

Fishers livelihood improvement through seaweed farming - A success story

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The Mandapam Regional Centre of ICAR-CMFRI selected Puthukudi village, Thondi in Ramanathapuram district of Tamil Nadu for implementation of Scheduled Caste Sub-Plan (SCSP) a programme fully funded by Government of India. This village has 97 per cent of SC families in the total village population and majority of them are involved in fishing. Moreover, this village is located near to the sea shore and mariculture activities like cage farming, marine ornamental fish seed rearing and seaweed farming can be easily adopted by them. The fishers of the village also showed keen interest to take up additional livelihood activities. The local panchayat extended full cooperation to implement the SCSP programme and a list of interested beneficiaries comprising 28 fishers belonging to Kadiayar community was selected for undertaking seaweed farming activities (Table 1). The number of monoline units per fisher was decided based on the fund availability under various projects of the Institute /All India Network Project (AINP) or National Innovations in Climate Resilient Agriculture (NICRA)

An awareness programme on mariculture technologies for diversified livelihood under SCSP was organized at Puthukudi village on 12th September 2019 (Fig.1). The importance of SCSP programme and the benefits of cage farming, marine ornamental seed rearing units and seaweed farming were briefed to the beneficiaries. Representatives from State Fisheries Department, Thondi Panchayat, Village Administration and Fishermen Cooperative Society participated in the meeting. Forty fishers from Puthukudi village participated and interacted with the officials. Followed

this a training programme on “Mariculture Technologies for Diversified Livelihood” was successfully organized at Mandapam Regional Centre during 19-21 November, 2019. Sixty beneficiaries from Puthukudi village, Thondi participated and benefitted from the Hands on training on marine ornamental fish seed rearing, seaweed farming and sea cage farming extended to them (Fig.2). Field visit to sea cage farms, seaweed farms and marine ornamental fish seed rearing units, Thangachimadam were arranged and the trainees interacted with established fish farmers and marketers.

Monoline method of seaweed farming was adopted as the Puthukudi coastal area had low wave action, shallow depth and less herbivorous fishes which are ideal for monoline method of seaweed farming. Four casuarina poles of 10 feet length and 3-4” diameter were placed at



Fig. 1. Awareness creation on mariculture technologies and SCSP

Table 1. Details of activities under SCSP programme

Programme	Activities	No. of beneficiaries
INSTITUTE - SCSP	7 groups were formed for seaweed farming and each fisher allotted 20 monoline units	20
AINP-SCSP	2 groups and each fisher given 21 monoline units	6
NICRA-SCSP	One group and each fisher given 25 monoline units	2



Fig.2. Training programme on “Mariculture Technologies for Diversified Livelihood”

10 × 20 feet distance each in the corner. On four sides 6mm rope was tied, on which the seaweed seedling rope was tied. A total of 10 polypropylene-twisted ropes were used for planting. Around 150 – 200 grams of seaweed fragments were tied at a spacing of 15 cm along the length of the rope. A total of 40 seaweed fragments were tied in a single rope. The total seed requirement per raft was 60 – 80 kg per monoline unit. One segment (120 feet length and 20 feet breadth) constitutes 10 monoline units (Fig.3). HDPE fishing net was used for making fencing for avoiding grazing by fishes in the sea and drifting away of the seaweed seeded nets. Used PET bottles were tied on each rope for increasing the floatability. Inputs for farming the seaweeds were provided

to each fisher participant in the programme (Table 2).

Initially during the second week of November, 2019, the seaweed farming was initiated with one group (two members per group). The harvest made in the last week of December 2019 yielded 8.7 tonnes of fresh seaweed from 20 monoline units (Figs. 3- 6). These were utilized as seeding material for expanding additional 150 monoline units under the project. A total amount of ₹34,800/- was generated by the beneficiaries under the project as their revenue (₹17,400 per beneficiary). The second crop was initiated during the first week of January, 2020 with three groups. The harvest was made during mid February, 2020. Around 24 tonnes of

