

## Pilot Project Completion Report

Name of the Pilot Project:	Introducing Sea Cucumber Farming as an Alternative Livelihood Enhancement
Pilot Project Code:	FC 03
Name of the Implementer (Implementing Partner):	National Aquatic Resources Research and Development Agency (NARA)
Pilot Project Site	Gurunagar, Navanthurai, Mandaitivu
Background	The coastal fishing ground in Jaffna District could be depleted in the near future owing to ever-increasing numbers of small fishing craft that continue to exploit this fishing ground. In order to avoid depletion, we must urgently find a solution; one available possibility is district aquaculture development.
Objective	The pilot project aims at confirming sea cucumber culture potential in terms of biological factor, site suitability and cost effectiveness, thus it will create an alternative livelihood activity in coastal communities in Jaffna District.
Activities	<ol style="list-style-type: none"> <li>(1) Awareness and training to coastal communities,</li> <li>(2) Collecting spat of sea cucumber,</li> <li>(3) Installation of pen net for sea cucumber fattening,</li> <li>(4) Stocking the spat and monitoring,</li> <li>(5) Analyzing the growth rate and survival rate.</li> </ol>
Evaluation	<ol style="list-style-type: none"> <li>(1) Biological factors <ul style="list-style-type: none"> <li>- Sea cucumber may excavate the sea bottom and escape out of a pen, therefore the pen installation requires certain devices to prevent its escape. The technique of the present pen installation has been successfully selected.</li> <li>- Handling of the spats during the stock may affect the growth rate and mortality, and the beneficiaries have understood it.</li> </ul> </li> <li>(2) Site suitability <p>According to weight and length measurement three months after the stock, all the sites in Gerunagar, Mandaithivu and Navanthurai turned out to be suitable. Water off Navanthurai is located inside the lagoon (the westward of Pannai causeway) and it is abundant in nutrients for spat growth; water off Mandaithivu is near the wild spat collection site, and therefore it is in suitable environment for wild spat growth of sea cucumber. The water off Gurunagar is also in acceptable range for sea cucumber fattening.</p> </li> <li>(3) Cost effectiveness <p>Cost effectiveness has been verified through analysis of growth rate, mortality, market information, and production cost. The tentative result shows 43% of profit rate. NARA will reveal actual cost and benefit in March 2012.</p> </li> </ol>
Annex	<ol style="list-style-type: none"> <li>(1) Final Presentation Minutes, Attendee's List and Presentation Panel</li> <li>(2) Final Report of the Pilot Project submitted by NARA</li> </ol>

**Final presentation minutes – Sea Cucumber Farming as an Alternative Livelihood Enhancement (FC: 3)**

Date: 28.09.2011

Time: 03:00 pm

Venue: Attendees: Sea attached

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Mr.Upali, Team leader of the project has submitted final presentation of – Sea Cucumber Farming as an Alternative Livelihood Enhancement. Following question/discussion was held during the session.

Mr.Upali: NARA has succeeded sea cucumbers breeding in the land tank in Kalpitiya.

Dr.T.Kiramado: Which species of sea cucumber did you use for breeding purpose in Kalpitiya?

Mr.Upali: *Holothuria scabra* (Sand Fish)

Dr.T.Kitamado: In all three sea cucumber culture sites there were no female beneficiaries. What is the reason for it?

Mr.Upali: According to our beneficiary selection criteria they should have ability to secure the farming pen, skin diving skill and ability to construct and maintain the pen. But none of females have not satisfied those criteria.

Dr.T.Kitamado: No beneficiaries from St. Nicholas, Navanthurai at all. Do you face any complaining by them during socio economic monitoring?

Mr.Upali: So far we have not received any complaint from them. We also invited St. Nicholas to all technical training programme. They expressed poor interest on it.

Dr.T.Kitamado: What do the beneficiaries express about capacity building programme.

Mr.Upali: We received wider opinion from beneficiaries. They said excelled and good.

Dr.T.Kitamado: How much cost for the construction of a set of pen?

Mr.Upali: About 100,000.00 LKR

Dr.T.Kitamado: What are the locally available materials to construct pen?

Mr.Upali: Palmyrah plank, Thespesia pall

Dr.T.Kitamado: What are the drawbacks of using ordinary fishing net to construct pen?

~~Mr.Upali: It cannot bury in sea bed and can easily damage by crabs.~~

Dr.T.Kitamado: How much depth did you dig to bury the pole to construct pen?

Mr.Upali: 40 to 50 cm at Gurunagar and Navanthurai

25 cm at Mandaithevu due to the rocky bed of sea.

Dr.T.Kitamado: What type of technique have you used to minimize spat escape from the pen at Mandaithevu?

Mr.Upali: Put sandbags on both side of the pen.

Dr.T.Kitamado: Based on your observation which period is the season of spawning of sea cucumber?

Mr.Upali: Hot season (Inter monsoon season)

Dr.T.Kitamado: What was the average stocking size of spats?

Mr.Upali: 8 to 10 cm in length and 80 to 100 g in weight

Dr.T.Kitamado: You recommend smaller size of pen (15m ×15m) for the further development. What is the reason and stocking density of sea cucumber?

Mr.Upali: Because it is too big to handle and manage with the present size. 2 spats / square meter in stocking density.

Dr.T.Kitamado: Please disclose the relationship between growth rate and the environmental factor (temperature, salinity, bottom sediment and organic matter content)

Please delete the slide 'Business plan for Sea cucumber fattening' (slide number: 48). Instead of that add tentative cost and benefit analysis of sea cucumber farming.

Mr.Upali agrees to it.

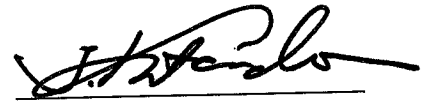
Dr.T.Kitamado highly appreciate that NARA has successfully completed the first breeding of sea cucumber in Kalpitiya. This will give essential role in future development of sea cucumber farming.

Hereby we agree that we have discussed as above.

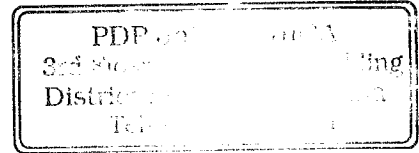
For

S. Kalirajan

Mr.M.Upali  
Aquaculturist  
NARA



Dr.T.Kitamado  
Deputy Team leader/ Fisheries  
Development Expert  
PDP Jaffna



**Final Presentation on Sea cucumber Farming - FC-03**

Date: 28/09/2011

Venue: Conference hall, PDP Jaffna Office.

Time: 03.00pm

S.No.	Name	Designation	Signature
01	T. VENGA DESAN	As. Agr. Dub. Specialist	J. Veng
02	T. Suthages	Fisherie Inspector	T. Suthages
03	B. Rameshanna	DEI	B.
04	S. Jayalaxmi	Admin Officer PDP	S.
05	A. Deepthy	Admin Manager	A.
06	S. Kalatrangan	NARA FIELD OFFICER	S. Kalatrangan
07	G. Nishanthi	Fisheries dup. spe PDP	G.
08	Upali Mallikaratchi	Team leader off	U.
09	T. Kitamado	Deputy Team Leader PDP Jaffna	T. Kitamado
10			

**Potential Sea Cucumber Farming as an Alternative Livelihood Enhancement**

The Project for Development Planning for the Rapid Promotion of Reconstruction and Development in Jaffna District (PDP – Jaffna)

**Upali Mallikarachchi (Team Leader)**  
Research Officer - NARA



National Aquatic Research Development & Research Development Agency  
Japan International Cooperation Agency

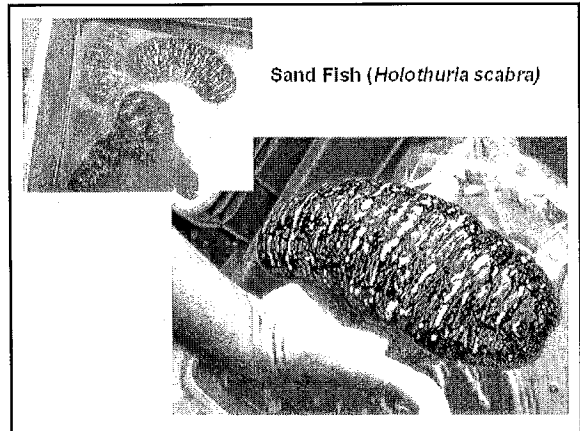


**Need for Culture – Over exploited!**

High demand in export market and overexploitation of Sand Fish (*Holothuria scabra*) in coastal area of Jaffna peninsula hence it is important to culture this valuable species to save it.

**Sea cucumber Habitat**

- ✓ found throughout the marine environment, from the intertidal and shallow seas to abyssal depths.
- ✓ slow-moving invertebrates
- ✓ can live on sand, mud, rock and reef flats, often related with seaweeds, coral and sea grasses bed
- ✓ whilst some others live buried in the sand with their oral tentacles exposed.

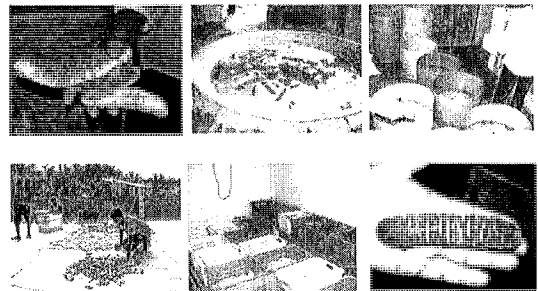


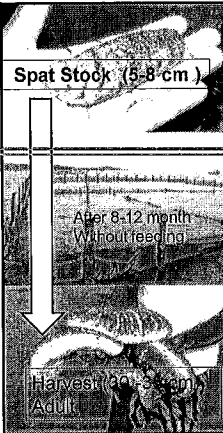
Sand Fish (*Holothuria scabra*)

**Why important?**

- ✓ Widely consumed in Southeast Asia
- ✓ Source of medicine
  - to control hemorrhage and high blood pressure
  - to treat muscular disorders attributed to old age.

**Jaffna – Well established industry**





**objective of the project**


1. To study the feasibility of pen culture of sea cucumber as an alternative livelihood for vulnerable fishing community in Jaffna peninsula.
2. To develop method of pen culture for Sea cucumber
3. To determine the growth rate and survival rate of sea cucumber in the pen
4. To conserve the indigenous stock of sea cucumber

**Awareness creation**

- Introduction of sea cucumber farming and its challenges
- Spat collection methods
- Beneficiary selection criteria

**Methodology of the project**

- ✓ Awareness creation
- ✓ Site selection
- ✓ Beneficiary selection
- ✓ Setting-up pen
- ✓ Spat collection and stocking
- ✓ Monitoring
- ✓ Harvesting



Initial awareness workshop at Gurunagar Cultural Hall

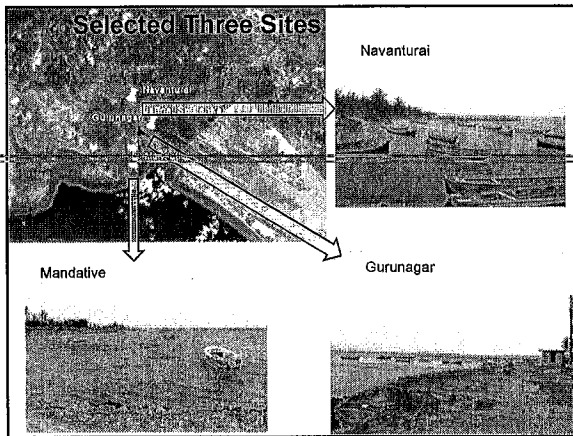
**Activity Schedule**

Activity	2010	2011							
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Awareness creation and training of community members									
Collecting spat as juveniles from the wild									
Set-up culturing sites									
Out growing of sea cucumber									
Monitoring									

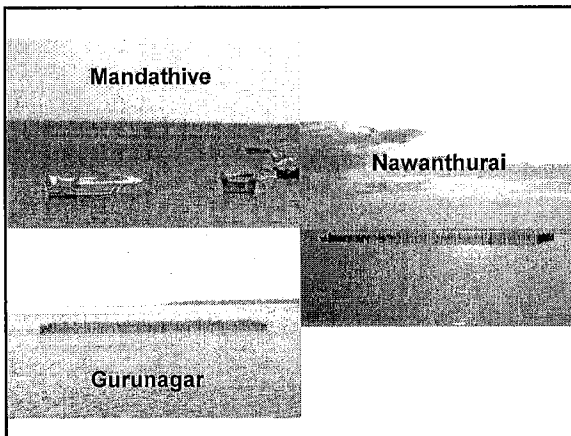
**Site selection**

Site selection criteria

- a. Water quality, bottom condition and water movement
- b. Water depth should be at least ~ 0.5 m during the lowest tide
- c. Different geomorphological settings for comparison of culture feasibility
- d. Accessibility to implementation and monitoring
- e. Security of the pen



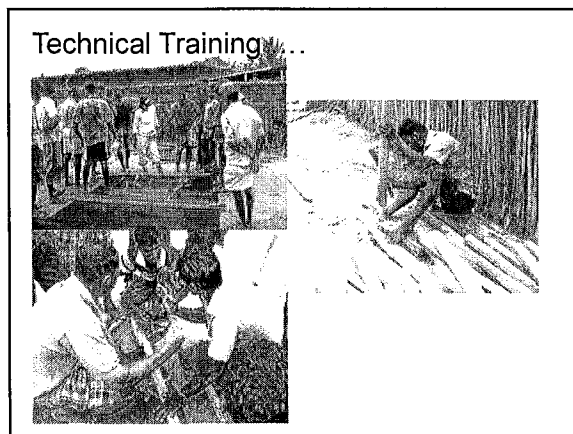
- ✓ Following FCSs engage with pilot project
  1. Gurunagar Fishermen Cooperative Society Ltd - Gurunagar
  2. New St. Mary's Fishermen Cooperative Society Ltd – Nawanthurai
  3. Mandathive St. Peter's Fishermen Cooperative Society - Mandathive
  
- ✓ Eight Beneficiaries were selected in each site



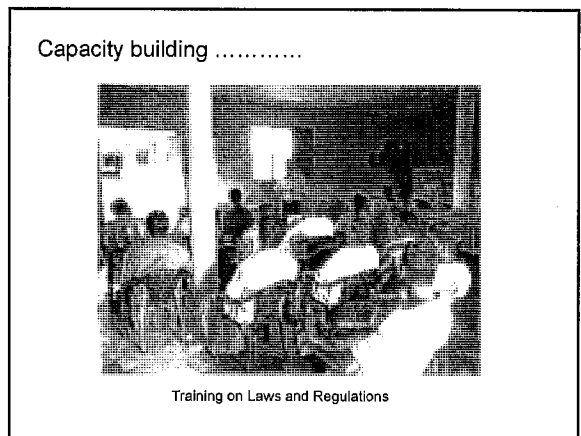
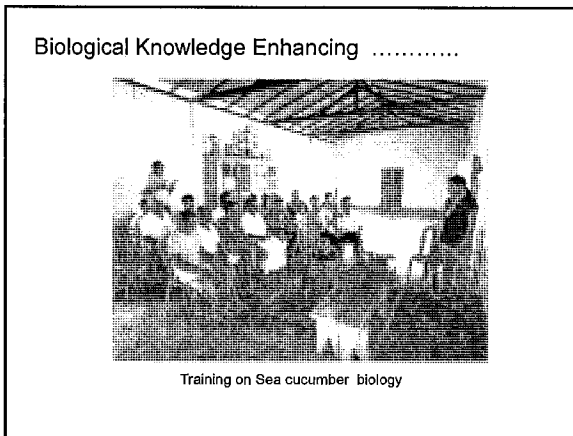
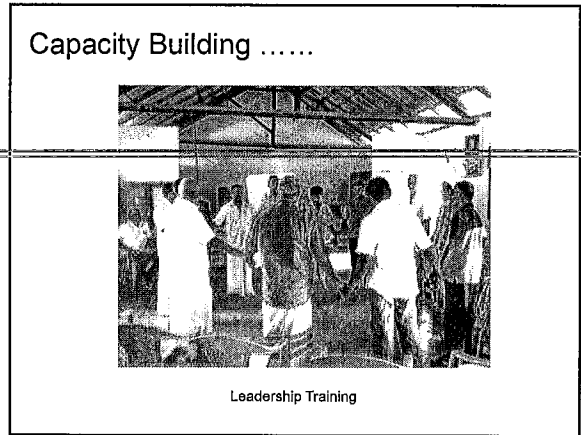
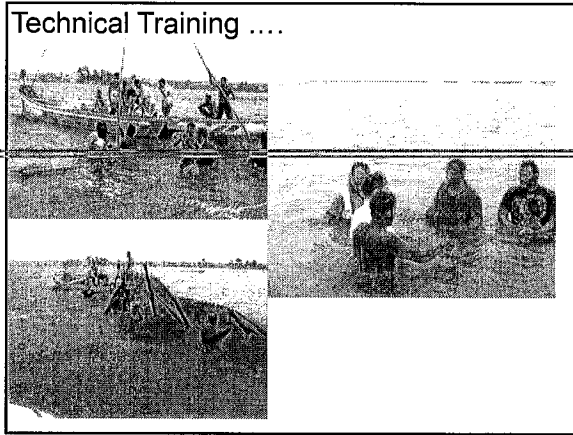
Technical Training and Capacity building

1. Technical Training	<ul style="list-style-type: none"> <li>➤ Pen construction</li> <li>➤ Biological knowledge</li> </ul>
2. Capacity building	<ul style="list-style-type: none"> <li>➤ Responsibility of FCS/Leadership</li> <li>➤ Related laws and Regulations</li> <li>➤ Community monitoring system</li> <li>➤ Financial Management</li> </ul>

- Beneficiary selection**
- Potential beneficiaries were selected in conjunction with FCS and ratified by the GN, FI and DS.
- Criteria adopted for selection
- a. Holding a Membership of a FCS
  - b. Capability to secure the farming pen
  - c. Ability to construct and maintain the pen
  - d. Ability to work as a team member
  - e. Skin diving skill
  - f. Member of socially vulnerable family
  - g. Any experience in sea cucumber industry

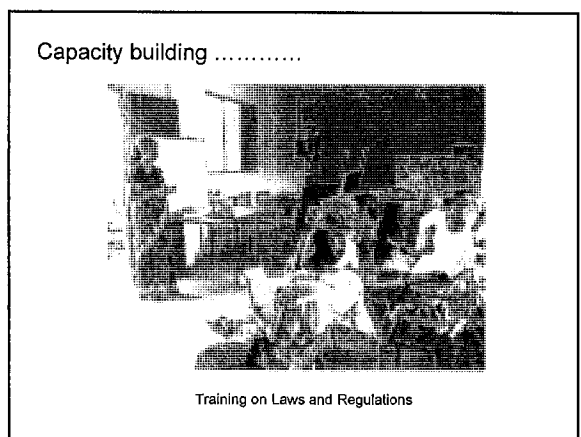







Capacity building .....


Mandatory Training	Content of the Training	Venue/ Date/ Time	No. of Participants	Resource persons
Responsibility of FCS/Leadership	<ul style="list-style-type: none"> <li>✓ Role and responsibilities of FCS</li> <li>✓ Win leadership in communities</li> </ul>	<ul style="list-style-type: none"> <li>✓ Madathya FCS 17.07.2011 0900-1330</li> <li>✓ Navanthurai FCS 17.07.2011 1400-1800</li> </ul>	23	<ul style="list-style-type: none"> <li>✓ Assistant Director Jaffna-DFAR</li> <li>✓ District Manager Jaffna-IDD</li> </ul>
Related laws and Regulations	<ul style="list-style-type: none"> <li>✓ Management of CHO such as FCS</li> <li>✓ Operation &amp; Management of the public facilities</li> </ul>	<ul style="list-style-type: none"> <li>✓ Navanthurai FCS 21.08.2011 1400 - 1800</li> </ul>	20	<ul style="list-style-type: none"> <li>✓ Assistant Director Jaffna-DFAR</li> <li>✓ Dept. of Cooperative Development</li> </ul>
Community monitoring system	<ul style="list-style-type: none"> <li>✓ Importance of community monitoring</li> <li>✓ Points to monitor Sea cucumber farming</li> <li>✓ Measures to monitor</li> </ul>	<ul style="list-style-type: none"> <li>✓ Navanthurai FCS 31.07.2011 0400 - 1800</li> </ul>	17	<ul style="list-style-type: none"> <li>✓ District coordinator - JSAC</li> </ul>
Financial Management	<ul style="list-style-type: none"> <li>✓ Account for receipt and disbursement for efficient financial management</li> <li>✓ Single entry bookkeeping</li> </ul>	<ul style="list-style-type: none"> <li>✓ Navanthurai FCS 18.09.2011/25.09.2011 0900 - 1700</li> </ul>	20	<ul style="list-style-type: none"> <li>✓ Dept. of Cooperative Development</li> </ul>



Capacity building .....



