



INTEGRATED MANAGEMENT OF LAGOON ACTIVITIES IMOLA PROJECT II

REPORT ON

PRODUCTION OF SALT MARSH TREES IN RU CHA, HUONG PHONG COMMUNE

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PEOPLE'S COMMITTEE OF THUA THIEN HUE PROVINCE





PRODUCTION AND PLANTATION OF MANGROVE TREES IN RU CHA, HUONG PHONG COMMUNE

(Final report of the production of salt marsh trees)

Integrated Management of Lagoon's Activities (IMOLA) Project
(FAO, GCP/VIE/029/ITA), Thua Thien Hue Province

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LIST OF ACRONYMS

IMOLA: Integrated Management of Lagoon Activities Project
FAO: Food and Agriculture Organization of the United Nations
CMD: Centre for Coastal Management and Development Studies

I. Background

Ru Cha is the biggest mangrove forest of Thua Thien Hue Province (5.24ha), located in Huong Phong Commune, Huong Tra District. Ru Cha has both cultural and historical values and plays a significant role in protecting the environment for the whole area. It is a big screen to prevent the impact of winds and storms for the local residents and regarded as the safest shelter for boats of the locality. Besides, the mangrove vegetation carpet of Ru Cha is the nursing place for aquatic species and a refuging ground for birds in the Huong River mouth-Thuan An in winter. Therefore, the conservation and development of this ecological system is significant in the cultural, historical, economic and environmental aspects.

Though it is the biggest mangrove forest of the Province, Ru Cha is poor in the composition of major mangrove plant species. According to a recent published research in early 2010 (Hoang Cong Tin, Mai Van Pho, Ton That Phap, Research and Development Magazine, No. 1 – 2010), there are only 16 species in Ru Cha mangrove forest and only 6 of which are the major mangrove ones including *chá*, ferns (*ráng biển*), Acanthus family (*ô rô*), Rhizophoraceae (*đước*), *sú*, and *vẹt*. The other 10 species are subordinate mangrove trees but the number of units is high and remarkably, “*cây giá*” makes up 91.57% of the forest coverage. Therefore, when we think of Ru Cha, we normally think of the “*giá*” forest.

It is noticeable that three out of five major mangrove trees including *sú*, *vẹt* and Rhizophoraceae have been imported to Ru Cha since 2003 (Pham Minh Thu, 2003) with small number of units (from some to several ten units/species) so the value is not high. The plantation of some official available mangrove trees in Thua Thien Hue Province including Rhizophoraceae, *sú*, *vẹt* and *Avicennia (mắm)* will enrich the ecological, economic and environmental values for the forest.

IMOLA is a trust-fund project executed by the Food and Agriculture Organization (FAO) of the United Nations, funded jointly by the Italian and Vietnamese governments, has approved the sub-project entitled production and plantation of mangrove trees in Ru Cha, Huong Phong Commune. The objectives are to contribute to protection of the mangrove vegetation carpet in Ru Cha mangrove forest in Huong Phong towards the expansion of mangrove trees in the Thuan An Inlet area; sustainably develop the aquaculture to be friendly with the environment to create a green corridor connecting sea carpets outside the lagoon and the mangrove carpet in Ru Cha mangrove forest.

OBJECTIVES

- i.* Nursing the seedlings to supplement a remarkable amount of official mangrove trees for Ru Cha. Propose the nursing of 5,000 young plants of *Rhizophora stylosa (đước)*, *Aegiceras corniculatum (sú)*, *Bruguiera gymnorrhiza (vẹt)*, and *Avicennia alba (mắm)*
- ii.* Planting the mangrove trees in combination with ecological aquaculture in ponds and intensive plantation in Ru Cha, Huong Phong Commune; in order to expand 1.0ha of forest to have the scientific background for the future expansion of forest from the current area of 5.24ha and some tens ha in the future

II. Venue and time

Venue: Huong Phong Commune, Huong Tra District, Thua Thien Hue Province

Time: 1 September 2010 – 30 January 2011 (to reach the objective as in (i))

