

## Terms of Reference

### Supply of mangrove seedlings (*Rhizophora mucronata*) for implementing a mangrove-aquaculture integrated model in Bac Lieu province

#### I. Background

Climate change has significantly affected nature, food security, human health, the environment, and infrastructure in Vietnam. Despite economic growth, many livelihoods depend on climate-sensitive sectors like agriculture, livestock, and forestry. According to the World Bank (2007), Vietnam is among the top five developing countries most affected by climate change, particularly sea-level rise. A 1-meter rise by 2100 could cause economic losses of 10% GDP, submerge 31% of the Mekong Delta's land, and impact 4.8 million people, including 1.5 million poor individuals. The IPCC (2007) projects that sea levels in Vietnam could rise by 75 cm by 2100, causing saltwater intrusion and freshwater contamination.

The Mekong Delta is home to one-fifth of Vietnam's population and produces 46% of the nation's food. Droughts, water shortages, and rising salinity have impacted agriculture and fisheries. The region hosts diverse wildlife, including many IUCN Red List species, such as giant catfish, sarus crane, and hairy-nosed otter. The Mekong River Basin's fish biodiversity rivals the Amazon, but habitat loss, overfishing, and climate change have led to severe declines.

IUCN Vietnam is committed to promoting nature-based solutions to address environmental challenges and enhance ecosystem resilience. The project "Scaling up Nature-Based Solutions through Mangrove Restoration to Improve the Environment in Bạc Liêu Province" is implemented by IUCN Vietnam with financial support from Hyundai Motor Company and Good Neighbors International (GNI). The project aims to restore and expand mangrove forests, enhance biodiversity, and promote sustainable livelihoods through integrated mangrove-aquaculture systems. As part of the project, 80,000 mangrove seedlings (Đung - *Rhizophora mucronata*) will be planted in Bac Lieu's coastal areas.

#### II. Objectives

The primary objective of this TOR is to procure and deliver 80,000 high-quality mangrove seedlings (Đung - *Rhizophora mucronata*) to designated project sites in Bạc Liêu Province, ensuring proper species selection and seedling quality to maximize survival and ecological impact.

#### III. Scope of Work

The supplier shall be responsible for:

- Sourcing and supplying 80,000 healthy mangrove seedlings
- Ensuring seedlings meet the specified quality standards (see Section 4)

- Transporting seedlings to designated project locations in Vĩnh Thịnh commune, Hoa Binh district, Bạc Liêu Province
- Providing technical guidance on seedling handling and storage
- Replacing any defective or non-viable seedlings upon delivery inspection

#### **4. Seedling Specifications**

- Species: Đưng - *Rhizophora mucronata*
- Age: 4 - 6 months old
- Height: 50 - 60 cm
- Number of Leaf Pairs: 4-5 pairs; seedlings must be straight, without broken tops, pests, or diseases.
- Root Collar Diameter: 1.0-1.1 cm, well-developed root systems with no signs of disease or damage
- Free from pests and invasive species
- Seedling Origin: Must be sourced from mangrove trees grown in the Mekong Delta or Bac Lieu province to ensure adaptation to local climate, salinity, and soil conditions.

#### **5. Delivery and Timeline**

- Total Quantity: 80,000 seedlings
- Delivery Period: June to July 2025
- Delivery Locations: Designated coastal sites in Hoa Binh, Bạc Liêu Province (to be specified in the contract)
- Delivery Method: Transported and handled to prevent stress and damage

#### **6. Quality Control and Acceptance Criteria**

- All seedlings will be inspected upon delivery to ensure compliance with specifications.
- Any damaged, diseased, or substandard seedlings must be replaced at no additional cost.

The supplier must coordinate with the project team for quality assurance checks.