Training on Financial Management



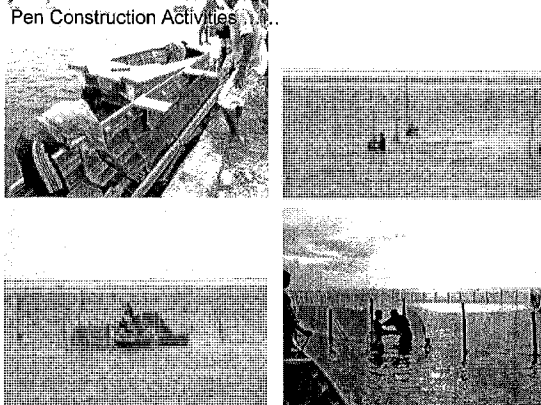
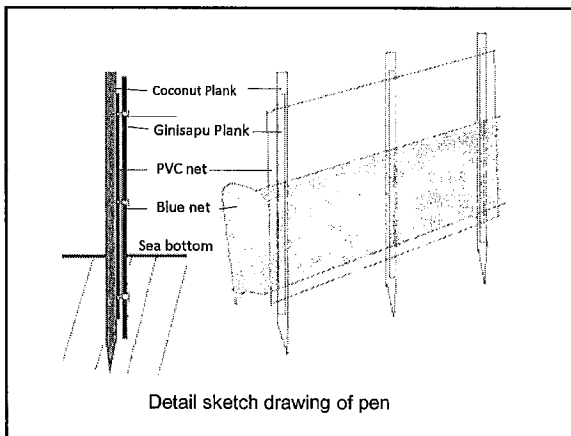
During the Pen Construction

### Setting-up pens

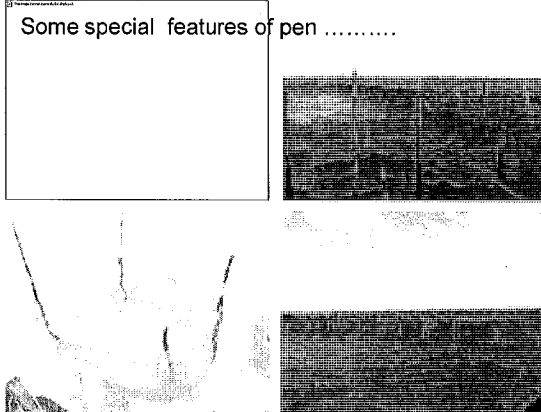
NARA provided following materials and tools to each FCS for setting –up pen of 25mX25m

- ✓PVC nets (2m high) 105m
- ✓Blue nets (1m high) 120m
- ✓Coconut planks (2"x4"x8') 75
- ✓Ginisapu planks (1"x2"x7') 80
- ✓3mm ropes 100m
- ✓5mm ropes 100m
- ✓Hammer 1
- ✓Concrete nails (3") 3 kg

### Pen Construction Activities

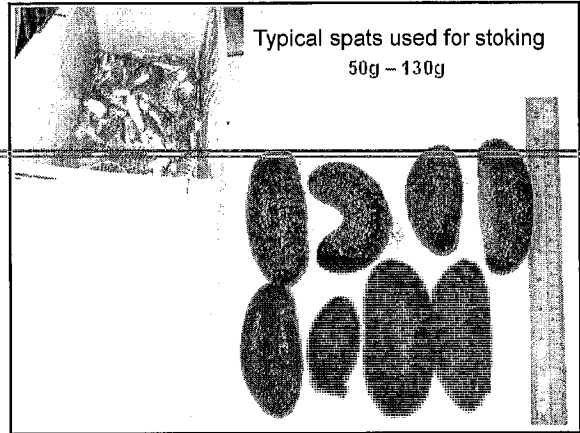



### Some special features of pen .....



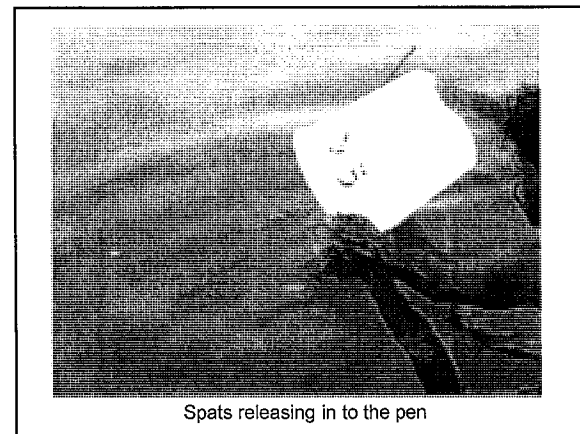
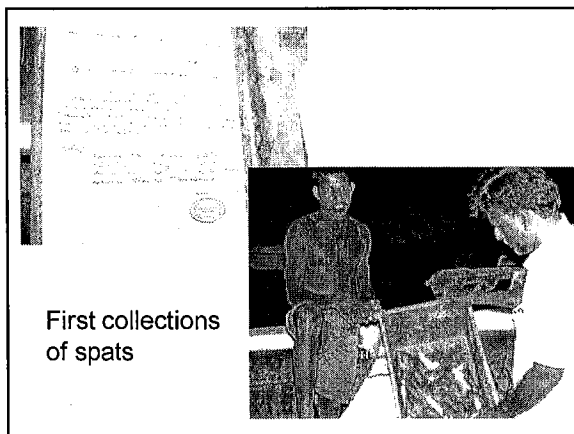
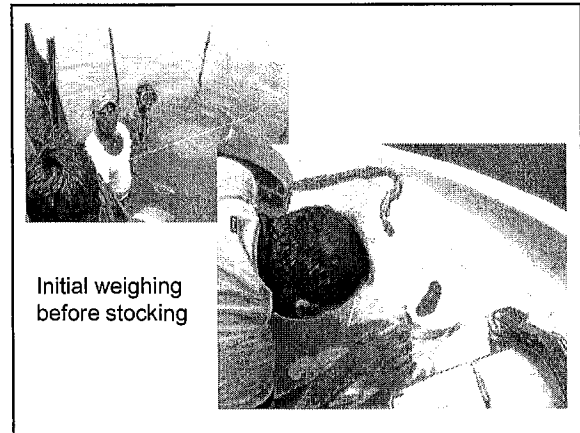
**Spat collection and stocking**

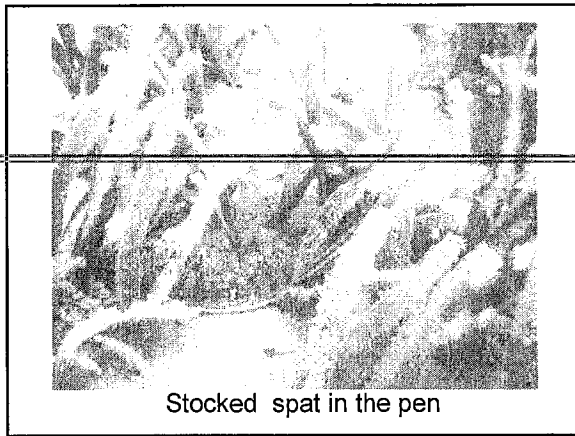
- Original proposal proposed to collect spat from by catch of trawling fishing.
- Trawling fishing is banded with effect from 1<sup>st</sup> January 2011
- Decided to collect spat using skin diving
- Fisher community was notified by posters through FCSs, requesting them to collect spats and hand them over to the respective pen sites for 30/= per each.



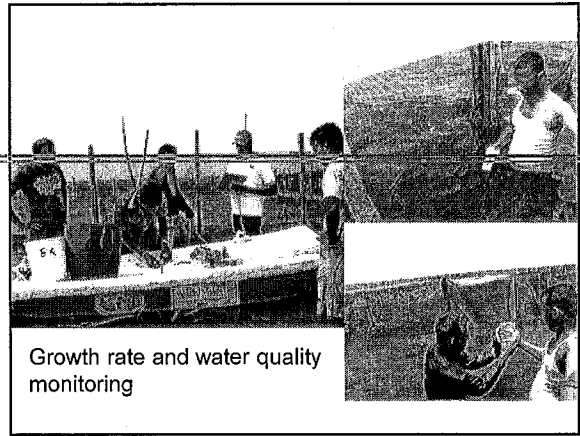
**Stockings**

- Mandative -1250
- Gurunagar -1190
- Nawanthurai -1149





Stocked spat in the pen



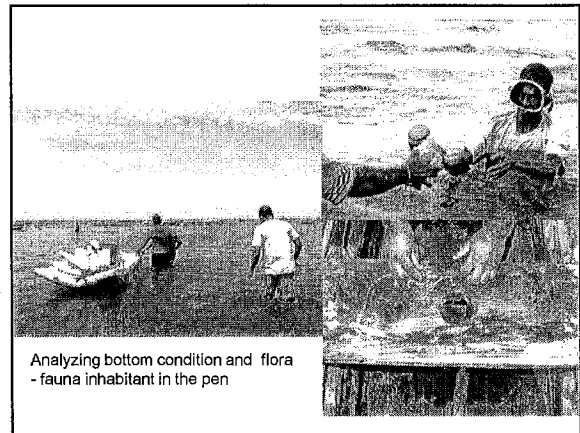
Growth rate and water quality monitoring

### Monitoring

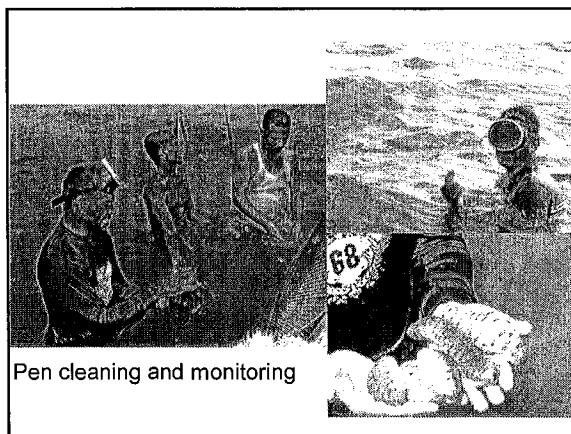
Monitoring will be started after pen construction and spat stocking

following things will be monitored

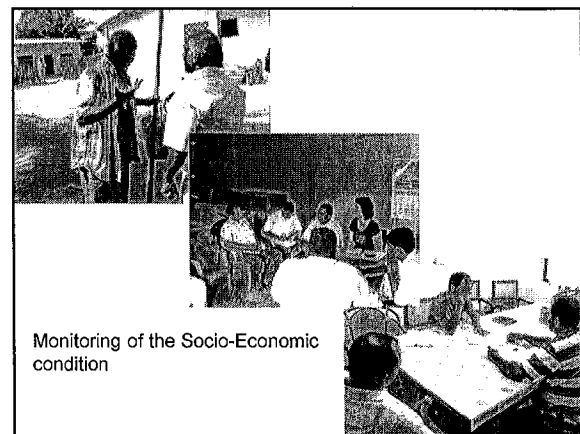
- Pen condition
- Growth rate of Sea cucumber
- Mortality rate of Sea cucumber
- Water Salinity and temperature
- Other flora and fauna associates with pen
- Socio-Economic condition will be carried out periodically



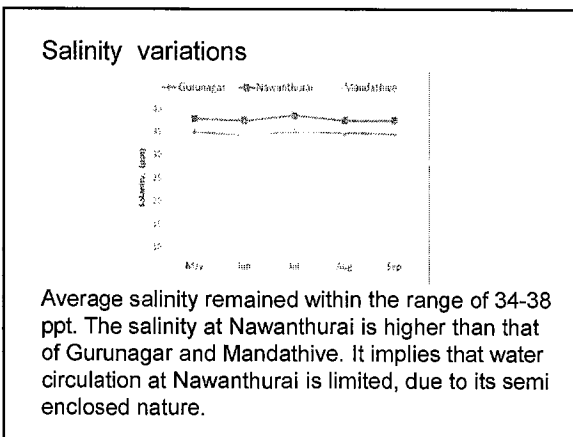
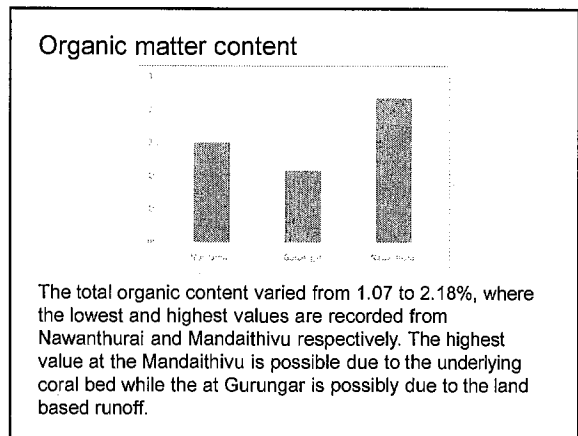
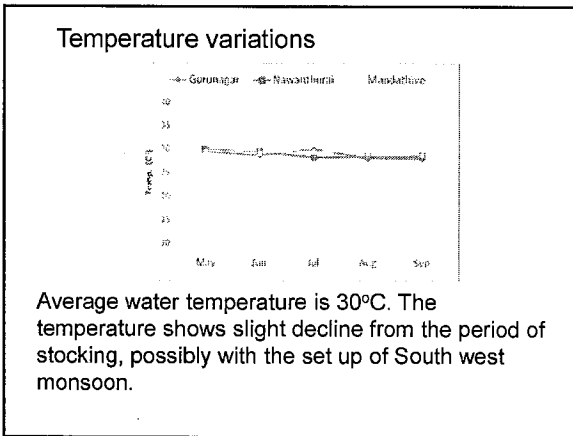
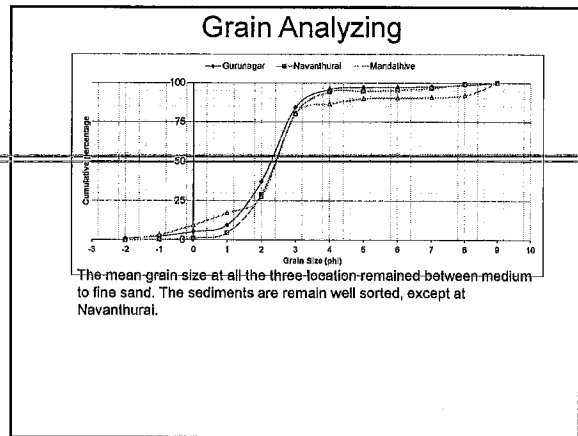
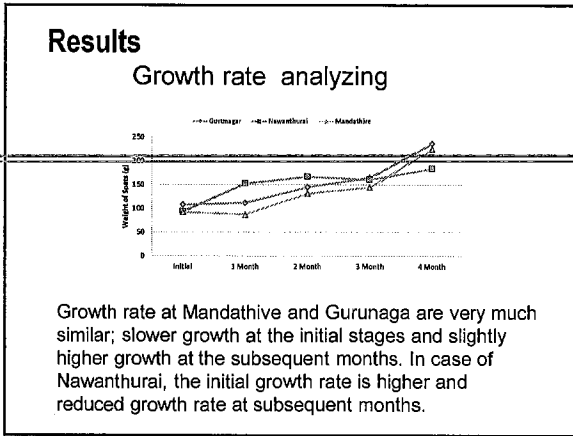
Analyzing bottom condition and flora - fauna inhabitant in the pen



Pen cleaning and monitoring



Monitoring of the Socio-Economic condition



### Business pan for Sea cucumber fattening

Mortality rate can not be estimated until the successfully completion of harvesting, which is scheduled for March, 2012. Furthermore, growth rate is monitored until September 2011, i.e. for a period of four months only. The total period of fattening until ready for harvesting is estimated as ten months. Thus, without these above data business plan may not be developed.

### Future plan of NARA

NARA convened managerial level national stakeholder meeting on the "sustainable sea cucumber fisheries". The participants included representatives from Ministry of Fisheries and Aquatic Resources Development, Department of Fisheries and Aquatic Resources, NAQDA, Sri Lanka Navy, Sri Lanka Customs, and FCS's. A national coordination committee to prepare a guideline for sustainable sea cucumber fisheries is formed.

### Weaknesses

- 1.Lack/inadequate relevant back ground information on Sea Cucumber fishery/culture in Sri Lanka
- 2.Lack of knowledge on spat available season.
- 3.Miss information and perception on the spat/sea cucumber fishery
- 4.Poor commitments/dedication of beneficiaries for pen construction and spat collection.
- 5.Constrains working in the sea due to the security restrictions.
- 6.Dependency mentality in community

NARA is currently successfully completed breeding of sea cucumbers, and currently rearing the spats at its indoor hatchery facility at Kalpitya. NARA is willing to conduct fattening experimental studies at varies indoor and out door facilities.

NARA as its part of research activities willing to continue JICA fattening sites at Nawanthurai, Mandaithivu and Gurunagar until the spats are matured enough for harvesting and beyond.

### Recommendation

- 1.Pen size should be reduce to manageable size (15m X 15m)
- 2.In order to reduce the construction cost, locally available materials shall be used for pen construction
- 3.Suitable sites shall be identified and marked for sea cucumber farming
- 4.Concurrence of FCS and AD

### Strengths

- 1.Reasonably well organized FCS
- 2.Perception of prospective additional income
- 3.Willingness of DFAR/Jaffna to work together
- 4.Direct marketing access and opportunity
- 5.Existence of well established sea cucumber fishery in the area
- 6.Current security environment
- 7.FCS active engagement to solve user conflicts.
- 8.Interactive participation of JICA and scheduled follow up activities by JICA

### Recommendation cont...

6. Possibility of poly-culture along with *Holothuria scabra* shall be explored.
8. Beneficiaries should aware on resource conservation and their experience shear with other members of FCS
9. 5% to be released to wild

# **Potential Sea Cucumber Farming as an Alternative Livelihood Enhancement for the Vulnerable Fishing Communities in Jaffna District**

(Under The Project for Development Planning for the Rapid Promotion of Reconstruction and Development in Jaffna District)



**Upali Mallikarachchi**  
**Jayanthi Mallawa Arachchi**

September 2011



**National Aquatic Resources Research & Development Agency**

## **PROJECT IMPLEMENTATION TEAM**

### **Advisor**

**Dr. K Arulananthan**

(Director Research & Development – NARA)

### **Team leader**

**Upali Mallikarachchi**

(Research Officer – NARA)

### **Aquaculturist**

**M A J C Mallawa Arachchi**

(Research Officer – NARA)

### **Field Coordinators**

**B Rameshkanna**

(Fisheries Inspector – DFAR)

**D Rajenthiran**

(Fisheries Inspector – DFAR)

### **Field officer**

**S. Kalairanjan**



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- 2. Site selection**
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- 4. Setting up of pen**
- 5. Spat collection and stocking**
- 6. Monitoring**

## **D. Result and discussion**

- 1. Awareness rising**
- 2. Site selection**
- 3. Beneficiary selection**
- 4. Setting up of pen**
- 5. Spat collection and stocking**
- 6. Monitoring**
- 7. Cost and Benefit Analysis (Tentative Estimation)**
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- 1. Format of pen monitoring data collection sheet**
- 2. Format of household baseline data collection sheet**
- 3. Format of socio-economic monitoring data collection sheet**
- 4. List of beneficiaries and respective household information**

## Executive Summary

Sri Lanka's sea cucumber (*bech – de-mer*) fishery is primarily based on wild collection. The high demand in the export market has brought about the overexploitation of Sea cucumber in many Coastal areas. This first ever research sea cucumber (sand fish) fattening project is initiated to evaluate the potential of sand fish (*Holothuria scabra*) fattening as an alternative income generation activity and also release the pressure on the wild stock.

Each of 625 square meter pens were constructed at Gurunagar, Navanthurai, and Mandathivu as culture sites, where environmental condition, substrata and organic content varied measurably. Spats are stocked at a density of about two individuals per square meter. Spats stocked at the pilot project sites; Mandathivu, Gurunagar and Navanthurai are 1,250, 1,190 and 1,048 respectively.

The mean grain size at all the three location remained between medium ( $\frac{1}{4}$ – $\frac{1}{2}$  mm) to fine sand (125–250  $\mu$ m). The sediments remained well sorted, except at Navanthurai. The total organic content varied from 1.07 to 2.18%, where the lowest and highest values are recorded from Navanthurai and Mandaitivu respectively. Average water temperature is 30°C and shown slight decline from the period of stocking. Average salinity remained within the range of 34-38 ppt. The salinity at Navanthurai is higher than that of Gurunagar and Mandathivu.

The growth rate at Gurunagar, Navanthurai and Mandaitivu are 20, 29 and 37 gram per month. Navanthurai is within the expected growth rate, while at Mandaitivu growth rate is remarkably higher than the reported average growth rate. The growth rate at Grunagar pilot project site is poor. The survival at the end of the five months period time at Mandaitrhivu and Navanthurai is 100 percent, while at Gurunagar the survival is 68% only.

Based on the four months data, the coast benefit analysis indicates that the total production cost per cycle of a 625square meter pen at the rate of 2 individual per square meter is Rs. 238,330/=, and the net profit is Rs. 180,470/=.

## **A. Introduction**

Sri Lanka is a small tropical island in the Indian Ocean southeast of the Indian sub-continent, situated at 5°55'–9°55' N and 72°42'–81°52' E. Sri Lanka's coastline is about 1,770 km long and contains several bays and shallow inlets.

As with many coastal fisheries, Sri Lanka's sea cucumber (*beche-de-mer*) fishery is primarily based on wild collection and contributes to the livelihoods of fishermen in the coastal region. The high demand in the export market has brought about the overexploitation of Sea cucumber in many Coastal areas of Sri Lanka such as Kalpitiya, Vakarai, Mannar and Jaffna lagoons. It is therefore important that conservation measures be put in place to save this valuable resource from depletion. At the same time the high demand can be fulfilled with different culture techniques. Sea cucumbers culture systems presently practiced are pond and pen culture. Coastal community of Jaffna could easily adapt pen culture of sea cucumbers in their leaky lagoon of Jaffna Peninsula.

JICA study team involves in the fisheries livelihood enhancements through sustainable use of marine resources in Jaffna peninsula. *Holothuria scabra* (Sand fish) pen culture is one of the pilot projects, to be introduced as an alternative income generation activity for the enhancement of livelihood of Jaffna fisher community. National Aquatic Resources Research & Development Agency (NARA) agreed to be an implementing partner for the Pilot Project with the Japan International Cooperation Agency (JICA) Study Team. .

NARA and the JICA Study Team considered this initiative can enhance the wild population of *Holothuria scabra* (Sand fish) and opportunity to increase the knowledge of coastal communities on sea cucumber fattening.

## **B . Objectives of the pilot project**

### **1. Overall objective of the project**

The Pilot Project aims at livelihood enhancement for poverty stricken fishing families through uplifting the living standards by ensuring sustainable use of marine resources through establishing sea cucumber farming as an alternative income generating method. And it aims also at conservation of the indigenous stock of sea cucumber through stock enhancement and ranching as a connection with development policy of fisheries sector and rural development plan of Jaffna District to be formulated by the Project.

## **2. Specific objective of the Pilot Project**

- a. To develop a method of pen culture of sea cucumber
- b. To determine the growth and survival rates of sea cucumber in the pen
- c. To heighten the awareness of communities on the importance of resource enhancement
- d. To study the feasibility of pen culture of sea cucumber as a supplementary source of income for the fishing community of Jaffna peninsula.

## **C. Methodology of the pilot project**

### **1. Awareness rising**

The following awareness programmes are proposed

- a. Initial awareness workshop
- b. Technical training programme of pen construction
- c. Awareness programmes on biology of sea cucumber
- d. Capacity building programme for Fisheries Cooperative Society (FCS) leaders

### **2. Site selection**

Scientists and experts drawn from NARA, the JICA Study Team and Department of Fisheries Aquatic Resources (DFAR) visited the coastal waters of the peninsula to identify potential sites for the Pilot Project. Based on the following criteria, 3 sites were selected for the pilot culture project.

- a. Accessibility to implementation and monitoring
- b. Security of the pen
- c. Water quality, bottom condition and water movement
- d. Water depth should be at least 90cm during the lowest tide
- e. Different geomorphological settings for comparison of culture feasibility

### **3. Beneficiary selection**

Criteria for beneficiaries selection is agreed upon at the initial awareness workshop. As per the guideline by the JICA Study Team for selection of the beneficiaries, the selected

beneficiaries are ratified by the Grama Niladari (GN), Fisheries Inspector (FI) and Divisional Secretary (DS). The chosen criteria are as follows;

- a. Holding a Membership of a FCS
- b. Capability to secure the farming pen
- c. Ability to construct and maintain the pen
- d. Ability to work as a team member
- e. Skin diving skill
- f. Any experience in sea cucumber industry
- g. Member of socially vulnerable family

As the pilot project, capacities of beneficiaries should be strongly considered to implement this project because technical feasibility is very important exploration of the project.

#### 4. Setting up pens for spat / sea cucumber

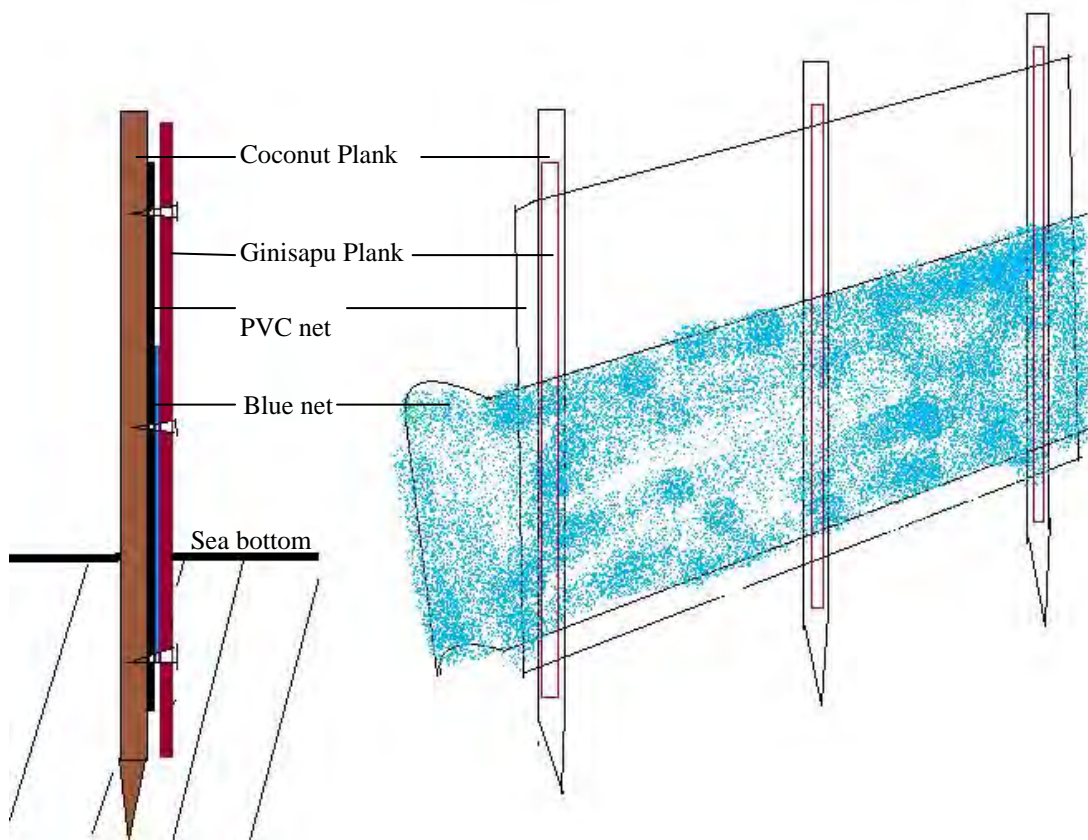


Fig 1: Detail sketch drawing of pen

Coconut planks, PVC nets, put valve net and Ginisapu planks are used for the construction of 25m x 25m pen. Eight feet coconut planks (of 2" x 4") are erected at the spacing of 1.5 meters interval. PVC net of 2 m height with an mesh size of 10mm raised up and fixed to the planks using Ginisapu planks (refer to Fig. 1) around the pen. The net is buried under the

bottom up to 0.5 m to hinder the escape of the spats stocks from the pen. In addition, to secure from the predators one meter high net with 1 mm mesh size is attached to the PVC net. The put valve net (blue net) also buried up to 0.25m under the bottom. To further strengthen the pen and prevent the escaping of spats, sands backs are laid along the pen perimeter. At the sites, where the pen is open to the direct impact of the monsoon wind, coconut planks are tied to the anchor by ropes.