III. Responsibilities of experts

- Make the detailed plan for the monitoring and evaluation which can present the procedure and methodology of nursing site selection
- Cooperation and collaboration with the local authority and related parties to timely initiate the project
- Offer technical direction on the seed collection and monitoring the forestry nursing garden for local people
- Monitor technically the nursing garden and bottle making for mangrove tree nursing
- Observe and provide technical support for care taking of the young plants and the nursing garden

IV. Implementation status and outcomes

Towards the attainment of the first objective (i): Nursing the seedlings to afford a remarkable amount of official mangrove trees for Ru Cha. Some results are presented as follows:

1. Survey for site selection and nursing garden building

The site for building the nursing garden is a square-shaped area (15x15m) in the garden of Mr. Dang Van Chien in Thuan Hoa B Village, Huong Phong Commune. Mr. Chien is in charge of managing and taking care of young plants and is deeply aware of the important role of the mangrove forest for the coastal environment and agrees to support and collaborate with the experts during the sub-project implementation.

The water will be provided from the lagoon, which is located 100m away from the nursing site. Tam Giang Lagoon and Huong River can supply the nursing garden with the brackish and saline water.

The soil put into the nursing bottles are taken from sub-merged muddy areas next to the nursing site. The soil is mixed with decayed cow feces given free by local people and is good for the nursing of young plants.

The person in charge of monitoring the nursing garden is Mr. Dang Chien, who has experience in the care taking of the mangrove young trees and protection of the *cây bản* garden in Con Te, which is developing well.

Detailed description of the nursing garden: 6 nursing furrows were built with the length of 12m/furrow and width of 90cm/furrow. The distance between two adjacent furrows is 50cm. The nursing bottle dimension is 90cmx25cm (diameterxheight). There are 100 rows and 9 bottles/row and therefore, totally 5,400 bottles (Figure 1).

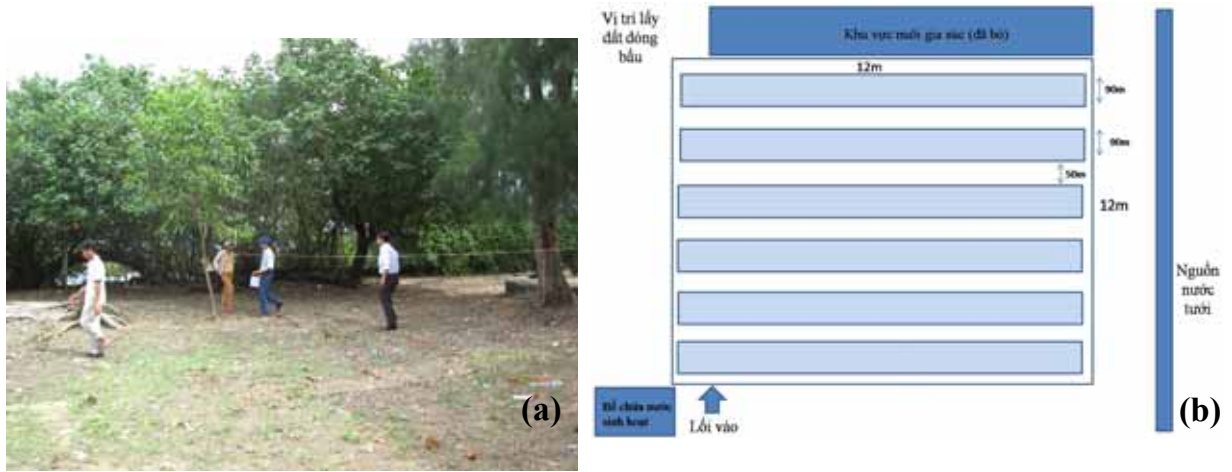


Figure 1. Original status of the nursing garden (a) and construction design

In collaboration with the local labor, 2 labor groups (6 people/group) were convened to commence the work. In four days, they i) leveled the site for building the nursing site; ii) prepared the soil and feces for making the bottles; iii) furrowed and made nursing bottles; iv) established the protection fence (Figure 2).



Figure 2. Preparation for nursing garden building (a) leveling and furrowing (b) preparing nursing soil (c) making bottles and (d) aligning bottles into rows

2. Collection of mangrove seeds and nursing

With the instruction and assistance of experts, mangrove seeds were collected from mangrove carpets in Tan My Commune, Phu Vang District (species including *sú*, and *vẹt*), mangrove forest near Bu Lu river mouth (*đước*); Lang Co, Phu Loc District (*mắm*, *sú*) (Figure 3).



