

# Diversification of livelihoods among coastal Families through brackish water aquaculture technologies integrated with agro- based technologies and societal developments

*[ Livelihood programme in Pulicat lake]*

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**B**rackish water aquaculture is a prospective sector for realizing higher returns in short time span through scale neutral technologies. In addition, the fishers can spend their lean period and non-working hours for income generation activities based on brackish water aquaculture.

The economic conditions and social status of the women, tribal and their family justify that they need profitable technologies for increasing their livelihood source. The coastal tribal and coastal women are primitively hunters, fishers, crab collectors, fish and crab farming farmers, live feed collectors, fish processors and fish marketers. Owing to their meagre life skills, they have remained as a marginalized community and suffer from social and economic discrimination. They often lose their traditional livelihood due to urbanization and associated habitat modification. During lean fishing season, their major income from fishing is affected and they are compelled to look for alternative avocation during off-season. The available common brackish water resources in these villages can be effectively utilized for brackish water aquaculture.

Brackish water aquaculture technologies like milkfish nursery rearing and grow-out culture in brackish water pond and pen, Asian seabass nursery rearing in brackish water pond and low volume cage culture in open water, crab farming in brackish water pen and boxes, fish food product development integrated with agro-based farming interventions like poultry and duck farming and community/societal development programmes like, Children and Youth Study Center were demonstrated and established for the tribal and coastal SC beneficiaries of Lakshimpuram tribal Nagar, Kattur village and Thonirevu village,

Kottaikuppam Panchayat, Pulicat, Tiruvallur district, Tamil Nadu. Before the implementation of the project, required capacity building programmes and exposure visits to Muttukadu Experimental Station of ICAR CIBA were undertaken to the project team of farmers and farmwomen.

## **A. Community fish farming integrated with agro-based farming among tribal families of Kattur village, Tiruvallur district, Tamil Nadu (under STC)**

Brackish water canals and creeks leading from Pulicat Lake seem to be a rich source of brackish water for coastal aquaculture interventions. Aquaculture technologies viz., two tier milkfish farming in pond and pens, seabass nursery rearing in hapas, crab farming in pen and boxes were demonstrated by integrating with agro-based farming like duck and poultry farming, vegetable gardening, etc.<sup>12</sup> Scheduled Tribal families of Lakshimpuram tribal nagar, Kattur village were adopted under the CIBA – ST component. Crab and fish pens were installed, fish, feeds and assets were distributed to the beneficiaries. Nutritional status, skill development, decision-making roles and dignity was improved among the tribal beneficiaries. Taboos and beliefs were overcome.

Bank accounts were opened for the beneficiaries and the realized profit of ₹ 70,000 mainly from crab farming was deposited in their bank accounts and re-invested in farming. Due to unexpected floods during the North East Monsoon, rest of the interventions were severely damaged, which indicates that coastal communities, which are prone for natural calamities like cyclones, floods etc., need suitable insurance mechanisms/ development schemes for their livelihood income.

FOCUS AREA



Crab farming in pens and boxes, seabass nursery rearing (in hapas) and milkfish farming in community pond and open pen by Scheduled Tribal families of Lakshimpuram tribal Nagar, Kattur village



Dr. K. P. Jithendran, Director-CIBA interacting with the beneficiaries

**FOCUS AREA**

**B. Alternative livelihood opportunity development integrated with agro-based farming among coastal Scheduled Caste community of Tiruvallur district Tamil Nadu (under SCSP)**

Alternative livelihood opportunity development through crab farming was undertaken among the 35 coastal Scheduled Caste families under the CIBA - SCSP schemes at Thonirevu village, Kottaikuppam panchayat, Pulicat, Tiruvallur district.



*Crab farming in pens and boxes, seabass nursery rearing (in hapas) and milkfish farming in community pond and open pen by SC beneficiaries under the SCSP initiatives*

**Profit earned from crab harvest and Fish food product**

At Thonirevu village in Kottaikuppam panchayat, Pulicat and Kattur village, Minjur taluk, Tiruvallur district, 2 pens of 20 x 30 feet in size were stocked with water crabs in the size range of 640-660 g. The crabs were stocked into the pens as well as the boxes. The pens were stocked at a density of 1/m<sup>2</sup>. They were fed with trash fish at the rate of 10% of the body weight daily in two rations. The boxes were monitored daily and left over feed and waste were removed daily. After 30 days of stocking, a total of 73.3 Kg of hardened crabs were partially harvested from the pen and boxes. An average amount of ₹ 50,000/-was the income generated from the sales of the mud crabs which was harvested from the pens. This profit amount was deposited in the beneficiary's bank account and reinvested in crab farming intervention.