### **5. Spat collection and stocking**

As per the proposal, spats are to be collected from the by catch of trawl fishing. However, the trawl fishing was banned in the country by the end of December, 2010. At the initial awareness workshop in January, the beneficiaries suggested the possibility of collection of spats by skin diving, which was agreed upon as the only available option for collecting spats. The JICA Study Team suggested purchasing spats from collectors at a suitable price. Beneficiaries mentioned that the spats can be collected at Rs. 30/= per spat. NARA agreed that price considering the prevailing situation. Fisher community notified posters through FCSs, requesting them to collect spats and hand them over to the respective pen sites. However, no spats are received and it was informed that the spats are not available. NARA diving team was deployed to cross check the availability of spats in mid of February. The team reported the non availability of spats at all the possible sites, where spats are reported to inhabit. At the end of April, 2011 the spat season was began and fishermen reported availability of spats. Necessary approvals and clearance were obtained from the Ministry of Fisheries and Aquatic Resources Development and Ministry of Defense to collect spats and transport them to the respective pens.

### **6. Monitoring**

Daily pen condition is monitored by the beneficiaries, as per the guideline provided by NARA. The procedure for cleaning and maintaining and protocol for reporting any significant events are also laid down.

Weekly water quality such as bottom water temperature and salinity are monitored by a project staff stationed at Jaffna.

Monthly length and weight measurements are recorded for estimation of growth rate. Prior to the stocking into the pen, measurements are taken for all the spats, except for the 298 spats stocked (90 – Mandaithivu, 195 Gurunagar, 13 - Navanthurai) prior to the instruction by the

JICA Study Team. Subsequently, monthly measurements recorded 10% of the spats. Sample sea cucumbers are collected at randomly for measurements. The project staff stationed at Jaffna are provided adequate training for field measurements.

Distribution of the individuals within the pen is found to be patchy distribution, which is a common phenomenon among sluggish and sedentary living organisms. Thus, lognormal distribution method is adopted for estimation of the survival rate. Mean survival rate is estimated based on the sampling at 10% of the total pen area and adopting lognormal distribution method. The unit area sampling is one square meter.

## **D. Result and discussion**

### **1. Awareness Rising**

#### ***a. Initial Awareness Workshop***

One day initial awareness workshop was conducted on 14<sup>th</sup> January, 2011 in Gurunagar. The participants, who constituted of potential beneficiaries, drew / were drawn from Colombuthurai, Navanthurai, and Gurunagar. A special awareness meeting was held for Mandathivu potential beneficiaries on 4<sup>th</sup> February, 2011. The meeting was held in Navanturai and in total, 53 potential beneficiaries took part at the awareness workshops.

The sea cucumber farming and its challenges were introduced to the participants using following power point presentations.

- Species, Biology and Economic value of Sea cucumber.
- Possibilities and Challenges of Aquaculture in Jaffna Peninsula.
- Sea cucumber farming as an aquaculture practice and its challenges

Detail discussion was held with the potential beneficiaries on possible method of spat collection, as the proposed collection methods of trawl fishery had been banded, all agreed to skin diving method as a more appropriate way. Discussed criteria and priorities on beneficiary selection.

#### ***b. Technical Training on Pen construction***

One day practical training session on pen construction was conducted on 21<sup>st</sup> February 2011 at Navanthurai. In total, 21 beneficiaries participated from the selected sea cucumber culture sites; i.e. Navanthurai, Gurunagar and Mandathivu. Fifteen meters of pen was constructed at Navanthurai site to provide a hand on experience on pen construction.

**c. Training on Biological Knowledge**

Half day training session on biology of sea cucumber was conducted on 21<sup>st</sup> June 2011 at Navanthurai. Under biology of Sea cucumber, course content constituted the followings;

Habitat of sea cucumber, sea cucumber life cycle and their feeding habit. In total, 23 beneficiaries participated from the selected sea cucumber culture sites, i.e. Navanthurai, Gurunagar and Mandathivu.

**d. Training on Capacity building**

All the capacity building trainings were successfully conducted. The details of the trainings are given on the table below. Committee members of all four FCS have participated on the trainings. The training schedule is prepared, such a way that the participants are minimally inconvenienced. Resources persons are identified in concurrence with the JICA study team.

Table 1: Training conducted schedule

<b>Mandatory Training</b>	<b>Content of the Training</b>	<b>Venue/ Date/ Time</b>	<b>No. of Participants</b>	<b>Resource persons</b>
Responsibility of FCS/Leadership	<ul style="list-style-type: none"> <li>✓ Role and responsibilities of FCS</li> <li>✓ What leadership in communities is</li> </ul>	<ul style="list-style-type: none"> <li>✓ <u>Mandativu FCS</u> 17.07.2011 0900-1300</li> <li>✓ <u>Navanthurai FCS</u> 17.07.2011 1400-1800</li> </ul>	21	<ul style="list-style-type: none"> <li>✓ Assistant Director Jaffna– DFAR</li> <li>✓ District Manager Jaffna - IDB</li> </ul>
Related laws and Regulations	<ul style="list-style-type: none"> <li>✓ Management of CBO such as FCS</li> <li>✓ Operation &amp; Management of the public facilities</li> </ul>	<ul style="list-style-type: none"> <li>✓ <u>Navanthurai FCS</u> 21.08.2011 1400 - 1800</li> </ul>	17	<ul style="list-style-type: none"> <li>✓ Assistant Director Jaffna– DFAR</li> <li>✓ Dept. of Cooperative Development</li> </ul>
Community monitoring system	<ul style="list-style-type: none"> <li>✓ Importance of community monitoring</li> <li>✓ Points to monitor Sea cucumber farming</li> <li>✓ Measures to monitor</li> <li>✓ Making a plan of community monitoring of the sea cucumber farming</li> </ul>	<ul style="list-style-type: none"> <li>✓ <u>Navanthurai FCS</u> 31.07.2011 0400 - 1800</li> </ul>	17	<ul style="list-style-type: none"> <li>✓ District coordinator - JSAC</li> </ul>
Financial Management	<ul style="list-style-type: none"> <li>✓ Account for receipt and disbursement for efficient financial management</li> <li>✓ Single entry bookkeeping</li> </ul>	<ul style="list-style-type: none"> <li>✓ <u>Navanthurai FCS</u> 18.09.2011/25.09.2011 0900 - 1700</li> </ul>	20	<ul style="list-style-type: none"> <li>✓ Dept. of Cooperative Development</li> </ul>

- Training on Responsibility of FCS/Leadership

The workshop is aimed at providing awareness on “Role and Responsibilities of FCS” and “What leadership in communities is?”

Under the role and responsibilities of FCS, course content constituted the followings;

- What is the co-operative society? And when has it been established?
- Role of FCS in the society



- Modern politics of cooperative societies
  - Freedom for memberships
  - Democratic administration
  - Contribution of membership fees
  - Freedom for self activities
  - Educational collection of fisheries
  - Cooperation among the cooperative societies
  - Social enhancement
- Role of the FCS president
- Role of the secretary and which kind of document should hold with him
- Current problems of FCS and their solutions

Under the “what leadership in communities is” discussion concentrate to followings

- Knowing me and knowing you  
Through this lesson four development areas for personality development are introduced such as common area, secrete area, blind area, dark area.
- What is the leadership?
- Leadership qualities
- Why does a leadership need for Community Based Organizations (CBO)
- Four leadership styles
- Good qualities for the good leader
- Training on Related laws and Regulations

During this training workshop mainly discussed two topics of “Management of CBO such as FCS” and “Operation & Management of the public facilities”

Under the “Management of CBO such as FCS” discussion concentrate to following matters

- Management of FCS
- Guiding according to bylaws
- Administrative structure
- Position and duties and responsibilities of positions
- Bank account operation
- Supervision of FCS by DFAR and cooperative department
- Participation of FCS on implementing fisheries related laws
- History of fisheries laws
- Importance of fisheries laws
- Law of fisheries and aquatic resources (Act No. 2 of 1996)

- Aquaculture related laws (Act No. 22 of 2006)
- Training on Operation & Management of the public facilities

Under the “Operation & Management of the public facilities” discussion concentrated to following;

- Introduction to management
- Activities of the CBOs & management
- Importance of management
- Common facilities and illustration
- Management of the common facilities
- Training on Financial Management of FCSs

Under the “Financial Management of FCSs” discussion concentrated to followings;

- Introduction of financial management
- Importance of financial management
- Books of Accounts of a small organization
- Preparing primary eatery books (Practical)
- Single eatery book keeping (Practical)
- Accounts of Income & Expenditure (Practical)
- Profit & loss accounts for small organization (Practical)
- How to prepare financial situation statement/ balance sheet
- Importance of financial monthly & annual reports

### **Evaluation of Capacity Building Trainings**

#### **(1) Number of Participants**

<b>Types of Training</b>	<b>Responsibility of FCS/Leadership</b>	<b>Related Law and Regulation</b>	<b>Financial Management</b>	<b>Community Monitoring System</b>
Gurunagar	4	6	4	2
Navanthurai	8	8	13	12
Mandathivu	9	3	3	3
<b>Total</b>	<b>21</b>	<b>17</b>	<b>20</b>	<b>17</b>

**(2) Quality of Training (from interview with the participants)**

Types of Training	Responsibility of FCS/Leadership	Related Law and Regulation	Financial Management	Community Monitoring System
Gurunagar	Excellent	Good	Good	Excellent
Navanthurai	Excellent	Good	Fine	Good
Mandathivu	Excellent	Fine	Good	Good

(1: Excellent 2: Good, 3: Fine 4: Poor 5: Very poor)

**(3) Outcome/Issues from training (from interview with the participants and observation)**

Types of Training	Responsibility of FCS/Leadership	Related Law and Regulation	Financial Management	Community Monitoring System
Gurunagar	Participants gathered more information about FCS role and activities They understand what are the characterize need for leader	Participants learnt about cooperative and fisheries laws acts	Participants gathered important role of treasurer and importance to maintain balance sheet cash summary, trial balance of final account	Participants learnt about monitoring and evaluation, how to monitor their activity by them and how to prepare own monitoring plan.
Navanthurai				
Mandathivu				

**2. Site selection**

Based on the stipulated criteria, the NARA team chose Gurunagar, Navanthurai, and Colombothurai as culture sites. However, the JICA Study Team pointed out that as it is being a Pilot Project, it is preferable to choose three geomorphologically different sites instead of three similar sites. Thus, instead of Colombothurai, the open sea site at Mandaithivu was selected.

**3. Beneficiary selection**

Beneficiaries are selected in accordance with the criteria stipulated. However, due to the intermittent drop out of some beneficiaries, stringent procedure of ratification and negotiation with FCS continued and the final list of beneficiaries is reached only at the end of March. The list of selected beneficiaries and respective household information are attached as Annex 1.

#### **4. Setting up of pen**

With the guidance of NARA, three pens were constructed by the beneficiaries using coconut planks, PVC nets, put valve net and Ginisapu planks in the sea adjacent, namely Navanthurai, Gurunagar and Mandathivu respectively. All the required construction materials and tools purchased and supplied by the Supply Division of NARA. One day technical training session on pen construction was conducted by NARA for the beneficiaries of Navanthurai. NARA staff from Service and Operation Division also supported to construct pens. Each pen is 625 square meters.

#### **5. Spat collection and stocking**

Spats collection was the most difficult part of the project. Spats were not found during the February to end of April, 2011. Only one fisherman, who is a beneficiary from the Mandaithivu culture site, reported on the availability of spats. Collections of spats are commenced at the end of April, 2011 by skin diving. The beneficiary has supplied 3,280 spats. Pens at Mandativu, Gurunagar and Navanthurai are stocked during the period from 25<sup>th</sup> April to 04<sup>th</sup> June 2011. Beneficiaries of Navanthurai and Gurunagar sites collected 195 and 13 spats respectively. Sea cucumber trader supported to Navanthurai beneficiaries by supplying 195 spats.

As of 4<sup>th</sup> June 2011, the stockings of the respective pens are as follow;

Mandativu	-1250
Gurunagar	-1190
Navanthurai	-1048

#### **6. Monitoring**

Ratification meetings are held for each site with the participation of NARA, the JICA Study Team, DFAR and FCS officers, beneficiaries and relevant GN officers. All the matters and profit sharing issues and agreements are discussed at these meetings. Baseline data collection is delayed due to changing list of beneficiaries, water quality and growth monitoring were started parallel to the spats stocking. All the daily, weekly and monthly monitoring are conducted using several formats. Initial measurements are recorded at stocking of spats. Counting for mortality calculation is proposed at stocking and harvesting. Counting data is recorded, however harvesting is schedule for March 2012. Any counting at intermediate

stage would seriously affect the habitat and would remain as a threat to the survival of the individual organisms. Thus, it would affect the possible return of the beneficiaries and skew the result of the mortality during the entire fattening processes of at least ten months. Therefore, the JICA Study Team has agreed to analyze the tentative mortality at the end of the Pilot Project based on 10 % random sampling.

**(a) Bottom Condition analysis**

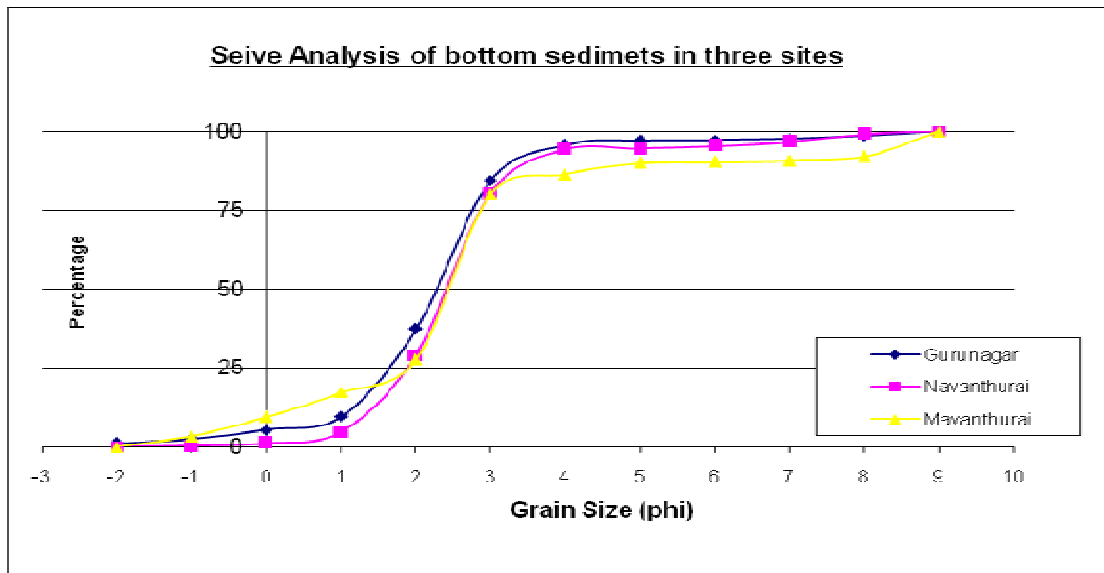


Fig.2: Seive analysis of bottom sediment at each site

The mean grain size at all the three location remained between medium (1/4–1/2 mm) to fine sand (125–250 μm). The sediments are remained well sorted, except at Navanthurai.

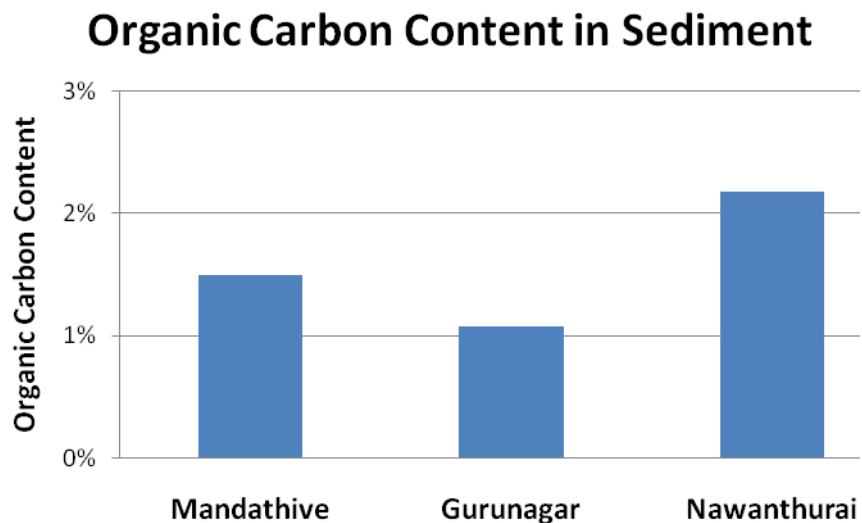


Fig.3: Organic matter content in bottam sediment at each sites

The total organic content varied from 1.07 to 2.18%, where the lowest and highest values are recorded from Navanthurai and Mandaithivu respectively. The highest value at the Mandaithivu is possible due to the underlying coral bed while at the site of Gurungar it is possibly due to the land based runoff.

**(b) Temperature & Salinity**

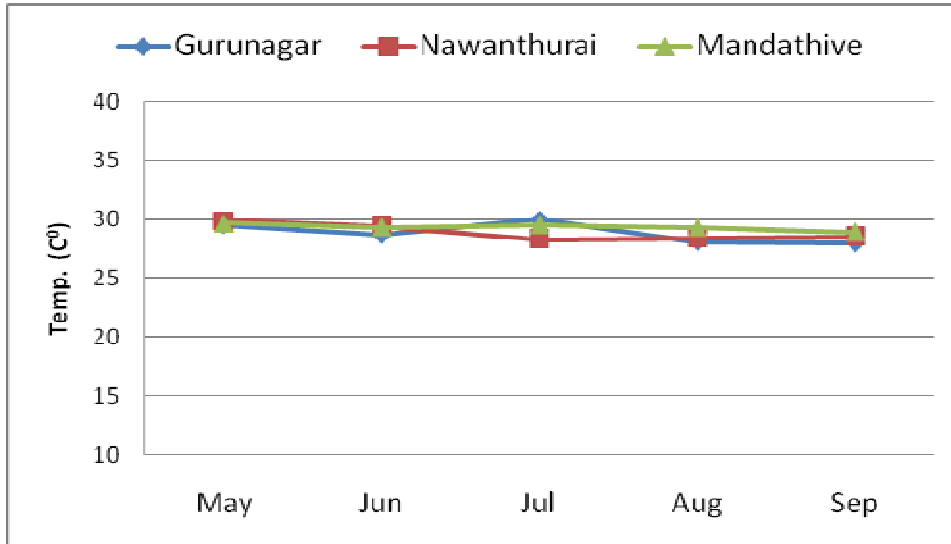


Fig.4: Monthly variation of average temperature at three sites

Average water temperature is 30°C. The temperature shows slight decline from the period of stocking, possibly with the set up of South west monsoon.

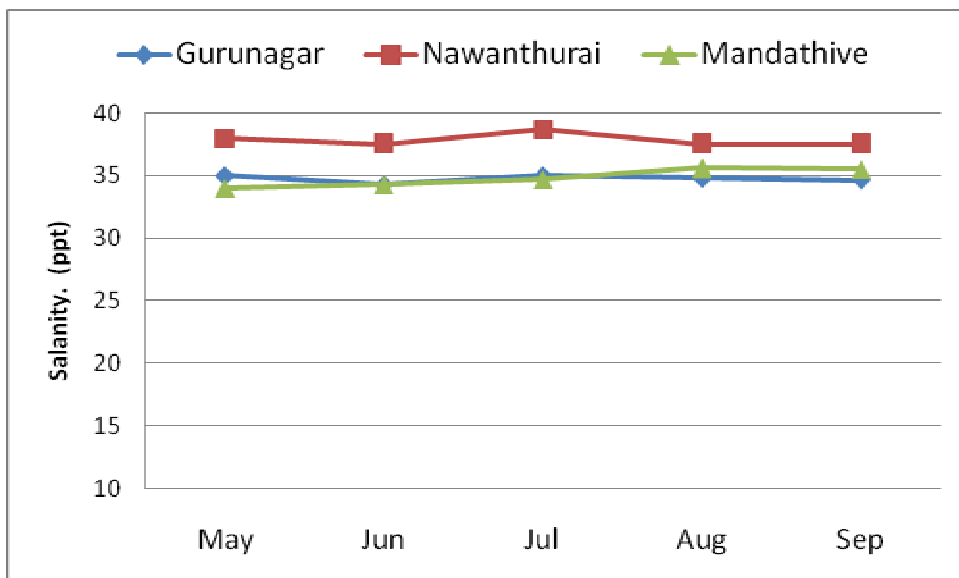


Fig. 5: Monthly variation of average Salinity at three sites

Average salinity remained within the range of 34-38 ppt. The salinity at Navanthurai is higher than that of Gurunagar and Mandathivu. It implies that water circulation at Navanthurai is limited, due to its semi enclosed nature.

**(c) Growth rate monitoring**

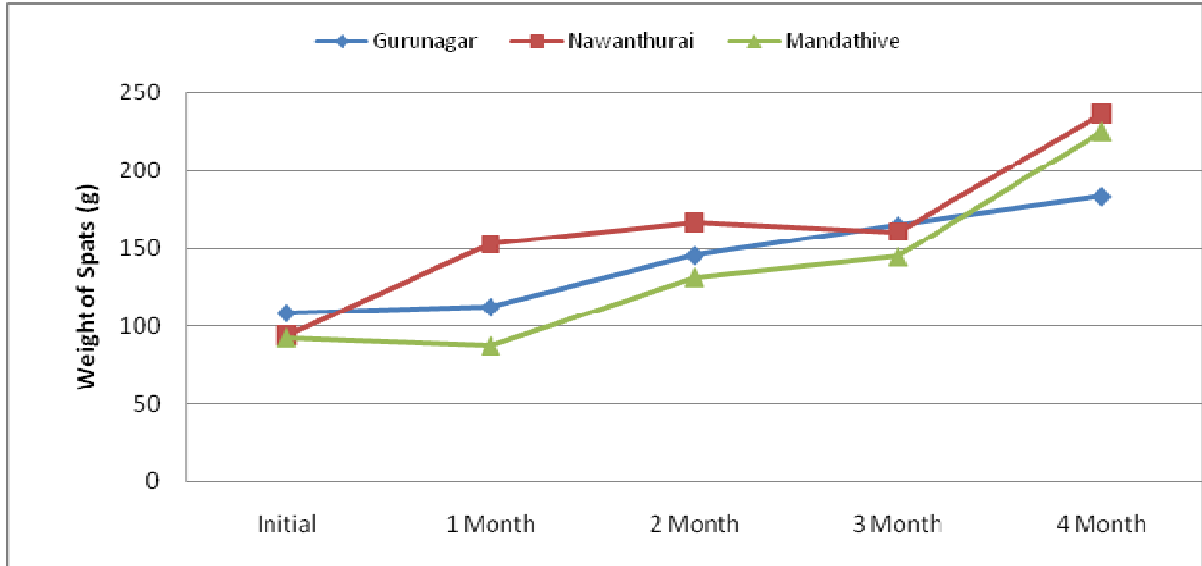


Fig. 6. Monthly growth rate variation of Sea cucumber spats at three sites

Growth rate at Mandathivu and Navanthurai are similar; slower growth at the initial stages and slightly higher growth at the subsequent months. In case of Gurunagar the initial growth rate is little bit higher and reduced growth rate at subsequent months is observed. It may be noted that organic carbon content at Gurunagar is comparatively lower than the other two pilot study sites.