Figure 3. Give technical guidance for seed collection

After 5 days, more than 5,000 units were accumulated to ensure the quality of seeds for sowing. The collected seeds included 1,800 units (*sú*); 1,300 units (*vẹt*); 1,400 units (*mắm*); and 900 units (*đước*).

All the collected seeds were well protected and moved to the nursing garden for being sowed into the prepared nursing bottles in the following day (Figure 4).



Figure 4. Sowing the mangrove seeds in the nursing garden

3. Monitoring and technical guidance of the nursing garden

The monitoring and technical support is undertaken by two experts until the seedlings grow enough to be removed out of the nursing garden.

The project also contracted an engineer with the gardening and forestry background to work part time, responsible for technical monitoring during the nursing period. The monitoring is undertaken twice everyday; the protection of the nursing garden from the destruction of cattle and poultry is assigned to a former farmer (Mr. Dang Chien). During the nursing time, upon

detecting any abnormal signals, he holds the responsibility to timely inform the experts for an opportune intervention.

4. Tree nursing

After 5 months of implementation, so far 3.500 young tree was produced that are qualified for plantation. There are 800 units of mangroves, 1,500 units of Vẹt and 1,200 units of Sú. They are growing well.

The height and average number of leaf of the young tree on January 20, 2011 were measured as follows (100 units of sampling per each species).

TT	Đước (<i>Rhizophoraceae</i>)	Vẹt (<i>Bruguiera</i> <i>gymnorrhiza</i> Lam)	Sú (<i>Myrsinaceae</i>)
Height (cm)	22,9	21,8	5,4
No of leaf	4,3	7,1	5,2



Figure 5: Mangrove and Vet on January 20, 2011

The *sexangula* (*mắm*) trees were attacked/eaten by rats, this is an unexpected risk and unavoidable during the operation. The reasons can be described as follows: In October 2011, one month and a half after seeding, there was a big flood, submerging the Huong Phong area, only nursery garden remained dry. The rats stay in surrounding ponds and rice fields escaping from their flooded residence to evacuate in nursery (hundreds of rats). The *mắm* is their favorite. The experts, technical staff and nursery garden staff has intensively taken measures for rats prevention and killing (fence was made, surrounding by nylon, 14 traps were placed, killing more than 60 rats. However, rats attraction of *mắm* was not controlled. They have completely eaten over 1000 units of this species only for 5 nights.

V. Unexpectedations

1. Unexpected expense of taking care, protection and management of the nursery garden:

The activities of young trees production was planned to be completed for 4 months (from September 2010 through January 2011), The trees are qualified for plantation by the end of January 2011, but due to financial constraint until March 2011, the plantation can be started up. Therefore, the expert, technical staff and nursery staff have to continue with taking care, management and protection of young trees for one more month and a half (from early Feb 2011 through March 15, 2011).

2. Unexpected expenses:

- Purchase additional water pump because sudden flooding water made the pump damaged and broken down, therefore a new one was replaced.
- Because of abundance of rats, the fence had to be prepared to protect young trees from rats.
- Cost for pesticides, inorganic fertilizer to increase nutrition for the young tree growth because of longer time in the nursery garden

VI. Conclusion

Despite of unexpected problem of the death of *mắm* trees and other expenses, in general, the production of salt marsh young trees has met its objective. 3,500 units are growing well, and qualified for plantation. It could be concluded that the collection of salt marsh tree seed in the province for sowing and nursing are completely feasible.

VII. Recommendation

The expert has worked in collaboration with the Technical Staff of IMOLA Project, Director of Sub-Department of Aquaculture and Dong Hoa Fisheries Association, Huong Phong commune has conducted survey to select plantation sites. We have selected 4 ponds with the total area of around 2,000m², 500m²/pond for ecological aquaculture in pond and select site for intensive plantation surrounding Ru Cha area. It is high season for the aquaculture and salt marsh trees plantation, we should not remain the young trees in the nursery garden any more because there will be more arised expenses and that limits young tree development and growth

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