*Crab farming and fish food processing by SC & ST beneficiaries at Kattur village and Thonirevu village*

## FOCUS AREA

### Visit of Hon'ble Union Minister of State for Fisheries, Animal Husbandry and Dairying

Hon'ble Union Minister of State for Fisheries, Animal Husbandry and Dairying and Information and Broadcasting, Dr. L. Murugan, visited the crab harvest mela conducted at demonstration site, Pulicat Lake in Tiruvallur district Tamil Nadu on 18<sup>th</sup> September 2021. The Minister interacted with the beneficiary families about the livelihood activities taken up by CIBA and appreciated the work done by the scientists of CIBA for enhancing the livelihood status of coastal poor families.



*Dr. L. Murugan, Hon'ble Union Minister of State for Fisheries, Animal Husbandry and Dairying and Information and Broadcasting, interacting with the beneficiaries*



*Fish Food Unit Thonirevu village, Kottaikuppam panchayat, Pulicat, Tiruvallur district*

### Other livelihood activities

#### 1. Fish Food Processing and Sales Unit

At Thoniveru village, a fish food unit was installed by CIBA as an alternative income generating activity for the 18 coastal SC women beneficiaries. The necessary amenities for the fish food unit like, kitchen utensils, chair, tables and cooking facilities were provided by ICAR-CIBA through the SCSP scheme. The beneficiaries were also trained in the preparation of fish food items as well as in restaurant hygiene.

The beneficiaries prepare fish food products like fish pickles, papads, etc. for sale to tourists and local people. Apart from this the fish food unit have dine in as well as food packaging facility for serving the visiting tourists and public. Apart from this, the unit also under takes bulk catering on order basis. Breakfast and lunch with fish curry, fish fry, crab soup, fish cutlet etc. are the common menu served in the fish food unit. The fish, shrimps and crabs harvested from the culture activity was used for preparing fish food dishes for sales.

The GPS location of this fish unit is also available in the maps platform so that the visiting tourists can

locate the fish food unit with ease. Two coastal groups "Enjiamman" and "Vardhammal" coastal SC families participate in fish food preparation in roster duty every alternate week. A profit of ₹ 15,000 to ₹ 20,000 is being realized monthly from the fish food sales.

This profit amount was divided among the beneficiaries group and deposited in their bank accounts. The income generated was reinvested into this activity for purchase of materials required for running the fish food unit. The highlight of this intervention is each beneficiary family has invested ₹ 1000/- per family as their share for this avocation and with the inputs and support of ICAR-CIBA they are operating this fish food unit with team responsibility and self-realization.

This fish food unit operation seems to be a boom to these beneficiaries during the lean season for aquaculture activities. The fish food unit also helps in the better utilization of harvested fishes from farming activity done by the community. This intervention gives them a supplementary income to the beneficiaries in addition to aquaculture activities.

## FOCUS AREA



### 2. Children and Youth Library

Youth and children study centre was established at Thonirevu village, Pulicat, Tiruvallur district of Tamil Nadu by CIBA during 2021, for the SC school children's and youth students. There was no proper tuition centre or place of study in this village for SC youth and children in this village.

During the "COVID-19" epidemic lock down, children were seated under the tree and found roaming with mobile phones and wasting their study time. An unused community hall was renovated and converted into youth and children study center. After school time they visit this centre to attend tuition and read books kept in the library. Educated unemployed woman in the village was appointed as tuition teacher in this centre to take classes for students studying LKG to 10<sup>th</sup> Standard. Students and youth actively make use of this centre and get benefited. A trust by name "Sevabharathi" of Ramakrishna Math has come forward to support this Youth and children study center established by CIBA. They are supporting this centre by paying tuition fees

for the tuition teacher, donating books, stationary, mosquito nets, charts and provisions for the students and youth attending this centre. School children's and youth in the village got benefited in their curricular activities.



*Youth and children library cum study centre at Thonirevu village, Pulicat, Tiruvallur district*

### Conclusion

Brackish water aquaculture technologies integrated with agro-based farming systems and societal development has been tested. The technologies are technically feasible, economically viable for coastal SC and tribal families and have also created awareness among fisher folk about the value of brackish water resources and the need for conservation and sustainable utilization. If these interventions are adopted by the coastal and tribal families it can effectively become a viable enterprise, for their livelihood improvement.

Active participation, infrastructure, support from STC and SCSP Scheme community and technical back up from CIBA have made this initiative a success. Today, Kattur and Thonirevu of Tiruvallur district in Tamil Nadu has become a model village under the STC and SCSP Scheme initiatives for the establishment of similar projects in the other fishing villages. These interventions have given them an opportunity to learn a new alternative livelihood. The interventions have helped them to earn an additional income and also improved their standard of living. Apart from this literacy development and socio-economic improvement of coastal SC and tribal community are the long term achievements of these interventions under the STC and SCSP Scheme initiatives.