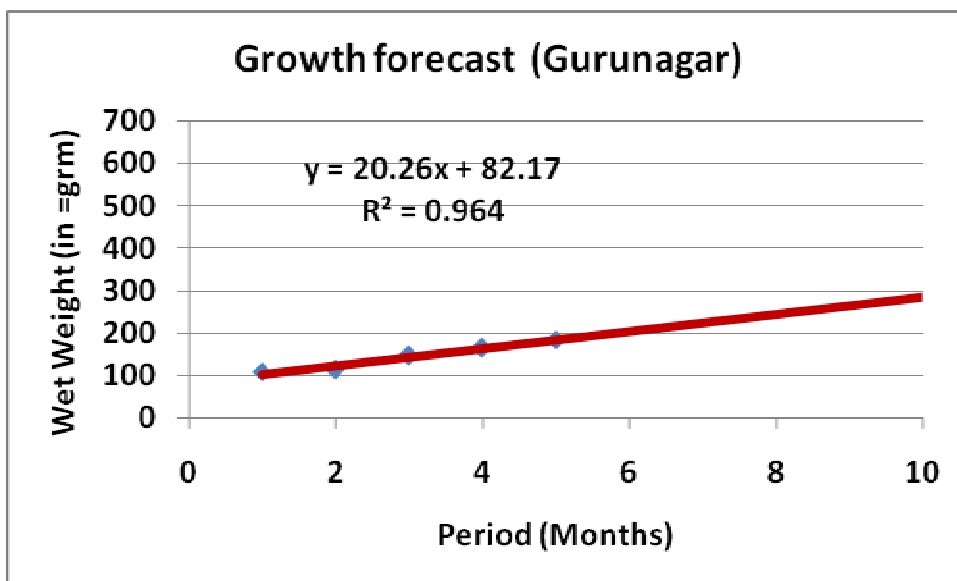


Fig. 7: Growth rate forecast at Gurunagar pen

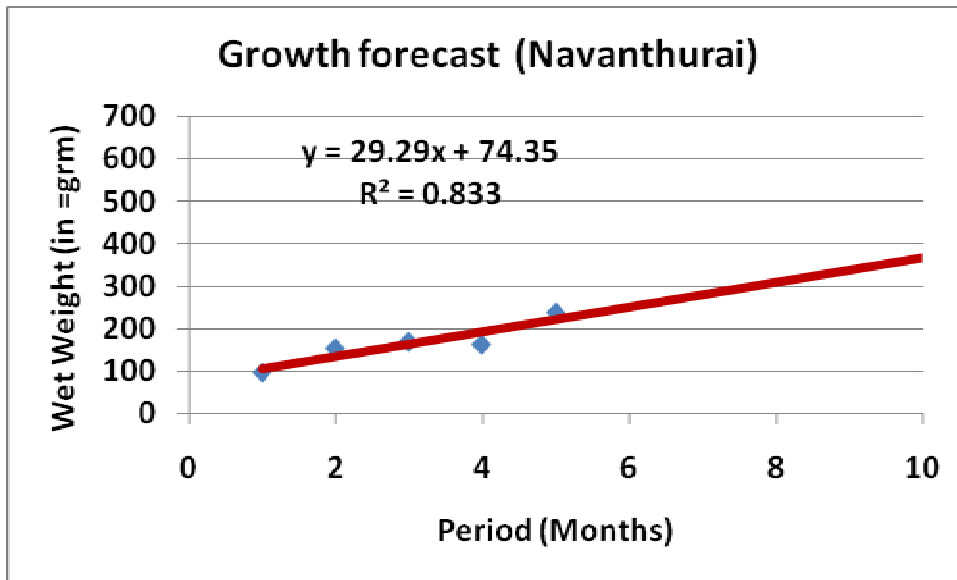


Fig. 8: Growth rate forecast at Navanthurai pen

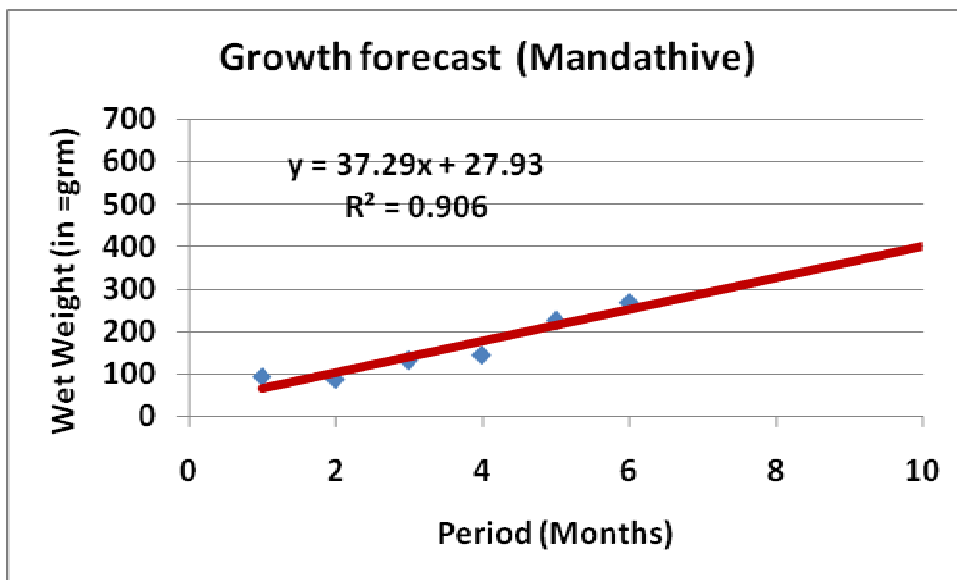


Fig. 9: Growth rate forecast at Mandathivu pen

The growth rate at Gurunagar, Navanthurai and Mandaitivu are 20, 29 and 37 gram per month. Martoyo et al. (1994) reported that *H. scabra* grows at 28-33 g wet weight per month. The case at Navanthurai is within the expected growth rate, while at Mandaitivu the growth rate is remarkably higher than the reported average growth rate. The growth rate at Grunagar pilot project site is poor.



Table 2: Forecasted wet weigh as per four months measurements

	Initial (in gram)	After 4 months (in gram)	Growth rate (gram/month)	Forecast after 10 months (in gram)
Gurunagar	109	184	20	285
Navanthurai	94	237	29	367
Mandaithevu	93	225	37	401

Based on the monthly measurements of wet weight during the period of four months and assuming a liner growth rate, it is estimated that the average wet weight at the three pilot sites; Gurunagar, Navanthurai and Mandaithevu are 285, 367 and 401 grams after 10 months.

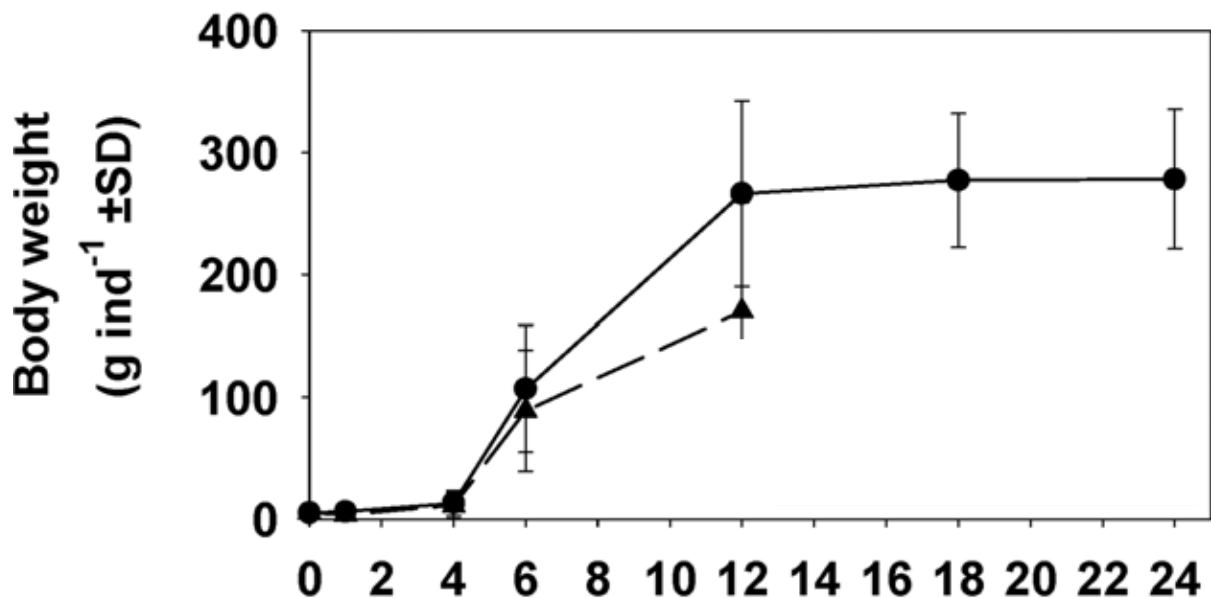


Fig. 10: Monthly Growth of Sand fish (S. W. Purcell and M. Simutoga, 2008)

S. W. Purcell and M. Simutoga, 2008 reports that the during the period from 4 to 12 months the growth rate is linear, however the growth rate of sandfish depends on environmental conditions, time of year, nutrients, substrata and organic matter content.

**(d) Survival rate**

The survival at the end of the five months period time at Mandaitrhipu is 100 percent, while at Gurunagar the survival is 68% only. Surprisingly, the number of individuals estimated is slightly more than the number introduced at Navanthurai. It is reported that at the initial months of the projects, the beneficiaries stocked more spats into pen at few occasions after the initial stockings of 1048 spats at Navanthurai.

**7. Cost and Benefit Analysis (Tentative Estimation)**

In general, cost and benefit analysis shall be conducted at the stage of post harvesting only. It is primarily because the mortality rate may change with the different stage of growth. Here, it is forecasted that spats would reach about 350 gram during the 10 months period of fattening.

However, here the average cost and benefit analysis estimated at the end of four months period of fattening, whereby assumptions are made that the growth rate will remain as liner and there will be no mortality during the remaining five months period of fattening.

**i. Cost for pen unit (average for three pilot project sites)**

**Initial Investment**

Material for one pen construction = 100,000.00 LKR  
 Labour for pen construction = 22,500.00 LKR

**Depreciation period for pen unit = 3 years**

**Number of production cycle within the depreciation period = 3 times**

**Initial investment for one culture cycle = 122, 500.00/3 LKR**  
**= 40,830 LKR**

**Operational Cost for one culture cycle**

Cost for Spats (30.00 LKR per spat) = 1250 X 30.00 LKR  
 Cost for Pen maintain = 10,000.00 LKR  
 Cost for security (for 300 days) = 300 X 500.00 LKR

**Operational Cost for one culture circle = 197,500 LKR**

**Total Production Cost for one production cycle = 238,330 LKR**

**ii. Benefit from pen unit (average for three pilot project sites)**

**Expected weight per individual after 10<sup>th</sup> Month = 350 grams**

**Expected market price for individual = 400 LKR**

**Expected survival rate after 10<sup>th</sup> month = 90%**

**Individual in a pen = 1047**

**Expected income for one culture cycle = 418,800 LKR**

**iii. Net profit per pen = 180,470 LKR**

=====

## **8 . Viability**

- Marketing demand increases in the future in Sri Lanka as well as global countries.
- Food and drugs are not necessary for sea cucumber farming and only care of farmer needed. Therefore, production cost is very low.
- Only minimum diseases effect to sea cucumber farming.
- Sea cucumber farmers can spend time for other income generated activities.

## **9. Risk assumption**

- No major changes of climate pattern
- Storm and heavy rain will be effected

## **E. Future plan of NARA**

NARA convened managerial level national stakeholder meeting on the “sustainable sea cucumber fisheries”. The participants included representatives from Ministry of Fisheries and Aquatic Resources Development, Department of Fisheries and Aquatic Resources, NAQDA, Sri Lanka Navy, Sri Lanka Customs, and FCS’s. A national coordination committee to prepare a guideline for sustainable sea cucumber fisheries is formed.

NARA has currently successfully completed breeding of sea cucumbers, and currently rearing the spats at its indoor hatchery facility at Kalpitya. NARA is willing to conduct fattening experimental studies at varies indoor and out door facilities.

NARA as its part of research activities is willing to continue the JICA’s fattening sites at Navanthurai, Mandaithivu and Gurunagar until the spats are matured enough for harvesting and beyond.

## **F. Business pan for sea cucumber fattening**

Actual mortality rate can not be estimated until the successful completion of harvesting, which is scheduled for March, 2012. Furthermore, growth rate is monitored until September 2011, i.e. for a period of four months only so far. The total period of fattening until ready for harvesting is estimated as ten months. Thus, without these data business plan may not be developed.

### **G. Strengths of sea cucumber fattening in Jaffna**

- a. Reasonably well organized FCS
- b. Perception of prospective additional income
- c. Willingness of DFAR/Jaffna to work together
- d. Direct marketing access and opportunity
- e. Existence of well established sea cucumber fishery in the area
- f. Current security environment
- g. FCS active engagement to solve user conflicts.
- h. Interactive participation of the JICA Study Team and scheduled follow up activities by the Team

### **H. Weaknesses of sea cucumber fattening in Jaffna**

- a. Lack/inadequate relevant back ground information on sea cucumber fishery/culture in Sri Lanka
- b. Lack of knowledge on spat available season.
- c. Miss information and perception on the spat/sea cucumber fishery
- d. Poor commitments/dedication of beneficiaries for pen construction and spat collection.
- e. Constrains working in the sea due to the security restrictions.
- f. Dependency mentality in community

### **I. Recommendation**

This is a first ever pilot sea cucumber fattening research project conducted in Sri Lanka. The Pilot Project is scheduled to commence in December 2010, however the project could be commenced in April 2011 with the availability of spats. The funding by the JICA Study Team comes to end by August 31, 2011, almost by the halfway through the activity. Thus, the growth rate, survival rate and impacts of environment and substrata on them could not be monitored until the harvesting, which is scheduled on March 2012. It results in ambiguity in cost and benefit analysis. Therefore, it is important that research studies of this Pilot Project continued until the harvesting.

1. The Pilot Project shall be formulated with the indigenous knowledge available with the fisher community
2. Pen size should be reduced to manageable size (15m X 15m)
3. In order to reduce the construction cost, locally available materials shall be used for pen construction
4. Suitable sites shall be identified and marked for sea cucumber farming
5. Prior to the implementation of the Pilot Project, all the relevant permission and clearance for the implementation of the project shall be obtained.
6. Possibility of poly-culture along with *Holothuria scabra* shall be explored (seaweed, prawns, rabbit fish etc)...
7. Design of pen has to be improved to prevent the escape of spats
8. Beneficiaries should aware on resource conservation and their experience should be sheared with other members of FCS

## **J. Acknowledgement**

We express our sincere thanks to Japan International Cooperation Agency (JICA) for their financial support to this project. We also extremely grateful to Dr. Kitamado, IC Net, Deputy Team Leader/ Fisheries Expert of Project for Development Planning (PDP) Jaffna for the necessary valuable guidance and Mr. K. Vasanthan and Ms. G. Nishanthy from the staff of PDP Jaffna for close coordination during the whole project period.

We also furnish our warmth thanks to Dr. Hiran W. Jayewardana, Chairman of National Aquatic Resources Research and Development Agency (NARA) and Ms. Nilmini Diyabedanage, Director General of National Aquatic Resources Research and Development Agency for their valuable guidance and encouragement

We also owe our heartfelt thanks and deep gratitude to Dr. K. Arulananthan, Director, Research and Development of National Aquatic Resources Research and Development Agency for his supervision, motivation, constant guidance, suggestions and support.

We must express our gratitude to Mr. R. Raveendran, Assistant Director and his staff of Department of Fisheries and Aquatic Resources (DFAR), Jaffna for his Assistance to community coordination in numerous ways.

We also wish to thanks Commander Perera, Area Commander of Sri Lanka Navy, Mandathivu for giving permission to work in the sea and his valuable support.

We also provide our special thanks to Mr. B. Rameshkanna and Mr. M. Rajenthiran, Fisheries Inspectors of DFAR for their coordination with community and organizing meetings with relevant stockholders and working as project coordinators of this project.

We give our special thanks to Mr. S. Kalairanjan, field officer of this project for giving his constant support to coordination with community and other relevant agencies, organizing meetings and doing data collection of the project.

Last but not least, we wish to thanks officials, members and beneficiaries of fisheries cooperative societies of the Navanthurai, Mandathivu and Gurunagar for their valuable contribution on implementation of the project and finalized the project successfully.

## **References**

Martoyo, J.S.M., Nugroho, A. & Winanto, T. 1994: Budidaya teripang. Penebar Swadaya. 69pp.

Steven W. Purcell & Matéo Simutoga 2008: Spatio-Temporal and Size-Dependent Variation in the Success of Releasing Cultured Sea Cucumbers in the Wild, Reviews in Fisheries Science, 16:1-3, 204-214

## K. Photograph Documentation



Initial awareness workshop at Gurunagar



Pen construction materials for Navanthurai supplied by Supply Division of NARA



Hand on training on pen construction to beneficiaries



Hand on training on pen construction to beneficiaries



Hand on training on pen construction to beneficiaries



Joint effort of Beneficiaries, NARA and JICA members for pen construction



Pen construction in progress at Navanthurai



Pen ready for stocking spats at Navanthurai



Pen construction in progress at Gurunagar



Pen construction in progress at Gurunagar



Pen ready for stocking spats at Gurunagar



Sand bags to hinder spats escaping and strengthening the pen at Mandathivu





Pen ready for stocking spats at Mandativu



Spats stored in a small cage within the Pen, prior to measurements



Spats – first collection, before the dawn of the day at Mandathivu



Collected spats from wild



Typical spat used for stoking



Spats releasing in to the pen



Size and weight measurement is in progress prior to stocking



Weighing spat - for growth monitoring



Ratification meeting at Mandativu



Ratification meeting at Gurunagar



Ratification meeting at Navanthurai



Reporting of progress at the JICA office/Jaffna



Leadership training for FCS officials



Training on capacity building



Cleaning of pen at Gurunagar



Monitoring of Growth Rate at Mandathivu



Taking measurements of salinity



Taking measurements of temperature



Taking sample for determine the survival rate



Growing Sand fish from pen at Mandathivu

## Annex 1

### List of Beneficiaries and Respective Basic Information

#### Gurunagar

Name of beneficiary	NIC No.	Victim of war (IDP)	Household head (M/F)	No. Of household
L R Stanislas	880402544 V	Yes	M	7
J Suresh	790076001 V	Yes	M	5
M A Macksalan	771633110 V	Yes	M	4
L R Juliyathas	781214248 V	Yes	M	7
S A Mohanathas	702602645 V	Yes	M	5
A Mariyathas	542253967 V	Yes	M	3
J O JRoxan	780864710 V	Yes	M	3
S S Premachandran	772733496 V	Yes	M	2

**Mandativu**

<b>Name of beneficiary</b>	<b>NIC No.</b>	<b>Victim of war (IDP)</b>	<b>Household head (M/F)</b>	<b>No. Of household</b>
A Soosaitas	811763748 V	Yes	M	5
A Kijomar	770124239 V	Yes	M	3
P R Fernando	780734388 V	Yes	M	4
A Kunasekaran	763194426 V	Yes	M	4
G Suventhiran	900800123 V	Yes	M	6
A Dalgithra	710154767 V	Yes	M	5
S Santhirapala	832223980 V	Yes	M	3
P P Jonpillai		Yes	M	4

**Navanthurai**

<b>Name of beneficiary</b>	<b>NIC No.</b>	<b>Victim of war (IDP)</b>	<b>Household head (M/F)</b>	<b>No. Of household</b>
M Kamalathas	761544195 V	No	M	5
J Remsi	731903689 V	No	M	6
S P Arulweriyan	782514822 V	Yes	M	4
M Ranathas	700464164 V	No	M	4
L Diksan	720384477 V	No	M	6
A J Jesudasan	860894319 V	No	M	6
K T Karinkar	740322206 V	Yes	M	4
L Mariyathas	521054107 V	No	M	4

## Pilot Project Completion Report

Name of the Pilot Project:	Introduction of Fish Aggregating Device (FAD) to Small-scale Fishermen
Pilot Project Code:	FC 04
Name of the Implementer:	PDP Jaffna with Kathkoyalam FCS
Pilot Project Site	Kathkoyalam, Point Pedro
Background	FAD is a new technique in Jaffna District though fishermen in the south often use it. The FAD enables to establish fishing ground near shore, effective to attract pelagic species, thus it must be suitable for the present coastal fisheries in the district to diversify fishing effort and target species with less consumption of fuel.
Objective	This pilot project aims at establishing effective fishing grounds for small scale fishermen, because they access the fishing grounds of FAD easily with less consumption of fuel and enjoy more effective fish catch.
Activities	<ol style="list-style-type: none"> <li>(1) Awareness program to coastal communities</li> <li>(2) Construction of the device</li> <li>(3) Installation of the device</li> <li>(4) Monitoring and evaluation of the effect</li> </ol>
Evaluation	<ol style="list-style-type: none"> <li>(1) Income generation: <ul style="list-style-type: none"> <li>- The Team could get only the spot information on income generation for beneficiaries of the FADs. One reason for it is due to difficulties in collecting written data from beneficiaries; another reason is the loss of both FADs within three months after the installation.</li> <li>- At the least, PDP Jaffna has verified that technically the FADs attract pelagic fish in the northern coast of Jaffna peninsula because the local fishermen caught 50 kg of giant trevally around the FADs, and this kind of fish is only available in the deep sea.</li> </ul> </li> <li>(2) Degree of empowerment as FCS: <ul style="list-style-type: none"> <li>- Beneficiary fishermen belonging to Kathkoyalam FCS have obtained new technique for construction and installation of FADs. Therefore, the FCS can install the FADs by themselves in the future.</li> <li>- The present problem is lack of consensus among fishermen in the broader area on a rule of using FADs. This kind of issue is beyond the capacity of one or several FCSes. The Team explained this FAD experience to representatives from FCSes belonging to Vadamarachchi North FCS Union during a workshop to share the lessons learned in order to promote further development.</li> </ul> </li> </ol>
Annex	Final Report prepared by PDP Jaffna, Fisheries Team

## **Final Report on Fish Aggregating Device (FAD) in Katkovalam**

**PDP Jaffna, Fisheries Team**

### **1. Ratification**

Initially we presented the total idea behind a FAD in the District Steering Committee meeting in August 2010. Based on that, we got the approval from the Government Agent, Jaffna. After that we have selected Satkoddai FCS, Thumpalai East FCS & Katkovalam FCS as candidate sites to install the FAD because those areas are facing deep-sea.

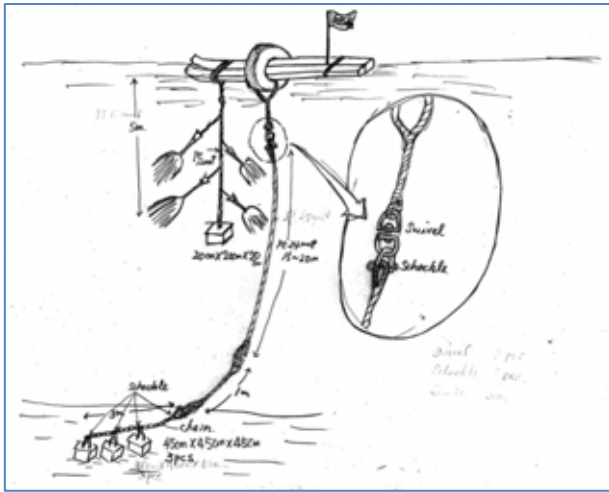
We conducted the ratification meeting in Fishermen's Cooperative Society Union, Vadamarachi North. Fishermen told that they used the surface drift net from 2km from the sea shore. It may entangle with the FAD. Then the Team said, "We can install the FAD in the water where fishermen do not cast their surface drift net (1.5km from the shore)". Then all the fishermen agreed to install the FAD in their water. Fishermen told that they had used this technique 10 years before. They used old car bodies & tree branches as shading materials and they caught much fish like tuna, cuttlefish & other fish species.