Table 2. Inputs provided for the seaweed farming programme

Particulars/Description	Quantity Required (Per unit)	Quantity Required (20 units)
3-4" dia Casuarina/eucalyptus poles 4 nos each pole length as 10 ft (without any natural holes, crakes etc..)	40	800
3mm PP twisted rope for plantation – 20bits of 0.5 m each	420 gm	8.4 kgs
HDPE braider pieces (20 pcs x 20 ropes = 400 pcs of 25 cm each)	165 gm	3.3 kgs
HDPE fishing net to make fencing for avoid grazing & drifting	1.0 kg	20.0 kg
Anchoring rope of 6mm thickness to make fencing between the poles - used to tie the plantation ropes	100 gm	2 kgs
Used PET bottles 20 nos - for increasing the floatability in 20 ropes	20	400

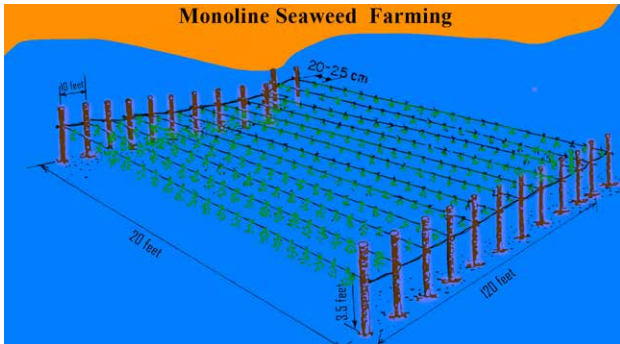


Fig.3. Diagrammatic view of a segment (10 monoline units)

fresh seaweed was harvested. The fresh seaweeds were utilized for expanding 400 monoline units under the project. An amount of Rs. ₹96,000 was generated by the beneficiaries under the project as their revenue (₹13,500 per beneficiary). The third crop was initiated during the last week of February, 2020 with seven groups. As an impact of 'total lockdown' due to COVID -19 pandemic, the beneficiaries decided to undertake partial harvest and to continue the farming with remaining seaweed. The harvest was made during the first week of April, 2020. Around 2,648 kgs of dry seaweed (26,480 kgs



Fig.4. Beneficiaries actively involved in seeding the ropes



Fig.5. Taking the seeded ropes for tying on the poles



Fig.6. Seeded ropes tied on the pole



Fig.7. Aerial view of the seaweed farm, Puthukudi village, Thondi

wet weight equivalent) was sold and ₹1,27,104 was generated by the beneficiaries as their revenue amounting to ₹6,500 per beneficiary (Figs. 4-8). The projections for the future harvest of seaweeds under this programme in a cycle of 45 days with 20 monoline units per fisher appear to be good assuming that 8-9 months will be the crop period in a year depending on the climatic conditions (Table 3).

For marketing the seaweed harvest, the beneficiaries were linked with the AquAgri Pvt, Ltd., Manamadurai to sell their produce. The marketing personnel of this firm are procuring the farmed seaweed either in fresh/dry form at the farming site itself. Joint account for each group was opened in Canara Bank, Thondi where the amount pertaining to purchase of harvested seaweed is deposited in the respective group accounts.

Table 3. Expected annual output during 2020-21

Annual seaweed production (Average yield: 250 kg per monoline) (Retaining 60 kg for next crop, total fresh seaweed production from 20 monoline units; 5 cycles)	19000 kg
Total seaweed production (from 20 monoline units; 5 cycles) on dry weight basis (10 %)	1900 kg
Gross Revenue in ₹ (@ ₹55 per kg of dried seaweed)	104500
Total cost of production (@ ₹2000 × 20 monoline units)	40000
Net income (Gross revenue – Total cost of production) in ₹	64500



Fig.8. Ropes ready for harvest after 45 days

Since entire cost is met under the SCSP, each fisher can earn around one lakh rupees annually or about ₹10,000 per month. This is the first Government enabled livelihood improvement initiative for fishers in the Puthukudi village and beneficiaries expressed happiness that the income through seaweed farming will be very useful in improving their standard of living .

Acknowledgement

The authors are grateful to the Director, ICAR-Central Marine Fisheries Research Institute, Kochi and Chairman, TSP & SCSP, ICAR-CMFRI, Kochi for the encouragement and support for implementing the programme.