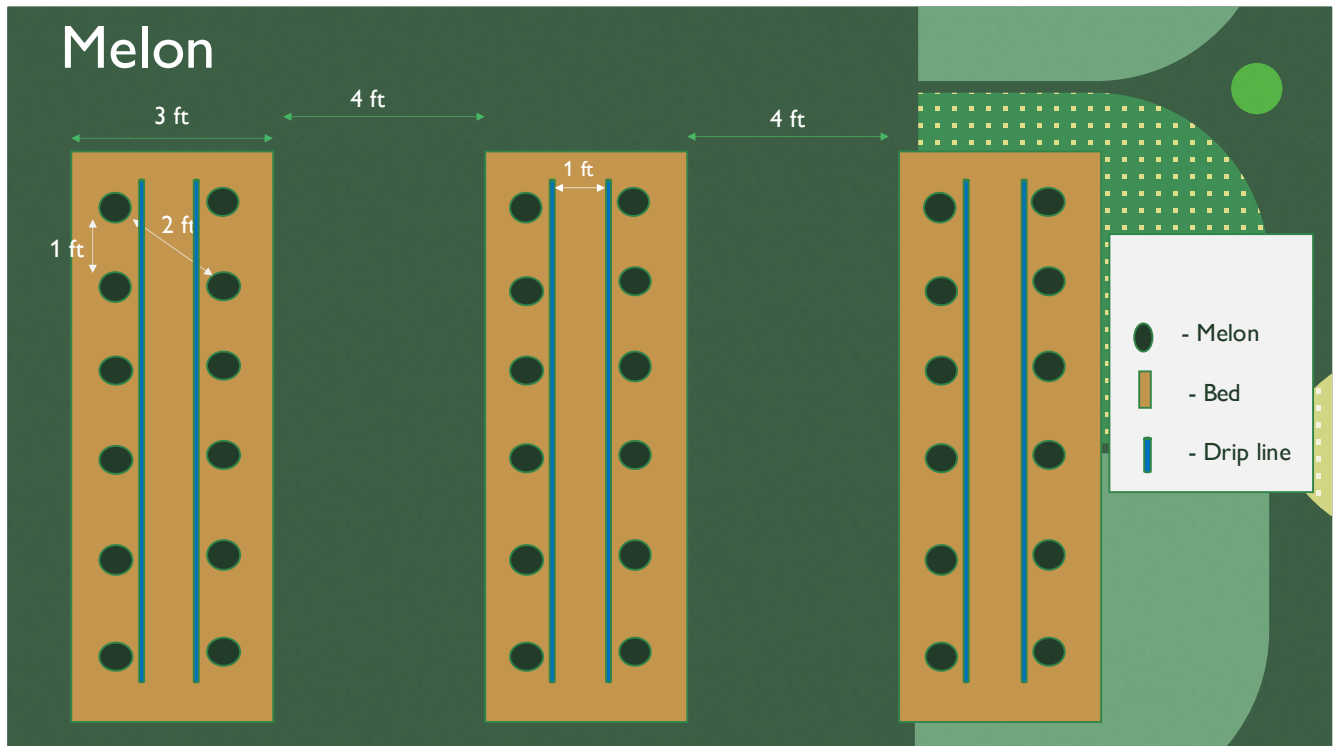
Project Highlight

- We will be working on a 100,000.00SQFT area
- Estimated cultivation area will be close to 90,000.00sqft
- 10,000.00 SQFT will be allocated as working and storage area
- Total 6 plots will be allocated, each of 15,000 sqft
- Crops grown include:
 - Melon (Cantaloupe) – 90,000.00 SQFT (0.86 Ha)
 - Melon will be farmed on both sites.

Crop spacing – (Melon – double row in single bed)

#	Crop	Spacing between plants	Spacing between row	Space between bed
	Melon	1 ft	2 ft	4 ft

Spacing diagram – Double drip line for a single bed



FIELD DATA

i. Climatic data

Temperature: 28o – 30o C.

Relative humidity: 73 – 85 %.

Rainfall: 2100 mm pa.

Wind Speed: 7-12 knot

Evapotranspiration rate – 5 mm/day.

ii. Water Test report (collected from different area)

EC: 565 – 1147 ppm

pH: 7.35 – 7.84

iii. Soil:

Test report is not available. It is assumed that the soil is sandy foam with less water holding capacity (15-20%) and infiltration rate (4-6 mm per hour).

Melon: grouped under short-duration and shallow-rooted crops.

iv. Water source – Ground water (located inside the project area). Due to relatively high-water table, a shallow depth based well is dug

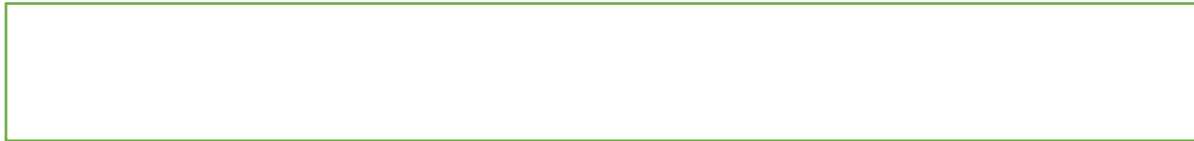
Irrigation System - Suggestions

- It is advised to design three independent irrigation system for the total area (each system will be covering two plots of 15,000 SQFT area).
- 3 solar powered pumping system
- Single irrigation system – 30,000 SQFT area (Covering 2 plots of 15,000 SQFT)

Site 1:

100 x 1000

Total: 100,000.00 square feet



Site 2:

Total: 97,881.00 square feet