### **2. Selection of installation site**

Fishermen agreed to supply the Palmyrah leaves, abandoned kattamaran & other physical assistances. They are keen on the poor fishermen. They have selected some poor fishermen to use this FAD during the operation period. We have installed two FADs in Katkovalam water after getting the approval from all the fishermen of this FCS. In this area Beach seine net is the major fishing activity. They use this net 1km from the seashore. Then we planned to install the FAD nearly 1.5km from the sea shore. We recognized the location where we were going to install the FAD by using GPS coordinates.

### **3. Construction and installation**

We have constructed two sets of FAD on land side which structure is as shown in Figure 1, and installed them to the sea as far as 1.5km from the shore line by using FRP boat on 28 February 2011 (Photo 1-5).



**Figure 1: Modified FAD for Jaffna water**



**Photo 1: Instruction of Rope work**



**Photo 2: Structure of FAD**



**Photo 3: Installation of FAD**



**Photo 4: FAD on the Sea**



**Photo 5: Palmyrah leaves in the Sea**



#### 4. Effect of FAD

Twenty days after the FAD installation, one of beach seine net owners used his net around the FAD & caught 35 pieces of Paraw fish (giant trevally) as much as 50 kg in weight. He sold 50kg of the fish at LKR 20,000 in total. Usually they didn't catch this kind of Paraw fish in their beach seine net. Actually this fish catch is the effect of the FAD in this sea.

The Team started the test fishing operation 1.5 months after the installation. When we started the test operation on 22 April 2011, some of the fishermen had cut the palmyrah leaf maybe because the surface drift net was entangled with these leaves. Then fishermen cut the main rope of the palmyrah leaf. The Team attached the coconut leaf instead of palmyrah leaf on the same day. Six (06) coconut leaves were attached for each FAD.

The Team made the test operation four (4) times on 29 April, 02, 13 and 21 May 2011. Five members went to the FAD site by 18 feet FRP boat and caught the fish by using hand hook. The Team caught some fish around the FAD. Fishermen told that some mosses should grow on the coconut leaf, and then FAD may attract the fish. But the actual reason was that for more than three weeks the sea was rough condition, and due to this the sea was in turbid condition.



**Photo 6: Trial fishing operation at FAD**



**Photo7: Fish caught at FAD**

## **5. Loss of FAD**

The Team went to Katkoyalam site to catch the fish around FAD on 21 May 2011. We found that one FAD was disappeared. Fishermen in Katkoyalam told that fishermen from adjacent area caught fish around the FAD 3 days before. And fishermen in Katkoyalam scolded them saying “this is our FAD and you can't catch the fish around here.” Then those fishermen returned to their village. After that those fishermen from adjacent area might get angry and cut the FAD during night time.

Two days after that, we lost another FAD. The Team inquired the former president of Katkoyalam FCS, he told that fishermen who were living faraway from Katkoyalam area didn't know that the FADs were installed for test operation off Katkoyalam to introduce new technique for fishermen. When their surface drift net entangled with FAD, they cut it to remove their net safely without thinking anything about this FAD.

Fishermen searched the FAD in adjacent area but were unable to find it. Because the wind direction was towards Indian Ocean so the FAD may have washed away towards the deep sea.

## **6. Lesson learned**

- The Project has verified that technically FAD is attracting the fish in the northern coast of Jaffna District because the local fishermen caught 50kg of paraw fish around the FAD by means of their beach seine net. Actually in Point Pedro area these paraw fish is available only in the deep sea.
- The Project has learned that we have to solve the social issues among the neighboring FCSes in future to eliminate this kind of difficulty even though we get the ratification from the FCS members in several areas to install FAD with this kind of project in this area.
- Based on our analysis, there involves two kinds of dimensions in this issue as follows;

- 1) Even though the Team installs the FAD at the water as far as 1.5km from shore where fishermen inform not to cast drift net, the FAD likely entangles with their casting net. In order to solve this problem in the future, all the fishermen in the area should be acquainted with the installation of FAD and committed not to cast their net near the site.
- 2) Ownership of the FAD should be clarified and shared with fishermen in broader areas. Concerning fishermen should discuss how to use FADs installed at their water among the fishermen. In such discussion, a kind of system that outer fisherman can use the FAD to catch fish by paying rental fee to the owner fisherman of the FAD should be taken into consideration.

## Pilot Project Completion Report

Name of the Pilot Project:	Construction of Fish Auction Halls
Pilot Project Code:	FC 05
Name of the Implementer (Implementing Partner):	Sewalanka Foundation
Pilot Project Site	Kathkoyalam, Kachchai, Maravanpulo, Mandaithivu, Pungudutivu Center
Background	FCSes in Jaffna District have been weakened during prolonged internal conflict due to loss of human resources and infrastructure, and regaining of FCSes' capability is the key issue to put a fisheries development in the district into action.
Objective	The pilot project aims at activation of FCSes in Jaffna District which activities have weakened due to prolonged conflicts.
Activities	(1) Holding workshop to share member's interest and provide technical trainings. (2) Construction of fish auction halls and other necessary facilities for fish landing. (3) Assistance to activate the FCS's activities in relation to newly constructed facilities.
Evaluation	(1) Income generation: <b>At the beginning:</b> Income of FCSes is limited only to membership fee. <b>At the end:</b> The FCSes have an income source in operating and managing the fish auction halls, such as commission for weighing of landed fish. (2) Degree of empowerment as FCS: Executives of target FCSes have received a series of training sessions for capacity development, including responsibility of FCS, leadership, financial management, and community monitoring system. They learned how to talk in front of people, characteristics of leaders, and ideal leaders in the leadership training; modern policy of cooperative societies, how to access financial support, and laws & regulation in the training for responsibility of FCS and financial management. Training for financial management and responsibility of FCS must be practically useful for the empowerment of executives of FCSes.
Annex	(1) Final Presentation Minutes, Attendee's List and Presentation Panel (2) Final Report of the Pilot Project submitted by Sewalanka Foundation (with Annex 1 and 2) (3) Handing-over Certificate (4) Final Inspection Report with DFAR (5) Final Inspection Report with DFAR (after defect liability period)

**Final presentation minutes – Construction of Fish Auction Hall (FC: 5)**

Date: 02.10.2011

Time: 03:30 pm

Venue: Conference Hall- Sewalanka Foundation - Jaffna

Attendees: See attached

Mr.N.Nagulenthiran, District Program Coordinator, Sewalanka Foundation- Jaffna has submitted final presentation of Construction of Fish Auction Hall. Following question/discussion was held during the session.

Dr.T.Kitamado: What are the challenges you faced during the project cycle?

Mr.N.Nagulenthiran: At Katkoyalam earlier we made the agreement with old FCS. When we started the construction, new committee was elected. Both committees demanded to get the contract for construction. Ultimately we arranged the negotiation with both committees with Grama officer, PDP Jaffna representative and DFAR representative. At last we handed over the construction work for old society, thereafter, they handed over to the new society.

Mr.N.Nagulenthiran: Our partner organization SEDCO planned to purchase dry fish at reasonable price from Katkoyalam and Aathykovilady FCSs and would make another society pack properly to add the value. Then they will supply the packed dry fish to Cargles super market.

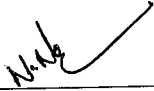
Dr.T.Kitamado: What did the beneficiaries obtained through exposure visit?

Mr.N.Nagulenthiran: They practically learned what they studied in capacity building program.

Dr.T.Kitamado: Please consider following facts in the final report.

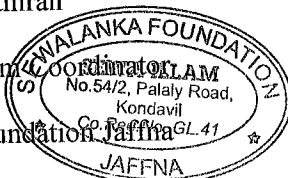
According to the last version of final report, you describe operation and maintenance of auction hall during the construction period. But operation and maintenance of auction hall should be after the construction of fish auction hall and facilities. You have mentioned that you provided this kind of training. Please write it accordingly. Please include the result of awareness programme on what the participants expressed at Allaipitty FCS.


Hereby we agree that we have discussed as above.

  
\_\_\_\_\_  
Mr.N.Nagulenthiran

District Program Coordinator

Sewalanka Foundation, Jaffna

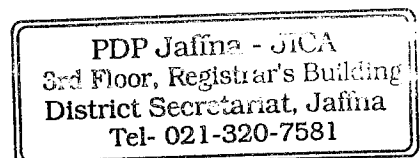


  
\_\_\_\_\_  
Dr.T.Kitamado

Deputy Team leader/ Fisheries

Development Expert


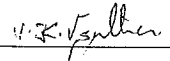
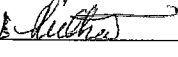
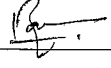



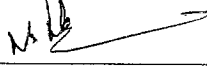
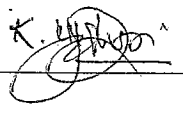
PDP Jaffna



## Attendees List of Final Presentation

Title of the Project: Seaweed Farming and construction of Fish  
 Venue: ~~Sewalanka Conference hall~~ ~~Question hall~~

Date & Time: 01-10-2011 2:30 pm

S.No.	Name	Designation	Signature
01	S. Ranganathan	Fisheries officer	
02	K. Vasanthan	Fish. Devt. Spec.	
03	E. Suthakar	Community Development Specialist	
04	B. Rameshkanna	District Fisheries Inspector	
05	T.M.A. Gurnatilake	Site Engineer-JICA	
06	M.S. Madanayake	Site Engineer	
07	G. Nishanth	Fish. Devt. Spe	
08	N. Nageshwaran	DPe. Sewalanka	
09	K. Kirithan	Project Coordinator	
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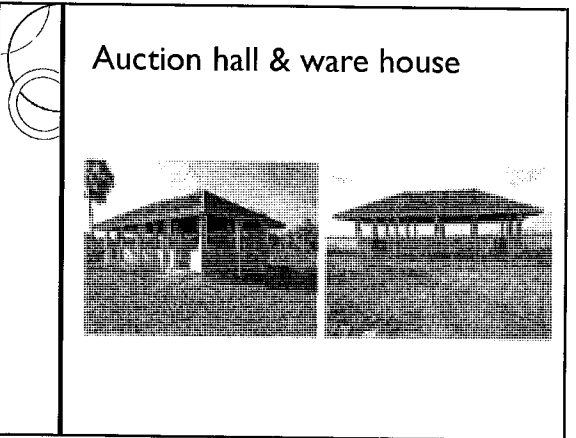
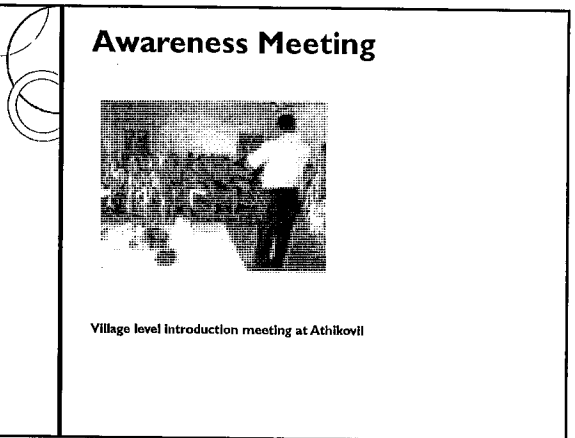
**Pilot Project of  
Construction of Fish Auction Halls for  
promoting activities of fishermen's  
cooperative societies in Jaffna district**

**Objective**  
to promote economic activities of the FCSs by construction and providing fishing auction hall and other necessary facilities for their fish production together with assistance for their sound management and effective utilization

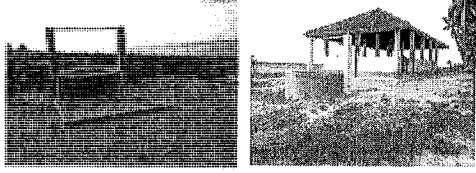
**Targeted group and location**

S.No	Dist. Division	Village P.P.
01	Pala-Petra	Kilbowala
02		Athikovil
03	Chankacholai	Kachchal
04		Marampalam
05	Jaffna	Colembalur
06		Mandabai
07	Velud	Athikovil
08		Punguvelu

- Planned Activities**
- Fishing Auction hall-05
  - Ware house -02
  - Well-02
  - Water tank-01
  - Capacity building -8 FCS



### Well & water tank

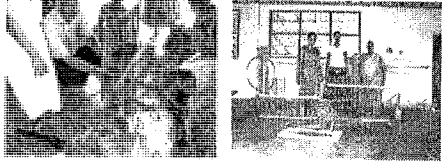


### Capacity Building

- Leadership
- Finance management
- ~~Community monitoring system~~
- Business management
- Communication skill
- Group communication for dynamic community
- Dry fish processing
- Making coir based product
- O&M
- Exposure visit

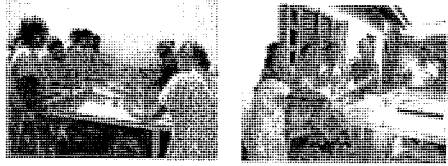
### Capacity building...

Training on Coir based product



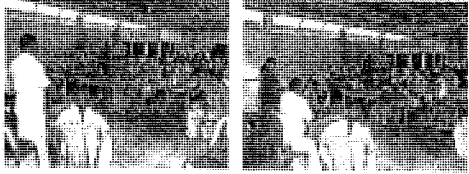
### Capacity building...

- Dry Fish making



### Capacity building...

- Exposure visit







# FINAL REPORT



ON

## PILOT PROJECT OF CONSTRUCTION OF FISH AUCTION HALLS FOR PROMOTING ACTIVITIES OF FISHERMEN'S COOPERATIVE SOCIETIES IN JAFFNA DISTRICT

UNDER

THE PROJECT FOR DEVELOPMENT PLANNING FOR THE RAPID PROMOTION OF  
RECONSTRUCTION AND DEVELOPMENT IN JAFFNA DISTRICT (PDP- JAFFNA)



**Implemented by:**

Sewalanka Foundation

54/2, Palaly Road, Kondavil, Jaffna

Telephone: - 021 222 8361, 021 745 1760

E mail: - [Jaffna@sewalanka.org](mailto:Jaffna@sewalanka.org)

**Project Summary:**

**Project Title:** Construction of Fish Auction Halls for Promoting Activities of Fishermen's Cooperative Societies in Jaffna district

**Selected Area:** Velanai DS division ( Pungudutivu, Mandativu, Allaipiddy), Chavakachcheri DS division (Kachchai, Maravanpulavu), Jaffna DS division (Columbuthurai), Point-Pedro DS division (Katkoyalam,Athikovilady)

**Implementing agency:** Sewalanka Foundation

**Project period:** March -August, 2011 (6 months)

**Objective:** Many fishermen in Jaffna District face with difficulties in getting the needed organizational support from their FCSes since many FCSes have lost their fisheries infrastructure during the past 30 years. If such fishermen can receive the organizational support from the FCSes, they would strengthen further their fishing activities. This pilot project aims to promote economic activities of the FCSes by construction and providing fishing auction hall and other necessary facilities for their fish production together with assistance for their sound management and effective utilization.

**Number of Beneficiary:** 1,456 Families

**Estimated cost:** LKR.12,902,000.00

# 1. Introduction

An internal conflict, which continued over twenty five years in Sri Lanka, disrupted livelihoods, results in a loss of productive assets, and damaged socio- economic infrastructures. This project was designed to support the fishing community to restore their living standard.

## 1.1 Output:

- a) Fish Auction hall and other necessary facilities are constructed at fish landing sites and provided to the targeted FCSes.
- b) The targeted FCSes acquire knowledge and techniques for operating, maintaining and managing the provided facilities.
- c) Member fishermen of the targeted FCSes promote their economic activities through the effective utilization of the provided facilities.
- d) Social inclusion in the fishing communities is promoted with improved opportunity of socio-economic activities of people with special need particularly targeting conflict affected widows.

## 1.2 Activities & Location

S.No	D.S. Division	Village/ FCS	Fish Auction Hall	Ware House	Well/ Water tank	Vocational Training	Capacity Building Training	O & M Training
01	Point-Pedro	Katkovalam	Yes	Yes	Yes	Yes	Yes	Yes
02		Athikovilady	-	-	-	Yes	Yes	-
03	Chavakachcheri	Kachchai	Yes	Yes	-	-	Yes	Yes
04		Maravanpulavu	Yes	-	Yes	Yes	Yes	Yes
05	Jaffna	Colombuthurai	-	-	-	Yes	Yes	
06	Velanai	Mandathivu	Yes	-	Yes	-	Yes	Yes
07		Allaipiddy	-	-	-	-	Yes	-
08		Pungudutivu	Yes	-	-	-	Yes	Yes

The table shows designed activities in selected villages

# 2. Methods

To strengthen FCS in selected village, their needs were identified. According to their needs, the Pilot Project implementation was designed with participatory way. Throughout the implementation, relevant stakeholders were linked with FCS to sustain the programme.

## 3. Results

### 3.1 Awareness Meeting

An awareness meeting was held in Sewalanka Training hall during March 2011 attended by Deputy Director of DFAR and his staff, District Programme Coordinator of Sewalanka and his staff, Representative of the JICA Study Team, Representative of Katkoyalam FCS, Kachchai FCS, Maravanpulavu FCS, Mandathivu FCS, Pungudutivu FCS, Allapiddy FCS, Arthikovil FCS, and Colombuthurai FCS



Village level awareness meeting were held with FCS members and the Representative of DFAR, Grama Niladaris, the JICA Study Team and Sewalanka. About 251 FCS members from 8 FCSes participated in this meeting.

The objectives of the awareness meetings are as follows;

- To elucidate the necessity and the modalities of this Pilot Project.
- To entertain ideas and suggestion from the beneficiaries for their total involvement and participation in the Pilot Project.
- To ensure reaping long term benefit derived out of this Pilot Project.

### 3.2 Construction Facilities

Construction of all required facilities have been completed on 22<sup>nd</sup> of September 2011 as per attached **Annex 1: Completion Notification of Construction Work.**

#### 3.2.1 Construction of Auction Hall

FCS members have no facilities to market their fish. They must go at least 5 KM by push bike to sell their caught fish and they had to spend at least 20 minutes to reach that place. Though they sold fish at that place, it also did not have any basic facilities for fish marketing. Villagers also face problem because they must go out side the village or depend on mobile fish sellers. Therefore auction halls were constructed to overcome these problems at Katkoyalam, Kachchai,

Maravanpulavu, Pungudutivu and Mandativu.



Maravanpulavu Auction Hall



Kachchai Auction Hall



Pungudutivu Auction Hall



Mandativu Auction Hall



Katkovalam Auction Hall

### 3.2.2 Construction of Ware House

Though fishermen are around the beach site, they had to walk at least 1KM to enter the sea by carrying out boat motor, fuel tank and so on. These things should be returned to their home back because there were no storage facilities for fishermen. Therefore, fishing community was supported with ware house at Katchai and Katkovalam.



Kachchai Ware house



Katkovalam Ware house

### 3.2.3 Construction of Well

To keep the market cleaned, well was constructed at Katkovalam and Maravanpulavu market.



Maravanpulavu Well



Katkovalam Well

### 3.2.4 Construction of Water Tank

To keep the market cleaned, water tank was installed at Mandativu Market



Water tank at Mandativu

As the selected societies did not possess lands and construction of buildings within 600 meters from the shore, it took long time to obtain required permission from the Coast Conservation Security Authority. Necessary approval from the Coast Conservation Authority for the construction of proposed facilities for the FCSes on land allocated by the Divisional Secretaries was received in June 2011. Approval for the construction of facilities for Mandathivu FCS at the revised site was received on July 13<sup>th</sup>.2011. Although due participation of the FCSes was found at the advent it was observed declining in the later stages. Again, significant improvement has been found at last.

### 3.3 Capacity Building Trainings

Need Assessment was conducted in 7 selected villages<sup>1</sup> to identify the needs, which are relevant to the capacity building. These needs were prioritized to implement in the village level capacity building programme.



Needs assessment at Athikovilady

In the Maravanpulavu village, there are 41 families with small number of members. They do not like coir fiber training. They do not prefer livelihood training for fishing trade. Due to the non-availability of raw materials which is due to the devastation of coconut plantation during the war, and due to the flooding of coir products in local market transported from the south, training on coir fiber products was declined by the beneficiaries.

<sup>1</sup> Allaipiddy FCS expressed not to join the capacity building training during the awareness meeting.

### 3.3.1 Leadership Training

Through these trainings they learned how they must select their leadership and conduct affairs of the society in future. Evaluation of the training is as per attached in **Annex 2**.

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	13.05.2011	30
02	Kachchai	03.04.2011	21
03	Maravanpulavu	02.04.2011	23
04	Colombuthirai	20.08.2011	21
05	Mandathivu	14.05.2011	27
06	Punguduthivu	21.05.2011	20
07	Athikovilady	16.08.2011	20
	<b>Total</b>		<b>162</b>

### 3.3.2 Finance Management

Proper accounts were not well organized in the societies. Certain societies were in possession of chits for receipts and payments. In this training they were trained to maintain accounts properly in formats and relevant specimen forms were also given for them to prepare accounts in future. Evaluation of the training is as per attached in **Annex 2**.



Financial management training at  
Colombuthurai

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	15.07.2011	26
02	Kachchai	17.07.2011	20
03	Maravanpulavu	11.08.2011	20
04	Columbuthurai	25.08.2011	20
05	Mandathivu	01.09.2011	18
06	Punguduthivu	17.08.2011	24
07	Athikovilady	30.06.2011	18
	<b>Total</b>		<b>146</b>

### 3.3.3 Community Monitoring System

This training was organized to develop community monitoring system within FCSes. Evaluation of the training is as per attached in **Annex 2**.



S.No	Village FCS	Date	No of Benefices
01	Katkovalam	19.07.2011	22
02	Kachchai	21.07.2011	26
03	Maravanpulavu	13 .08.2011	22
04	Columbuthurai	18.08.2011	21
05	Mandathivu	26.08.2011	16
06	Punguduthivu	09.07.2011	19
07	Athikovilady	03.07.2011	20
	<b>Total</b>		<b>146</b>

### 3.3.4 Operation and Maintains Plan

According to the discussion with participants, 5 members in a FCS will be responsible for O&M. A small amount of money will be collected from sellers and this money will be saved and book will be maintained separately. For cleaning or repairing purpose this money will be used. Relevant stakeholders are linked with FCS to get support.

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	05.08.2011	20
02	Kachchai	14.07.2011	58
03	Maravanpulavu	07.08.2011	17
04	Mandathivu	24.07.2011	26
05	Punguduthivu	19.08.2011	24
	<b>Total</b>		<b>145</b>

Engineers explained construction aspects from the foundation up to the roof level. It was also explained the problems usually encountered in wells as time goes on. Beneficiaries were also instructed regarding maintenance and suitable remedial measures to combat the shortcomings. Following this the first committee was elected for maintenance. About 145 members from 7 FCS participated in this training.

Long life of a building depends on careful construction and subsequent maintenance. For the effective maintenance it is very necessary to know the construction plan and details. For example in the roof work it is necessary to know the quality of tiles, distance between reapers, how the cement strip on roof is made etc. In the event of replacement of tiles unexpectedly damaged, knowledge on the laying of roof will facilitate it easy and avoid unnecessary expenditure.

#### **Foundation**

If the sand around the foundation is eroded due rain and wind and the foundation is visible it will weaken the foundation resulting in the whole building being affected. As such it is necessary to examine the perimeter of the foundation before the commencement of monsoon and rains.

#### **Pillars**

The roof of the building rests on the pillars. If the pillars are damaged the reinforcement will get corroded and result in serious consequences. Therefore cracks will have to be examined and action taken promptly to repair them to save the building.

**Walls**

The walls are protected by cement plaster covered with paint.

The plaster and paint get deteriorated due sand storms. Periodical maintenance repairs of the wall and painting will ensure long life.

**Roof**

Roof timber is coated with wood preservative. .When some portion of the wood is uncoated this may decay. Similarly the wire nails may corrode. The cement strips may dislodge due to heavy winds. Careful examination is necessary to avoid colossal damage.

**Floor**

The floor is liable to get damaged in the process auctioning of sea products keeping the engines, boxes and get worn out due to daily washing. It is very necessary to examine unexpected damage and cracks and take remedial steps for repairs.

**Door**

The fish auction hall is provided with wicket door of 3'height. Frequent usages exerting heavy force will render damages to the hinges and timber.

Similarly the windows too need careful handling and have to be painted periodically to save it from moisture. Windows stages will have been kept in good condition to prevent windows from slamming.

**Ram and Channels**

There is a possibility of these being damaged due to clogging of water. Bad smell will permeate if proper drainage is not ensured and it will cause health related problems.

**Well**

Sand should be heaped around the perimeter of the concrete apron wall. Proper drainage the water should be ensured and the path should be kept properly. The pillars should be examined for defect and repaired. Water must be drained and the well cleaned annually.

Evaluation of the training is as per attached in **Annex 2**.

### 3.3.5 Skill Training on Livelihood

#### 1) Dry Fish Processing Training

S.No	Village FCS	Date	No of Benefices
01	Athikovilady	04,05,10,11/07/2011 & 02.08.2011	20
02	Katkovalam	16,17,21,22/07/2011 & 01.08.2011	23
	<b>Total</b>		<b>43</b>

On the 1<sup>st</sup> day, 4 groups were formed to train modern dry fish processing and dry fish were processed according to the old methods.

On the 2<sup>nd</sup> and 3<sup>rd</sup> days, training was provided for processing dry fish according to new methods and dry fish processed in this method.

After the 3<sup>rd</sup> day, the samples were tasted and found that the dry fish prepared according to new method was superior in taste and weight and the new method was accepted.

On the final day, vide was shown on production of dry fish in the new system and packing and necessary inputs and equipment were given for on the job training.

Fish was supplied continuously and new method of dry fish processing was supervised. The processed dry fish was delivered to the beneficiaries and they sold it for good price.

Evaluation of the training is as per attached in **Annex 2**.



Training on dry fish

#### 2) Coir Fiber Making Training

New techniques in coir fiber trainings were afforded to Columbuturai FCS and members of WRDS. The following topics were covered under this training.

1. Brooms stick making in plastic covers.
2. Ekill broom making.
3. Rugs making (2-3 varieties)

4. Dying rope
5. Dying – New techniques using acids.
6. Rope making

Two groups were formed and given material for on the job training.



Training on Coir based



Equipment handed over to



Products, which are made by beneficiaries during the training

Evaluation of the training is as per attached in **Annex 2**.

### 3.3.6 Business Management

S.No	Village FCS	Date	No of Benefices
01	Athikovilady	17.06.2011	38
02	Kachchai	25.07.2011	20
03	Katkovalam	08,09,07.2011	25
04	Columbuthurai	05,11.08.2011	20
	<b>Total</b>		<b>103</b>

This training was provided according to their profession, when beneficiaries complained of less profit they were advised by the trainer to follow feasible methods including maintenance of profit

and less accounts for the successful business. The beneficiaries were happy and contented. Evaluation of the training is as per attached in **Annex 2**.

### 3.3.7. Communication Skill Training

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	04.08.2011	24
02	Kachchai	01.08.2011	20
03	Maravanpulavu	14.08.2011	21
04	Punguduthivu	14.08.2011	18
05	Athikovilady	05.08.2011	20
	<b>Total</b>		<b>103</b>

Evaluation of the training is as per attached in **Annex 2**.

### 3.3.8 Group Communication for Dynamic Community

The beneficiaries traumatized by the past incidents of war came forward to undergo training, mingling with others in society, with strong determination to resurrect their lives and live as normal citizens. It is a notable achievement that these trainings had resulted. Evaluation of the training is as per attached in **Annex 2**.

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	05,20/0511,1906/2011	22
02	Kachchai	24/05,01,17,23/06/2011	30
03	Maravanpulavu	22,23,27/06/2011	17
04	Columbuthurai	02,08,10/08/2011	17
05	Mandathivu	10,16,18/07/2011	14
06	Punguduthivu	18,30/06,03/07/2011	14
07	Athikovilady	27,31/05/2011,03,12/06/2011	30
	<b>Total</b>		<b>144</b>

### 3.3.9 Exposure Visit

Exposure visit was organized for selected FCS. Ambal FCS in Karainagar was selected to visit as it is leading and well functional cooperative society. 167 members from 7 FCSes visited this leading FCS. During this visits the president of the FCS explained their functions, how they developed, and what challenges they have faced. It was very much useful for the visited members. Their diverse activities and interlink activities of bank, tea shop, ice selling, dry fish making are the major concept they have learnt from them. Evaluation of the training is as per attached in **Annex 2**.



Exposure visit to Ambal FCS at Karainagar

S.No	Village FCS	Date	No of Benefices
01	Katkovalam	07.09.2011	30
02	Kachchai	06.09.2011	29
03	Maravanpulavu	06.09.2011	28
04	Columbuthurai	21.09.2011	20
05	Mandathivu	21.09.2011	15
06	Punguduthivu	21.09.2011	20
07	Athikovilady	07.09.2011	25
	<b>Total</b>		<b>167</b>

## 4. Conclusion and Recommendation

The facilities, which are given under this Pilot Project will support to the target communities to enhance the economic status. The capacity building trainings will support the living stranded to be sustainable. Skill training for women will support them to be self-dignity.

Marketing linkage and packing techniques have to be considered to sustain their income.

Availability of quality for the land at construction sites made us delay for the construction work, which were given to FCSes also delay due to their poor experience.



## SEWA LANKA FOUNDATION

Head Office : P.O Box No.03, 2<sup>nd</sup> Floor, No.452A, Colombo Road, Boralesgamuwa, Sri Lanka  
District Office : Sewallam, No.54/2, Palaly Road, Kondavil,  
Phone: 0217451760, 021 7451761 Fax :- 021222 8361,  
Email: jaffna@sewalanka.org Web: www.sewalanka.org Reg No: GL 41

28 September 2011

PDP Jaffna,  
3<sup>rd</sup> floor, Registrar's office building,  
Kachchery,  
Jaffna.

### Completion Notification of Construction Work

We are pleased to inform you that the Construction work for facilities mentioned below under a Pilot Project of Construction of Fish Auction Halls for Promoting Activities of Fishermen's Cooperative Societies in Jaffna district have been completed on 22 September 2011.

#### Facilities Completed:

- 1) Katkovalam
  - Fish Auction hall
  - Warehouse
  - Well
- 2) Kachchai
  - Fish Auction Hall
  - Warehouse
- 3) Maravanpulo
  - Fish Auction Hall
  - Well
- 4) Punkuduthivu Center
  - Fish Auction Hall
- 5) Mandaithivu
  - Fish Auction Hall
  - Water tank

Yours Faithfully,

  
Mr. K. Uthman,

Team Leader

Pilot Project for Construction of Fish Auction hall  
Sewalanka Foundation  
Jaffna

**Annex 2 of the Final Report****Evaluation of capacity development trainings****(1) Number of participants (Take from the record)**

Types of training	Responsibility of FCS/ Leadership	Financial management	Community monitoring system	Business Management	Communication skill
Katkovalam	30	26	22	25	24
Kachchai	21	20	26	20	20
Maravanpulavu	23	20	22		21
Columbuthurai	21	18	21	20	18
Mandathivu	27	18	16		26
Punguduthivu	20	24	19		18
Athikovilady	20	18	20	38	20

**(2) Quality of training (From interview with the participants)**

Types of training	Responsibility of FCS/ Leadership	Financial management	Community monitoring system	Business Management	Communication skill
Katkovalam	2	1	2	2	2
Kachchai	2	2	2	2	2
Maravanpulavu	3	3	3		2
Columbuthurai	3	2	3	2	3
Mandathivu	3	3	3		2
Punguduthivu	3	3	3		2
Athikovilady	2	2	3	2	2

(1: Excellent 2: Good, 3: Fine 4: Poor 5: Very poor)

**(3) Outcome/issues from the trainings (From interview with the participants and observation)**

Types of training	Responsibility of FCS/ Leadership	Financial management	Community monitoring system	Business Management	Communication skill
Katkovalam	Now they have knowlwdge on leadeship and leadership qualities. This is the first time the men had opportunity to	before they had complex financial system. Now they have knowledge and have seperate book keeping system	It is good for FCS and they have plan to monitor dry fish making too	Now they have idea how to make profit with seasonable variation.	Have knowledge on communication methods.
Kachchai	Had opportunity to participate the training. It is useful	It is useful to make saving in FCS and personal life.	They did not know, they have rights or responsibility to monitor. But now they have plan to monitor	Now they have idea and stratergy to make high profit	Have knowledge on communication methods.
Maravanpulavu	Supported to take leadrship roll	Now they have knowledge on book keeping.	They have good chance to participate this training		Have knowledge on to whom and how we communicate to get support
Columbuthurai	Have kowlege on leadership. Now young people also willing to take leadership roll	Have knowledge of saving & book keeping	They have monitoring system for coir based product	Now they have idea to make high profit in Coir based product	Have knowledge on to whom and how we communicate to get support
Mandathivu	It will support to run their FCS with vision	They did not have seperate records. Now they planned to have it because it is easy and transparent	Have knowledge on monitoring system.		Have knowledge on different type of communication eg. Internet. This knowledge will support to their personal life
Punguduthivu	As they new leaders in the FCS, it will be useful	New members, therefore it is very much useful to run the FCS	as they new members it will be useful for monitoring		Have knowledge on to whom and how we communicate to get support
Athikovilady	This training will support to work together and take leading roll, when they make dry fish as group	It is usefull to make saving and profit making when they involve in dry fish making	It is good for FCS and they have plan to monitor dry fish making too	Though they are doing business, they did not have any business stratergy to develop the business. Now they have idea to have it	Have knowledge on to whom and how we communicate to get support



**Annex 2 of the Final Report**

**Evaluation of capacity development trainings**

**(1) Number of participants (Take from the record)**

Types of training	Dry Fish Processing Training	Coir Fiber Making Train	Group communication for	O&M planning	Study Tour
Katkovalam	23		22	20	30
Kachchai			30	58	29
Maravanpulavu			17	17	28
Columbuthurai		18	17		20
Mandathivu			14	26	15
Punguduthivu			14	24	28
Athikovilady	20		30		25

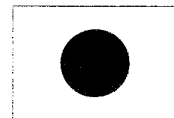
**(2) Quality of training (From interview with the participants)**

Types of training	Dry Fish Processing Training	Coir Fiber Making Train	Group communication for	O&M planning	Study Tour
Katkovalam	1		1	2	1
Kachchai			1	2	2
Maravanpulavu			3	2	2
Columbuthurai			3		1
Mandathivu			3	2	3
Punguduthivu			3	2	2
Athikovilady	1	1	1		1

(1: Excellent 2: Good, 3: Fine 4: Poor 5: Very poor)

**(3) Outcome/issues from the trainings (From interview with the participants and observation)**

Types of training	Dry Fish Processing Training	Coir Fiber Making Train	Group communication for	O&M planning	Study Tour
Katkovalam	They are using new technique for orders. But given materials are not sufficient (Atleast a set of equipments for 3 members)		Supported to manage the groups & collective actions, maintenance privacy and respect self dignity	Able to maintain their new buildinds/ groups are functioning well	From the learning they have plan to appoint a manager for their FCS
Kachchai			Supported to manage the groups	Able to maintain their new buildinds/ groups are functioning well	Have good experience
Maravanpulavu			Supported to manage the groups	Able to maintain their new buildinds/ groups are functioning well	Plan to work with objective
Columbuthurai			Supported to manage the groups		Experinec will support to strenght their group
Mandathivu			Supported to manage the groups	Able to maintain their new buildinds/ groups are functioning well	Have good experience
Punguduthivu			Supported to manage the groups	Able to maintain their new buildinds/ groups are functioning well.	As they new this experience wll support them
Athikovilady	They are using new technique for orders. But given materials are not sufficient (Atleast a set of equipments for 3 members)	Have new techni. And have equipments for make more product	Supported to manage the groups & collective actions		Plan to have paid manager



PROJECT FOR THE DEVELOPMENT PLANNING FOR  
THE RAPID PROMOTION OF RECONSTRUCTION  
AND DEVELOPMENT IN JAFFNA DISTRICT

**HANDING OVER CERTIFICATE**

<b>TITLE OF THE PILOT PROJECT</b>	: CONSTRUCTION OF FISH AUCTION HALLS TO ASSIST FISHERMEN'S COOPERATIVE SOCIETIES
<b>IMPLEMENTING PROJECT</b>	: PROJECT FOR THE DEVELOPMENT PLANNING FOR THE RAPID PROMOTION OF RECONSTRUCTION AND DEVELOPMENT IN JAFFNA DISTRICT (PDP-JAFFNA)
<b>HANDING OVER TO</b>	: DEPARTMENT OF FISHERIES & AQUATIC RESOURCES - JAFFNA DISTRICT
<b>CONTRACT VALUE</b>	: SRI LANKAN RUPEES 12,902,000.00
<b>CONTRACT PERIOD</b>	: 7 MONTHS
<b>COMMENCEMENT DATE</b>	: 03 <sup>RD</sup> MARCH 2011
<b>COMPLETION DATE</b>	: 30 <sup>TH</sup> SEPTEMBER 2011
<b>IMPLEMENTING PARTNER</b>	: SEWA LANKA FOUNDATION JAFFNA
<b>LOCATED AT</b>	: > DISTRICT : JAFFNA > D.S. DIVISION : CHAVAKACHCHERY, POINT PEDRO AND VELANAI > G.N. DIVISION : KACHCHAI J/324 MARAVANPULO J/298 KATKOVALAM J/406 MANDAITHIVU SOUTH J/09 PUNGUDUTHIVU SOUTH J/26

A construction of Fish Auction Halls mentioned above has been completed under PDP-Jaffna with the assistance of Japan International Cooperation Agency (JICA). These Fish Auction Halls are handed over on 30<sup>th</sup> September 2011 to Department of Fisheries & Aquatic Resources-Jaffna District by PDP Jaffna. The Fishermen's Cooperative Societies concerned shall be fully responsible for the operation and maintenance of the granted auction halls under the supervision of the Department of Fisheries & Aquatic Resources-Jaffna District.

Handing Over

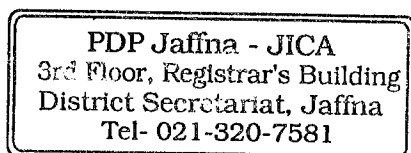
**Mr. Hiroaki YONESAKA**

Team Leader  
JICA Study Team, PDP Jaffna  
Acting for and on behalf of  
Japan International Cooperation Agency  
Japan

Taking Over

**Mr. R. Raveenthiran**

Assistant Director  
Department of Fisheries & Aquatic Resources  
Jaffna District  
Democratic Socialist Republic of Sri Lanka  
Sri Lanka



*R. Raveenthiran*  
Assistant Director  
Dept. of Fisheries & A.R  
Jaffna

**FINAL INSPECTION REPORT****WITH DFAR**

Date: 29<sup>th</sup> September 2011  
 Time: 10.00 am  
 Venue: Fish auction hall site, Katkoyalam

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	Dr. T. Kitamado	Deputy Team Leader	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	T.M.A. Gunatilake	Site Engineer	JICA Study Team
5.	S. Madanayaka	Site Engineer	JICA Study Team
6.	K. Puvanathayatharan	Engineer	JICA Study Team
7.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
8.	K. Jeyathas	Development Asst.	DS Office, Point Pedro
9.	A. Ramanarajah	Secretary	FCS, Katkoyalam

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed

Fisheries FC5 Annex 3

4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Warehouse**

Item	Satisfactory or not/Comments
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Windows	Satisfactorily Completed
8. Door	Satisfactorily Completed
9. Valance Board	Satisfactorily Completed
10. PVC Gutters and Down pipes	Satisfactorily Completed
11. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
12. Roof timbers	Satisfactorily Completed
13. Machine Hanging Boards	Satisfactorily Completed

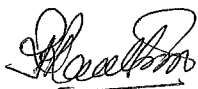
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Well**

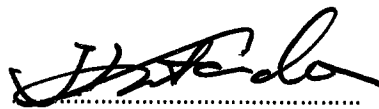
Item	Satisfactory or not/Comments
1. Size (6.0 ft diameter)	Satisfactorily Completed
2. Depth	Satisfactorily Completed
3. 4" Concrete Block wall	Satisfactorily Completed
4. Outside Plaster	Satisfactorily Completed
5. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Columns	Satisfactorily Completed
7. 2" GI Pipe	Satisfactorily Completed
8. Pulley	Satisfactorily Completed
9. Apron	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran  
Asst. Director  
Department of Fisheries &  
Aquatic Resources



Dr. T. Kitamado  
Deputy Team Leader  
JICA Study Team  
PDP - Jaffna



K. Ujjithan  
Project Coordinator  
Sewa Lanka Foundation

**FINAL INSPECTION REPORT****WITH DFAR**

Date: 30<sup>th</sup> September 2011  
 Time: 11.25 am  
 Venue: Fish auction hall site, Mandathivu

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	Dr. T. Kitamado	Deputy Team Leader	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	T.M.A. Gunatilake	Site Engineer	JICA Study Team
5.	S. Madanayaka	Site Engineer	JICA Study Team
6.	K. Puvanathayatharan	Engineer	JICA Study Team
7.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
8.	P. Gnanapandithan	Technical Officer	DS Office, Velanai
9.	K.Sahayanathan	President	FCS, Mandathivu

**2.0 Descriptions****Fish auction hall**

<u>Item</u>	<u>Satisfactory or not/Comments</u>
1. Ramp and Drain	Satisfactorily Completed

Fisheries FC5 Annex 3

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Water Tank**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed
2. Rubble wall	Satisfactorily Completed
3. Outside plaster for rubble wall	Satisfactorily Completed
4. 5" Concrete Block wall	Satisfactorily Completed
5. Outside Plaster	Satisfactorily Completed
6. Inside Plaster	Satisfactorily Completed
7. RCC Cover slab	Satisfactorily Completed
8. RCC Lid	Satisfactorily Completed

9. water taps	Satisfactorily Completed
10. Washout	Satisfactorily Completed
11. Inlet and Overflow	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran  
 Asst. Director  
 Department of Fisheries &  
 Aquatic Resources



Dr. T. Kitamado  
 Deputy Team Leader  
 JICA Study Team  
 PDP - Jaffna



K. Ujithan  
 Project Coordinator  
 Sewa Lanka Foundation



**FINAL INSPECTION REPORT****WITH DFAR**

Date: 29<sup>th</sup> September 2011  
 Time: 12.45pm  
 Venue: Fish auction hall site, Maravanpulo

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	Dr. T. Kitamado	Deputy Team Leader	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	T.M.A. Gunatilake	Site Engineer	JICA Study Team
5.	S. Madanayaka	Site Engineer	JICA Study Team
6.	K. Puvanathayatharan	Engineer	JICA Study Team
7.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
8.	S.Sriskantharajah	Development Asst.	DS Office, Chavakachcheri
9.	V.Amirthalingam	Secretary	FCS, Maravanpulo

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

### Well

Item	Satisfactory or not/Comments
1. Size (6.0 ft diameter)	Satisfactorily Completed
2. Depth	Satisfactorily Completed
3. 4" Concrete Block wall	Satisfactorily Completed
4. Outside Plaster	Satisfactorily Completed
5. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Columns	Satisfactorily Completed
7. 2" GI Pipe	Satisfactorily Completed

8. Pulley	Satisfactorily Completed
9. Apron	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by





R. Raveenthiran

Dr. T. Kitamado

K. Ujjithan

Asst. Director

Deputy Team Leader

Project Coordinator

Department of Fisheries &  
Aquatic Resources

JICA Study Team  
PDP - Jaffna

Sewa Lanka Foundation

**FINAL INSPECTION REPORT****WITH DFAR**

Date: 30<sup>th</sup> September 2011  
 Time: 10.00 am  
 Venue: Fish auction hall site, Pungudathivu

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	Dr. T. Kitamado	Deputy Team Leader	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	T.M.A. Gunatilake	Site Engineer	JICA Study Team
5.	S. Madanayaka	Site Engineer	JICA Study Team
6.	K. Puvanathayatharan	Engineer	JICA Study Team
7.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
8.	P. Gnanapandithan	Technical Officer	DS Office, Velanai
9.	A.Pathmarajan	President	FCS, Pungudathivu


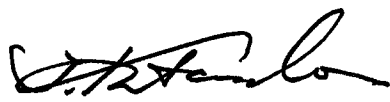
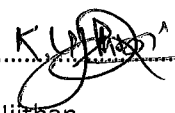
**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by

		
.....	.....	.....
R. Raveenthiran	Dr. T. Kitamado	K. Ujithan
Asst. Director	Deputy Team Leader	Project Coordinator
Department of Fisheries & Aquatic Resources	JICA Study Team	Sewa Lanka Foundation
	PDP - Jaffna	

**FINAL INSPECTION REPORT****WITH DFAR**

Date: 29<sup>th</sup> September 2011  
 Time: 12.05 pm  
 Venue: Fish auction hall site, Kachchai

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	Dr. T. Kitamado	Deputy Team Leader	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	T.M.A. Gunatilake	Site Engineer	JICA Study Team
5.	S. Madanayaka	Site Engineer	JICA Study Team
6.	K. Puvanathayatharan	Engineer	JICA Study Team
7.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
8.	S.Sriskantharajah	Development Asst.	DS Office, Chavakachcheri
9.	S. Kugarajan	Secretary	FCS, Kachchai

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

Fisheries FC5 Annex 3

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Warehouse**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Windows	Satisfactorily Completed
8. Door	Satisfactorily Completed
9. Valance Board	Satisfactorily Completed
10. PVC Gutters and Down pipes	Satisfactorily Completed
11. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed


12. Roof timbers	Satisfactorily Completed
13. Machine Hanging Boards	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**


Agreed and Signed by



.....  
 R. Raveenthiran  
 Asst. Director  
 Department of Fisheries &  
 Aquatic Resources



.....  
 Dr. T. Kitamado  
 Deputy Team Leader  
 JICA Study Team  
 PDP - Jaffna



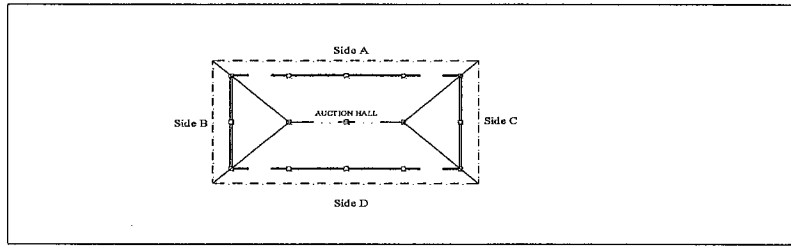
.....  
 K. Ujithan  
 Project Coordinator  
 Sewa Lanka Foundation



Fisheries FC5 Annex 3

**HANDING OVER**

FISH AUCTION HALL - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
1	Ramp & Drain	29/09		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

*nc*  
..... Date .....

Asst. Director (DFAR)

*[Signature]*  
..... Date 29/09/2011

*Sur* Technical Officer (DS Office)

*[Signature]*  
..... Date 29/09/2011

Contractor (Sewa Lanka Foundation)

*[Signature]*  
..... Date 29/09/2011

FCS

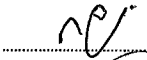
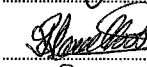
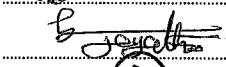
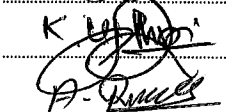

*[Signature]*  
..... Date 29/09/2011

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

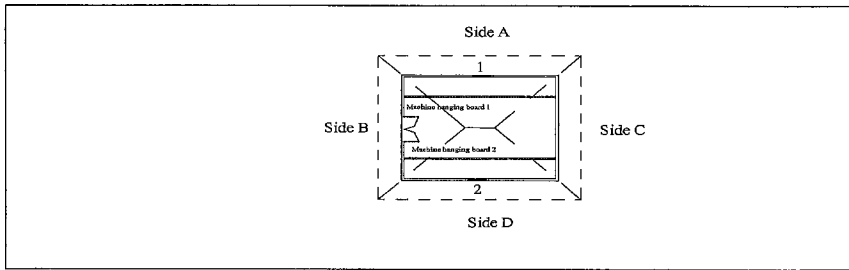
Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)		Date 29/09/2011
Asst. Director (DFAR)		Date 29/09/2011
for Technical Officer (DS Office)		Date 29/09/2011
Contractor (Sewa Lanka Foundation)		Date 29/09/2011
FCS		Date 29/09/2011

**HANDING OVER**

WARE HOUSE - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
		29/09		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Windows			
	No.1	✓		
	No.2	✓		
8	Door	✓		
9	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend  
 Accept ✓  
 Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011  
 Asst. Director (DFAR) ..... Date 29/09/2011  
 Technical Officer (DS Office) ..... Date 29/09/2011  
 Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011  
 FCS ..... Date 29/09/2011

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
10	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
12	Roof Timbers	✓		
13	Machine Hanging Board 1	✓		
14	Machine Hanging Board 2	✓		
15	Floor Rendering	✓		
16	Site Clearing	✓		

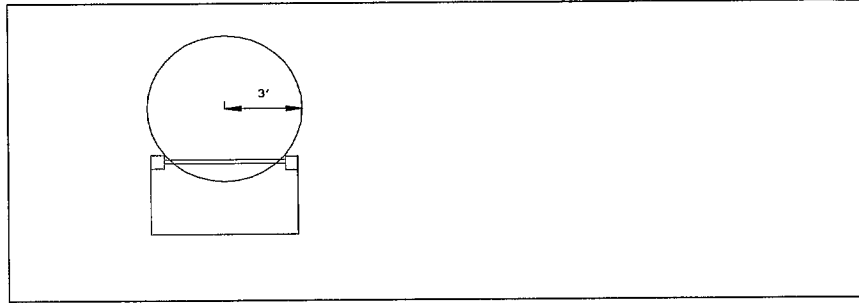
Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011  
 Asst. Director (DFAR) ..... Date 29/09/2011  
 for Technical Officer (DS Office) ..... Date 29/09/2011  
 Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011  
 FCS ..... Date 29/09/2011

**HANDING OVER**

WELL - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
1	Size ( 6' dia)	✓		
2	Depth	✓		
3	4" Concrete Black wall	✓		
4	Out side Plaster	✓		
5	Inside Plaster	✓		
6	Columns	✓		
7	2" GI Pipe	✓		
8	Pulley	✓		
9	Apron	✓		

**Legend**

Accept ✓

Not Accept X

JICA Study Team (PDP Jaffna)

..... Date 29/09/2011

Asst. Director (DFAR)

..... Date 29/09/2011

per Technical Officer (DS Office)

..... Date 29/09/2011

Contractor (Sewa Lanka Foundation)

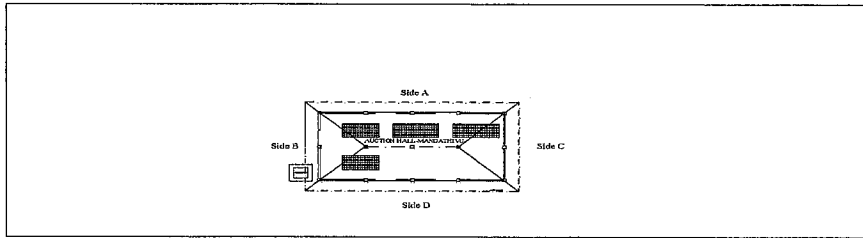
..... Date 29/09/2011

FC5

..... Date 29/09/2011

**HANDING OVER**

FISH AUCTION HALL - MANDATHIVU



No.	Item	Inspection date	Re-Inspection date	Comments
		30/09		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side B	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

Date 30/09/2011

Asst. Director (DFAR)

Date 30/09/2011

Technical Officer (DS Office)

Date 30/09/2011

Contractor (Sewa Lanka Foundation)

Date 30/09/2011

FCS

*[Handwritten signature]*

30/09/2011

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
		30/09		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Concrete benches			
	Wall	✓		
	Plaster	✓		
	Tile	✓		
12	Roof Timbers	✓		
13	Inside Column plaster	✓		
14	Inside Column paint	✓		
15	Floor Rendering	✓		
16	Site Clearing	✓		

Legend  
 Accept ✓  
 Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 30/09/2011

Asst. Director (DFAR) ..... Date 30/09/2011

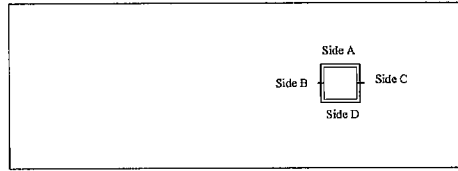
Technical Officer (DS Office) ..... Date 30/09/2011

Contractor (Sewa Lanka Foundation) ..... Date 30/09/2011

FCS ..... Date 30/09/2011

**HANDING OVER**

**WATER TANK - MANDATHIVU**



No.	Item	Inspection date	Re-Inspection date	Comments
		30/09		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	Rubble wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster for Rubble wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	RCC Cover slab	✓		
8	RCC Lid	✓		
9	Water taps	✓		
10	Wash out	✓		
11	Inlet and Over flow	✓		

Legent

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

..... Date 30/09/2011

Asst. Director (DFAR)

..... Date 30/09/2011

Technical Officer (DS Office)

..... Date 30/09/2011

Contractor (Sewa Lanka Foundation)

..... Date 30/09/2011

FCS

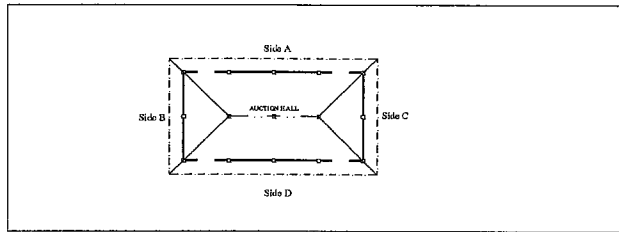
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D. S. ...

30/09/2011



**HANDING OVER**

FISH AUCTION HALL - MARAVANPULO



No.	Item	Inspection date	Re-inspection date	Comments
		29/09		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

*[Signature]* Date 29/09/2011

Asst. Director (DFAR)

*[Signature]* Date 29/09/2011

Technical Officer (DS Office)

*[Signature]* Date 29/09/2011

Contractor (Sewa Lanka Foundation)

*[Signature]* Date 29/09/2011

FCS

*[Signature]* 29/09/2011

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

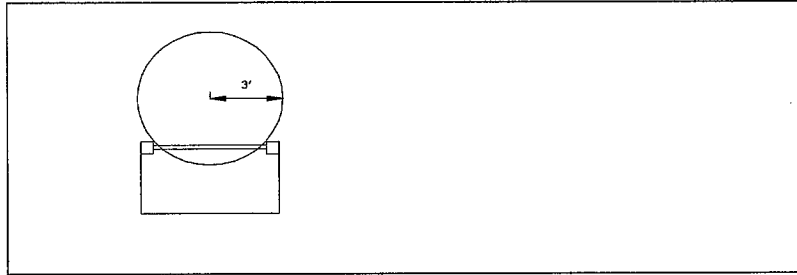
Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011  
 Asst. Director (DFAR) ..... Date 29/09/2011  
 Technical Officer (DS Office) ..... Date 29/09/2011  
 Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011  
 FCS ..... Date 29/09/2011

**HANDING OVER**

WELL - MARAVANPULO



No.	Item	Inspection date	Re-Inspection date	Comments
1	Size ( 6' dia)	✓		
2	Depth	✓		
3	4" Concrete Black wall	✓		
4	Out side Plaster	✓		
5	Inside Plaster	✓		
6	Columns	✓		
7	2" GI Pipe	✓		
8	Pulley	✓		
9	Apron	✓		

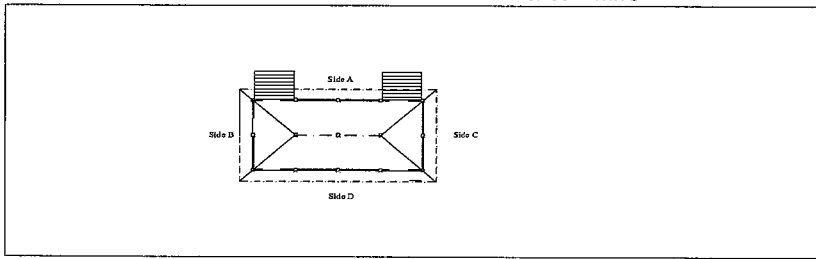
**Legent**

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011  
 Asst. Director (DFAR) ..... Date 29/09/2011  
 Technical Officer (DS Office) ..... Date 29/09/2011  
 Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011  
 FCS ..... Date 29/09/2011

**HANDING OVER**

FISH AUCTION HALL - PUNGUDATHIVU



No.	Item	Inspection date	Re-Inspection date	Comments
1	Ramp & Drain	30/09		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

Date 30/09/2011

Asst. Director (DFAR)

Date 30/09/2011

Technical Officer (DS Office)

Date 30/09/2011

Contractor (Sewa Lanka Foundation)

Date 30/09/2011

FCS

A. P. Thoma Rajan

30/09/2011

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
		30/09		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Main steps			
	Left	✓		
	Right	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 30/09/2011

Asst. Director (DFAR) ..... Date 30/09/2011

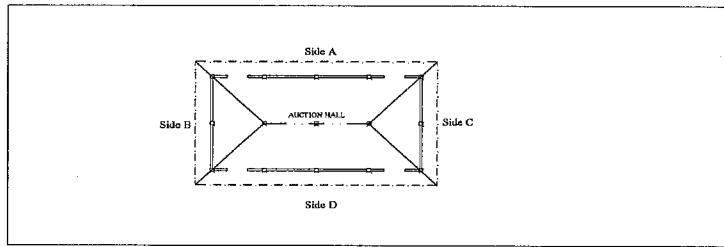
Technical Officer (DS Office) ..... Date 30/09/2011

Contractor (Sewa Lanka Foundation) ..... Date 30/09/2011

FCS A. P. Perera R. Jayar. 30/09/2011

**HANDING OVER**

FISH AUCTION HALL - KACHCHAI



No.	Item	Inspection date	Re-Inspection date	Comments
		29/09		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

..... Date 29/09/2011

Asst. Director (DFAR)

..... Date 29/09/2011

Technical Officer (DS Office)

..... Date 29/09/2011

Contractor (Sewa Lanka Foundation)

..... Date 29/09/2011

FCS

S. Sugavanan

Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-Inspection date	Comments
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Incl. Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011

Asst. Director (DFAR) ..... Date 29/09/2011

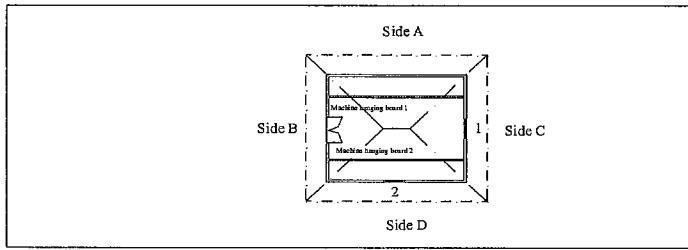
Technical Officer (DS Office) ..... Date 29/09/2011

Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011

ICS ..... S. Kugarasena ..... 29/09/2011

**HANDING OVER**

WARE HOUSE - KACHCHAI



No.	Item	Inspection date	Re-Inspection date	Comments
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
7	Windows			
	No.1	✓		
8	Door			
	No.2	✓		
9	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**  
 Accept ✓  
 Not Accept X

JICA Study Team (PDP Jaffna) ..... Date 29/09/2011  
 Asst. Director (DFAR) ..... Date 29/09/2011  
 Technical Officer (DS Office) ..... Date 29/09/2011  
 Contractor (Sewa Lanka Foundation) ..... Date 29/09/2011  
 FES S'Kugara Sam 29/09/2011



Fisheries FC5 Annex 3

No.	Item	Inspection date	Re-inspection date	Comments
10	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
12	Roof Timbers	✓		
13	Machine Hanging Board 1	✓		
14	Machine Hanging Board 2	✓		
15	Floor Rendering	✓		
17	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

JICA Study Team (PDP Jaffna)

*[Signature]*

Date 29/09/2011

Asst. Director (DFAR)

*[Signature]*

Date 29/09/2011

Technical Officer (DS Office)

*[Signature]*

Date 29/09/2011

Contractor (Sewa Lanka Foundation)

*[Signature]*

Date 29/09/2011

FCS

S. Kugayasaen

29/09/2011

**FINAL INSPECTION REPORT(AFTER DEFECT LIABILITY PERIOD)****WITH DFAR**

Date: 22<sup>nd</sup> October, 2011  
 Time: 15.30 PM  
 Venue: Fish auction hall site, Pungudathivu

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	KAORI Usami	Project Coordinator	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	S. Madanayaka	Site Engineer	JICA Study Team
5.	K. Puvanathayatharan	Engineer	JICA Study Team
6.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
7.	P. Gnanapandithan	Technical Officer	DS Office, Velanai
8.	A.Pathmarajan	President	FCS, Pungudathivu

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran

Asst. Director

Department of Fisheries &  
Aquatic Resources

*R. Raveenthiran*  
Assistant Director  
Dept. of Fisheries & A.R  
Jaffna



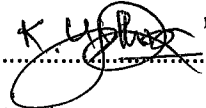
for

Dr. T. Kitamado

Deputy Team Leader

JICA Study Team

PDP - Jaffna



K. Ujithan

Project Coordinator

Sewa Lanka Foundation

**FINAL INSPECTION REPORT(AFTER DEFECT LIABILITY PERIOD)****WITH DFAR**

Date: 22<sup>nd</sup> October, 2011  
 Time: 12.05 pm  
 Venue: Fish auction hall site, Kachchai

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	KAORI Usami	Project Coordinator	JICA Study Team
3.	K.Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	S.Madanayake	Site Engineer	JICA Study Team
5.	K.Puvanathayatharan	Engineer	JICA Study Team
6.	K,Ujithan	Project Coordinator	Sewa lanka Foundation
7.	R.Rahunathan	Asst. Director	DS Office,Chavakachcheri
8.	S. Kugarajan	Secretary	FCS, Kachchai

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Warehouse**

Item	Satisfactory or not/Comments
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Windows	Satisfactorily Completed
8. Door	Satisfactorily Completed
9. Valance Board	Satisfactorily Completed
10. PVC Gutters and Down pipes	Satisfactorily Completed
11. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed

12. Roof timbers	Satisfactorily Completed
13. Machine Hanging Boards	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran

Asst. Director

Department of Fisheries &  
Aquatic Resources

**R. Raveenthiran**  
**Assistant Director**  
**Dept. of Fisheries & A.R.**  
**Jaffna**

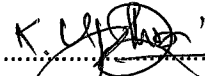


for Dr. T. Kitamado

Deputy Team Leader

JICA Study Team

PDP - Jaffna



K. Ujithan

Project Coordinator

Sewa Lanka Foundation

**FINAL INSPECTION REPORT(AFTER DEFECT LIABILITY PERIOD)**  
**WITH DFAR**

Date: 22<sup>nd</sup> October, 2011  
 Time: 10.00 am  
 Venue: Fish auction hall site, Katkovalam

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	KAORI Usami	Project Coordinator	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	S. Madanayaka	Site Engineer	JICA Study Team
5.	K.Puvanathayatharan	Engineer	JICA Study Team
6.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
7.	K. Jeyathas	Development Asst.	DS Office, Point Pedro
8.	A. Ramanarajah	Secretary	FCS, Katkovalam

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed

3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

### Warehouse

Item	Satisfactory or not/Comments
1. Ramp and Drain	Satisfactorily Completed
2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Windows	Satisfactorily Completed
8. Door	Satisfactorily Completed
9. Valance Board	Satisfactorily Completed
10. PVC Gutters and Down pipes	Satisfactorily Completed
11. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
12. Roof timbers	Satisfactorily Completed



13. Machine Hanging Boards	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

**Well**

Item	Satisfactory or not/Comments
1. Size (6.0 ft diameter)	Satisfactorily Completed
2. Depth	Satisfactorily Completed
3. 4" Concrete Block wall	Satisfactorily Completed
4. Outside Plaster	Satisfactorily Completed
5. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Columns	Satisfactorily Completed
7. 2" GI Pipe	Satisfactorily Completed
8. Pulley	Satisfactorily Completed
9. Apron	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran

Asst. Director

Department of Fisheries &  
Aquatic Resources

**R. Raveenthiran**  
Assistant Director  
Dept. of Fisheries & A.R.  
Jaffna

宇佐美 香織

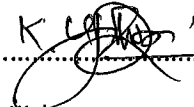
for

Dr. T. Kitamado

Deputy Team Leader

JICA Study Team

PDP- Jaffna



K. Ujithan

Project Coordinator

Sewa Lanka Foundation

**FINAL INSPECTION REPORT(AFTER DEFECT LIABILITY PERIOD)****WITH DFAR**

Date: 22<sup>nd</sup> October,2011  
 Time: 12.45 pm  
 Venue: Fish auction hall site, Maravanpulo

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	KAORI Usami	Project Coordinator	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	S. Madanayaka	Site Engineer	JICA Study Team
5.	K. Puvanathayathara	Engineer	JICA Study Team
6.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
7.	R.Rahunathan	Asst. Director	DS Office, Chavakachcheri
8.	V.Amirthalingam	Secretary	FCS, Maravanpulo

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

### Well

Item	Satisfactory or not/Comments
1. Size (6.0 ft diameter)	Satisfactorily Completed
2. Depth	Satisfactorily Completed
3. 4" Concrete Block wall	Satisfactorily Completed
4. Outside Plaster	Satisfactorily Completed
5. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Columns	Satisfactorily Completed
7. 2" GI Pipe	Satisfactorily Completed

8. Pulley	Satisfactorily Completed
9. Apron	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



R. Raveenthiran

Asst. Director

Department of Fisheries &  
Aquatic Resources

**R. Raveenthiran**  
**Assistant Director**  
**Dept. of Fisheries & A.R**  
**Jaffna**



for

Dr. T. Kitamado

Deputy Team Leader

JICA Study Team

PDP - Jaffna



K. Ujithan

Project Coordinator

Sewa Lanka Foundation

**FINAL INSPECTION REPORT(AFTER DEFECT LIABILITY PERIOD)****WITH DFAR**

Date: 22<sup>nd</sup> October, 2011  
 Time: 14.15 pm  
 Venue: Fish auction hall site, Mandathivu

**1.0 Attendance:**

	<u>Name</u>	<u>Position</u>	<u>Organization</u>
1.	R. Raveenthiran	Asst. Director	Department of Fisheries and Aquatic Resources
2.	KAORI Usami	Project Coordinator	JICA Study Team
3.	K. Vasanthan	Fish.Develop.Specialist	JICA Study Team
4.	S.Madanayake	Site Engineer	JICA Study Team
5.	K. Puvanathayathan	Engineer	JICA Study Team
6.	K. Ujithan	Project Coordinator	Sewa Lanka Foundation
7.	P. Gnanapandithan	Technical Officer	DS Office, Velanai
8.	K.Sahayanathan	President	FCS Mandathivu

**2.0 Descriptions****Fish auction hall**

<b>Item</b>	<b>Satisfactory or not/Comments</b>
1. Ramp and Drain	Satisfactorily Completed

2. 4" Concrete Block wall	Satisfactorily Completed
3. Outside Plaster	Satisfactorily Completed
4. Inside Plaster	Satisfactorily Completed
5. Outside Paint	Satisfactorily Completed
6. Inside Paint	Satisfactorily Completed
7. Wicket Gate	Satisfactorily Completed
8. Valance Board	Satisfactorily Completed
9. PVC Gutters and Down pipes	Satisfactorily Completed
10. Roof tile (Including ridge and hip tiles)	Satisfactorily Completed
11. Roof timbers	Satisfactorily Completed
12. Inside column plaster	Satisfactorily Completed
13. Inside column paint	Satisfactorily Completed
14. Floor Rendering	Satisfactorily Completed
15. Site clearing	Satisfactorily Completed

### Water Tank

Item	Satisfactory or not/Comments
1. Ramp and Drain	Satisfactorily Completed
2. Rubble wall	Satisfactorily Completed
3. Outside plaster for rubble wall	Satisfactorily Completed
4. 5" Concrete Block wall	Satisfactorily Completed
5. Outside Plaster	Satisfactorily Completed
6. Inside Plaster	Satisfactorily Completed
7. RCC Cover slab	Satisfactorily Completed
8. RCC Lid	Satisfactorily Completed

9. water taps	Satisfactorily Completed
10. Washout	Satisfactorily Completed
11. Inlet and Overflow	Satisfactorily Completed

**3.0 Outstanding Works/ Defects - No**

Agreed and Signed by



宇佐美香織



R. Raveenthiran

for

Dr. T. Kitamado

K. Ujithan

Asst. Director

Deputy Team Leader

Project Coordinator

Department of Fisheries &  
Aquatic Resources

JICA Study Team

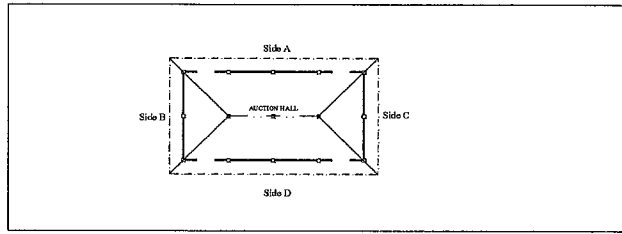
Sewa Lanka Foundation

PDP - Jaffna

**R. Raveenthiran**  
Assistant Director  
Department of Fisheries & A.R

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

FISH AUCTION HALL - MARAVANPULO



No.	Item	Inspection date	Re-inspection date	Comments
		22-10-2011		
1	Ramp & Drain	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate	✓		
	Side A	✓		
	Side D	✓		
8	Valance Board	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**

Accept ✓  
Not Accept X

M.S. Madanayake - Site Engineer *[Signature]* Date 22-10-2011  
 JICA Study Team (PDP Jaffna)  
 R. Raveenthiran *[Signature]* Date 22-10-2011  
 Asst. Director (DFAR)  
 Technical Officer (DS Office) *[Signature]* Date 22-10-2011  
 K. Thurunee Perera *[Signature]* Date 22-10-2011  
 Contractor (Sewa Lanka Foundation)

**R. RAMANATHAN**  
 Assistant Director (Planning)  
 For Director (DFAR)  
 Thero  
 Chair



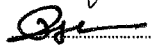

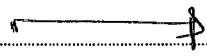


Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Building size (40'x20')	✓		
16	Site Clearing	✓		

**Legend**

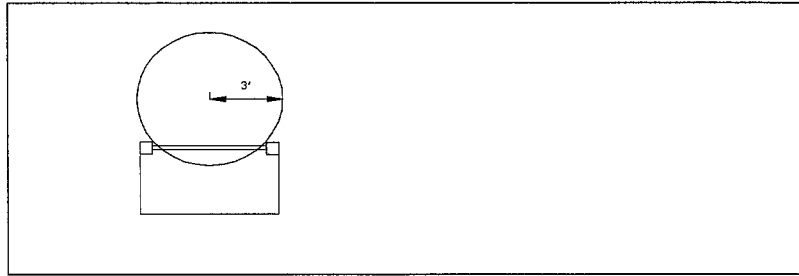
Accept ✓  
Not Accept X

*M.S. Madanayake: site engineer*  Date 22-10-2011  
 JICA Study Team (PDP Jaffna) .....  
*R. Raveenthiran*  Date 22-10-2011  
 Asst. Director (DFAR) .....  
 Technical Officer (DS Office)  Date 22-10-2011  
*R. Thiruneepan: Technical*  Date 22-10-2011  
 Contractor (Sewa Lanka Foundation) .....  
 for 

Director of Planning  
 for the Island Secretary  
 Thennaratchchi,  
 Kovakachcheri

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

WELL - MARAVANPULO



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Size ( 6' dia)	✓		
2	Depth	✓		
3	4" Concrete Black wall	✓		
4	Out side Plaster	✓		
5	Inside Plaster	✓		
6	Columns	✓		
7	2" GI Pipe	✓		
8	Pulley	✓		
9	Apron	✓		

**Legend**

Accept ✓

Not Accept X

M.S. Madanayake - Site Engineer  
JICA Study Team (PDP Jaffna)

Date 22-10-2011

R. Raveenthiran  
Asst. Director (DFAR)

Date 22-10-2011

Technical Officer (DS Office)

Date 22-10-2011

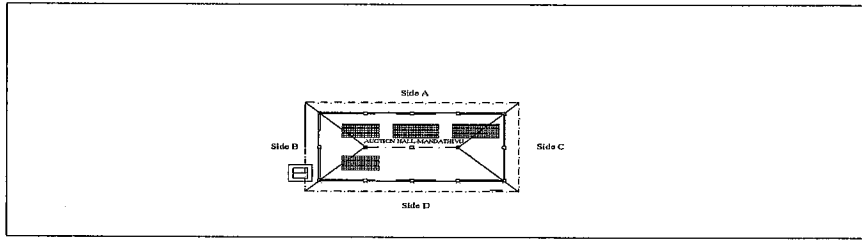
for K. Thiruneehan - Technical Supervisor  
Contractor (Sewa Lanka Foundation)

Date 22-10-2011

FOR SECRETARY  
TECHNICAL OFFICER  
MARAVANPULO



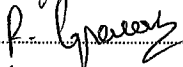
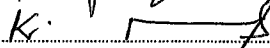
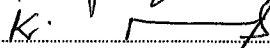
**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

FISH AUCTION HALL - MANDATHIVU



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side B	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend  
 Accept ✓  
 Not Accept X

Ms. Madanayake Site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna) .....  
 R. Kaveenthiran  Date 22-10-2011  
 Asst. Director (DFAR) .....  
 P. Gnanapandithan  Date 22-10-2011  
 Technical Officer (DS Office) .....  
 K. Thurunee Pan:- Technical  Date 22-10-2011  
 Supervisor Contractor (Sewa Lanka Foundation) K.  Date 22-10-2011

Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Concrete benches			
	Wall	✓		
	Plaster	✓		
	Tile	✓		
12	Roof Timbers	✓		
13	Inside Column plaster	✓		
14	Inside Column paint	✓		
15	Floor Rendering	✓		
16	Site Clearing	✓		

Legend

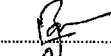
Accept ✓  
Not Accept X

M.S. Madanayake: Site Engineer  
JICA Study Team (DDP Jaffna)



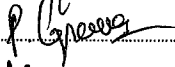
Date 22-10-2011

R. Raveenthiran  
Asst. Director (DFAR)



Date 22-10-2011

P. Gnanapandithan  
Technical Officer (DS Office)



Date 22-10-2011

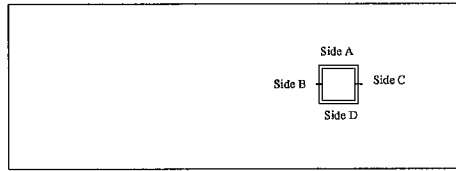
K. Thirumeehan: Technical Supervisor  
Contractor (Sewa Lanka Foundation)



Date 22-10-2011



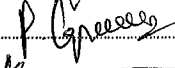
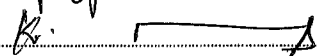
**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

WATER TANK - MANDATHIVU



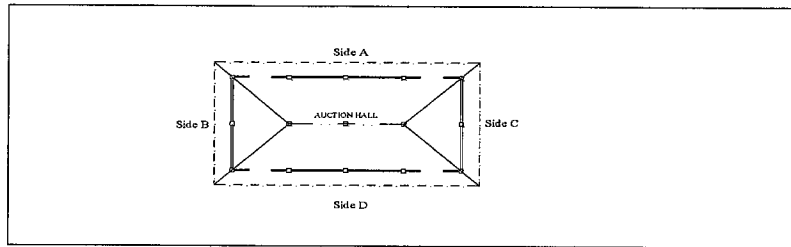
No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	Rubble wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster for Rubble wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	RCC Cover slab	✓		
8	RCC Lid	✓		
9	Water taps	✓		
10	Wash out	✓		
11	Inlet and Over flow	✓		

Legend  
 Accept ✓  
 Not Accept X

M.s. Madanayake :- Site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna)  
 R. Raveenthiran  Date 22-10-2011  
 Asst. Director (DFAR)  
 P. Gnanapandithan  Date 22-10-2011  
 Technical Officer (DS Office)  
 K. Thiruneevan  Date 22-10-2011  
 Contractor (Sewa Lanka Foundation) *Supervisor*



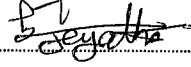
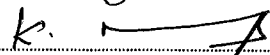
**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

FISH AUCTION HALL - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
		<u>22-10-2011</u>		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend  
 Accept ✓  
 Not Accept X

M.S. Madanayake: site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna)  
 R. Raveenthiran  Date 22-10-2011  
 Asst. Director (DFAR)  
 K. Jeyathas: Development Asst.  Date 22-10-2011  
 Technical Officer (DS Office)  
 K. Thiruneeapan: Technical  Date 22-10-2011  
 Supervisor Contractor (Sewa Lanka Foundation)

Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

M.S. Madanayake:- Site Engineer  
JICA Study Team (PDP Jaffna) ..... Date 22-10-2011

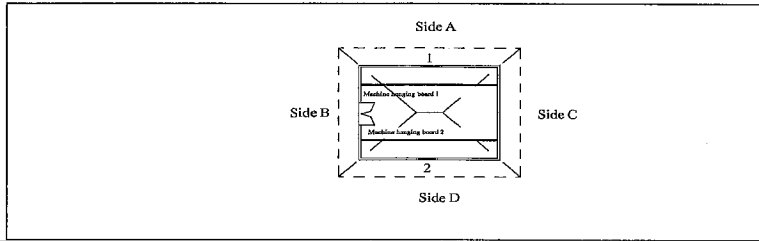
R. Raveenthiran  
Asst. Director (DFAR) ..... Date 22-10-2011

K. Jeyathas:- Development, Asst.  
Technical Officer (DS Office) ..... Date 22-10-2011

K. Thurunee Pan:- Technical  
Supervisor  
Contractor (Sewa Lanka Foundation) ..... Date 22-10-2011

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

WARE HOUSE - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Windows			
	No.1	✓		
	No.2	✓		
8	Door			
		✓		
9	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**  
 Accept ✓  
 Not Accept X

M.S. Madanayake:- Site Engineer  
 JICA Study Team (PDP Jaffna) ..... Date 22-10-2011

R. Raveenthiran  
 Asst. Director (DFAR) ..... Date 22-10-2011

K. Jayathas:- Development Asst.  
 Technical Officer (DS Office) ..... Date 22-10-2011

K. Thiruneevan:- Technical supervisor  
 Contractor (Sewa Lanka Foundation) ..... Date 22-10-2011



Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
10	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
12	Roof Timbers	✓		
13	Machine Hanging Board 1	✓		
14	Machine Hanging Board 2	✓		
15	Floor Rendering	✓		
16	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

M.S. Madanayake :- Site Engineer  
JICA Study Team (PDP Jaffna) ..... Date 22-10-2011

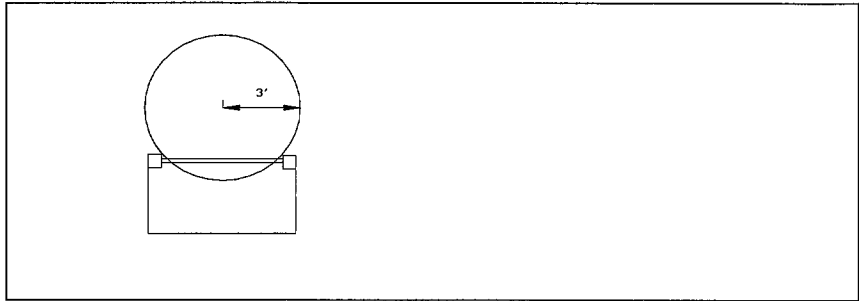
R. Raveenthiran  
Asst. Director (DFAR) ..... Date 22-10-2011

K. Jayathas :- Development Assb.  
Technical Officer (DS Office) ..... Date 22-10-2011

K. Thiruneevan :- Technical Supervisor  
Contractor (Sewa Lanka Foundation) ..... Date 22-10-2011

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

WELL - KATKOVALAM



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Size ( 6' dia)	✓		
2	Depth	✓		
3	4" Concrete Black wall	✓		
4	Out side Plaster	✓		
5	Inside Plaster	✓		
6	Columns	✓		
7	2" GI Pipe	✓		
8	Pulley	✓		
9	Apron	✓		

**Legend**

Accept ✓  
Not Accept X

M.S. Madanayake :- Site Engineer  
JICA Study Team (PDP Jaffna) ..... Date 22-10-2011

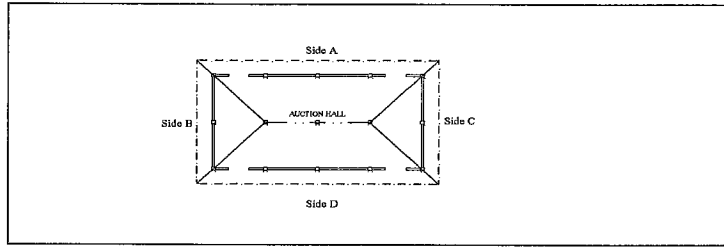
R. Raveenthiran  
Asst. Director (DFAR) ..... Date 22-10-2011

K. Jeyathas, Development Asst.  
Technical Officer (DS Office) ..... Date 22-10-2011

R. Thirunee pant, Technical supervisor  
Contractor (Sewa Lanka Foundation) ..... Date 22-10-2011

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

FISH AUCTION HALL - KACHCHAI



No.	Item	Inspection date	Re-Inspection date	Comments
1	Ramp & Drain	22-10-2011		
	Side A	✓		
	Side B	✓		
	Side C	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
7	Wicket Gate			
	Side A	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

Legend

Accept ✓  
Not Accept X

M.S. Madanagathe: Site Engineer

JICA Study Team (PDP Jaffna)

R. Raveenthiran  
Asst. Director (DFAR)

For Technical Officer (DS Office)

R. Thiruneeppan: Technical Supervisor  
Contractor (Sewa Lanka Foundation)

for

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

Date 22-10-2011

Date 22-10-2011

Date 22-10-2011

Date 22-10-2011

R. RAJUNATHAN  
Assistant Director  
For Divisional Secretary  
Thermapudichchi,  
Chuvakachcheri

Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Incl. Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Building size (40'x20')	✓		
16	Site Clearing	✓		

Legend

Accept ✓  
Not Accept X

M.s. Madanayake - Site Engineer  
JICA Study Team (PDP Jaffna)



Date 22-10-2011

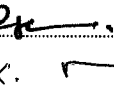
R. Raveenthiray  
Asst. Director (DFAR)



Date 22-10-2011

For Technical Officer (DS Office)

K. Jeyathas - Development Asst.  
Contractor (Sewa Lanka Foundation)



Date 22-10-2011

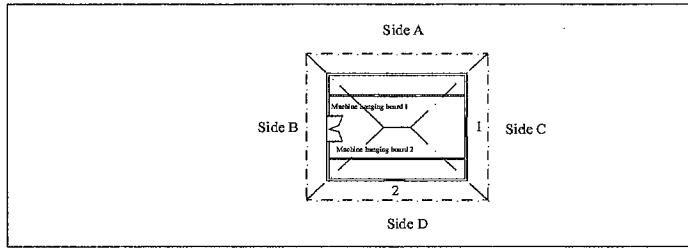
for

Date 22-10-2011

**R. RAJINATHAN**  
Assistant Director of Planning  
For Director Secretary  
Fisheries Department

**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

WARE HOUSE - KACHCHAI



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Windows			
	No.1	✓		
	No.2	✓		
8	Door	✓		
9	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**  
 Accept ✓  
 Not Accept X

M.S. Madanayaka Site Engineer  
 JICA Study Team (PDP Jaffna) ..... Date 22-10-2011

R. Raveenthiran  
 Asst. Director (DFAR) ..... Date 22-10-2011

For Technical Officer (DS Office) ..... Date 22-10-2011

for R. Thiruneeapan Technical Supervisor  
 Contractor (Sewa Lanka Foundation) ..... Date 22-10-2011




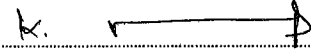
**RAJINATHAN**  
 Director of Planning  
 Secretary

Fisheries FC5 Annex 5

No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
10	PVC Gutters and Down pipes	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Roof Tiles (Including Ridge and Hip tiles)	✓		
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
12	Roof Timbers	✓		
13	Machine Hanging Board 1	✓		
14	Machine Hanging Board 2	✓		
15	Floor Rendering	✓		
17	Site Clearing	✓		

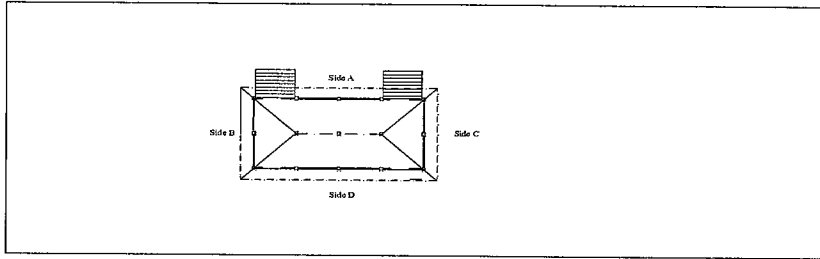
Legend

Accept ✓  
Not Accept X

M.S. Madanagulle :- Site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna) .....  
 R. Raveenthiran  Date 22-10-2011  
 Asst. Director (DFAR) .....  
 R. R. Anantha :- Asst. Director  Date 22-10-2011  
 for Technical Officer (DS Office) .....  
 K. Thiruneevan :- Technical Supervisor  Date 22-10-2011  
 Contractor (Sewa Lanka Foundation) .....


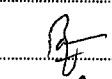
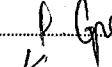
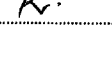
**FINAL INSPECTION(AFTER DEFECT LIABILITY PERIOD)**

FISH AUCTION HALL - PUNGUDATHIVU



No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
1	Ramp & Drain			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
2	4" Concrete Black wall			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
3	Out side Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
4	Inside Plaster			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
5	Out side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
6	In side Paint			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
7	Wicket Gate			
	Side A	✓		
	Side D	✓		
8	Valance Board			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		

**Legend**  
 Accept ✓  
 Not Accept X


M.S. Maanayake: Site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna)  
 R. Raveenthiran  Date 22-10-2011  
 Asst. Director (DFAR)  
 P. Gnanaapandithan  Date 22-10-2011  
 Technical Officer (DS Office)  
 K. Thirunee Pan: Technical Supervisor  Date 22-10-2011  
 Contractor (Sewa Lanka Foundation)


Fisheries FC5 Annex 5

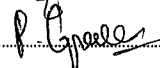
No.	Item	Inspection date	Re-Inspection date	Comments
		22-10-2011		
9	PVC Gutters and Down pipes			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
10	Roof Tiles (Including Ridge and Hip tiles)			
	Side A	✓		
	Side B	✓		
	Side C	✓		
	Side D	✓		
11	Main steps			
	Left	✓		
	Right	✓		
11	Roof Timbers	✓		
12	Inside Column plaster	✓		
13	Inside Column paint	✓		
14	Floor Rendering	✓		
15	Site Clearing	✓		

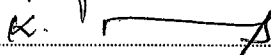
Legend

Accept ✓  
Not Accept X

M.S. Madanayake: Site Engineer  Date 22-10-2011  
 JICA Study Team (PDP Jaffna)

R. Raveenthiran  Date 22-10-2011  
 Asst. Director (DFAR)

P. Guanapandithan,  Date 22-10-2011  
 Technical Officer (DS Office)

K. Thirunee Pan: Technical Supervisor  Date 22-10-2011  
 Contractor (Sewa Lanka Foundation)



## Pilot Project Completion Report

Name of the Pilot Project:	Reconstruction of Regional College of Fisheries and Nautical Engineering, Jaffna
Pilot Project Code:	FC 06
Name of the Implementer:	PDP Jaffna (part of trainer's training only)
Pilot Project Site	Gurunagar, Jaffna City
Background	The Fisheries College in Jaffna is expected to be the leading and prominent fisheries and nautical engineering training and education institute in Jaffna District, which is urgent requirement for fisheries development in the district.
Objective	The pilot project aims at capacity building of the college so as to be the leading and prominent fisheries and nautical engineering training and education institute in the region.
Activities	Provision of trainer's training to assist implementation of training courses.
Evaluation	Lecture staff and crew members are recruited by NIFNE and they have received several sessions of trainer's training provided by PDP Jaffna for their capacity development. They have started their training program with the new staff members.
Annex	(1) Report on Trainer's Training Program on Sea Food Processing & Fish Farming at Ocean University, Colombo with several photos (2) Report on Trainer's Training Program on Fisheries and Navigation by means of One-day Boat with several photos

**REPORT ON 05 DAYS TRAINERS' TRAINING PROGRAMME ON SEA  
FOOD PROCESSING & FISH FARMING AT OCEAN UNIVERSITY,  
COLOMBO FROM 22<sup>nd</sup> TO 26<sup>th</sup> of MARCH 2011**

I wish to bring your kind notice that the above training programme was commenced with the assistance of the JICA Study Team, Jaffna and collaboration of chairman, director training NIFNE, Colombo. The JICA Study Team and NIFNE are coordinated & cooperated with us to conduct this training course. 04 trainees participated in this training programme for 05 days from 22.03.2011 to 26.03.2011.

1. **Date** : From 22.03.2011 to 26.03.2011
2. **Venue** : Ocean university, Colombo.
3. **Resource person** : Dr. Mangala, Miss. Kasunthi, Mrs. Rachini, Mr. Suseema, Mr. Yamal and Mis. Lanka.
4. **Trainees** : Mr.E. Sebastianpillai, Mr. K. Ananthakumaran, Mr. K. Balachanthiran, Mr.M.M Piyasena.
5. **Training Programme** :

<u>Date</u>	<u>Time (Hours)</u>	<u>Subject</u>	<u>Contents</u>	<u>Comments</u>
22.03.2011	9.00am-10.30am	Fish handling Lectures (Multiday Fishing Practices)	<ul style="list-style-type: none"> <li>• Good quality benefits for Fishermen and consumers.</li> <li>• Current fish handling practices and short comings.</li> <li>• How to improve the fish Quality and safety.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Lengthy soaking time affect on Fish quality.</li> <li>✓ Long line could be used to catch Big fish (tuna, sword fish etc...)</li> <li>Concerned fish quality.</li> <li>✓ Insulated boxes are the most Suitable for storing of fish and Board.</li> <li>✓ Usage of ice is important the Fish quality.</li> <li>✓ Unloading should be done on The raised surface.</li> <li>✓ Fish should be stored in the Containers with.</li> <li>✓ Adequate ice, which are easy to clean and durable.</li> </ul>
22.03.2011	10.45am-12.15pm	Sea food processing Lectures – dry fish Production and quality Improvement.	<ul style="list-style-type: none"> <li>• Information on current Practices and implications on Quality of the dry fish Production.</li> <li>• Technology knowledge on Systematic fish handling and Process of the dry fish Production.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Poor quality raw materials produce low quality dry fish</li> <li>✓ Drying process should be done on raised surface.</li> <li>✓ All process should be done Under hygienic condition.</li> <li>✓ Fish should be wash with potable water or clean sea water.</li> <li>✓ Salt should be food grade.</li> <li>✓ waste disposal should be properly done.</li> <li>✓ Blowfly infestation could be occur directly or indirectly at any processing steps therefore dry fish producers must be follow GMP &amp; SSOP</li> </ul>

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22.03.2011	01.00pm-03.00pm	Sea food processing Practical – Maldives Fish and dried fish Processing.	<ul style="list-style-type: none"> <li>• How to properly handle at the Each steps (Pre handling)</li> <li>• Presence of heat-stable toxins (bio toxins, histamine) in the raw material</li> <li>• Recontamination of product after heat processing.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Promotion of processing along With the fisheries development.</li> <li>✓ Suitable facilities and technical Advice will help to improve the Quality of dried fish produced in the North and I also help replace Imported dried fish with Domestically produced dried fish And will contribute to an increase In the income of small fishing households.</li> </ul>
22.03.2011	3.15pm-5.15pm	Sea food processing Practical – Smoked Fish and dried fish Processing.	<ul style="list-style-type: none"> <li>• Introduction to the smoke and dried fish processing.</li> <li>• Method of preservation, Processing (hygienically and Scientifically)</li> <li>• Cleaning and cutting method of fish (practical)</li> <li>• Use of cage for dried fish.</li> <li>• Maintenance of equipment.</li> <li>• How to improve the fish Quality and safety.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Fish should be salted very well Fish should be in good quality.</li> <li>✓ Smoked fish is a traditional Product.</li> <li>✓ Reduced bacterial Density is another advantage of smoking.</li> <li>✓ The type of firewood is very Important in smoking</li> </ul>

23.03.2011	9.00am-10.30am	Fish handing Lectures (Coastal Fisheries)	<p><b>Factors affecting Shelf life of fish</b></p> <ul style="list-style-type: none"> <li>• Information on Current fish handling Practices on coastal Fishery.</li> <li>• Technological Knowledge on systematic Fish handling systems.</li> </ul>	<p><b>Lesson learned</b></p> <ul style="list-style-type: none"> <li>✓ Lengthy soaking time Affect on fish quality.</li> <li>✓ Insulated boxes are the most suitable for Storing of fish on board.</li> <li>✓ Usage of ice is important to maintain the fish quality.</li> <li>✓ Unloading should be done on the raised surface.</li> <li>✓ Fish should be stored in the containers with.</li> <li>✓ Adequate ice, which are easy to clean and durable.</li> </ul>
23.03.2011		Sea food processing lectures	<ul style="list-style-type: none"> <li>• Technological Knowledge on systematic sea food processing.</li> <li>• Method of preservation, Processing</li> <li>• Cleaning and cutting method of fish (practical)</li> <li>• Processing and preservation of sea food (Prawns, Cuttle Fish, fish ,beach cucumber)</li> </ul>	<ul style="list-style-type: none"> <li>✓ The local community families Should be directly engaged in Processing of dried fish and dried aquatic resources.</li> </ul>

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23.03.2011	1.00pm-3.00pm	Sea food processing Practical – Sea weed processing	<ul style="list-style-type: none"> <li>• Introduction of sea weeds Material.</li> <li>• Preparation of moss jelly pudding.</li> <li>• Method of preservation</li> </ul>	<ul style="list-style-type: none"> <li>✓ Sea weed processing need for our Trainees.</li> <li>✓ Women can be able to this Method of sea weed processing.</li> </ul>
23.03.2011	3.15pm-5.15pm	Sea food processing Practical – Fish Ambulthial	<ul style="list-style-type: none"> <li>• Preparation of ambulthial</li> <li>• Method of cleaning an cutting of fish</li> <li>• Use of ingredient</li> <li>• Methodology.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Suitable facilities and technical Advice will help to improve the Quality of ambulthial processing in</li> <li>✓ Fish ambulthial will contribute to an increase In the income of small fishing households.</li> </ul>

24.03.2011	9.00am – 11.00am	Shrimp farming lectures	<ul style="list-style-type: none"> <li>• Identification characters of Penaeus monodon.</li> <li>• Life cycle of penaeus Monodon</li> <li>• Site selection for a hatchery And grow out ponds</li> <li>• Constructing a hatchery.</li> <li>• Water quality parameters for Hatchery.</li> <li>• Stocking and managing stock of brooders</li> <li>• Larval rearing section.</li> <li>• Nursery section.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Stocking of post larvae in grow out Ponds</li> <li>✓ Feeding and need management in Grow out ponds.</li> <li>✓ Regular consultation is very essential as in hatchery.</li> <li>✓ Harvesting is done when weight of Shrimps is 30g</li> </ul>
24.03.2011	11.15am – 1.15pm	Shrimp farming lectures	<ul style="list-style-type: none"> <li>• Construction of grow out Ponds.</li> <li>• Water quality management</li> <li>• Stocking of post larvae.</li> <li>• Consultation.</li> <li>• Harvesting</li> <li>• Steps taken to reduce the Possibility of disease occurrence in grow – out ponds.</li> <li>• Serious constraints which Limit the potential for shrimp culture in the area around Jaffna.</li> </ul>	<ul style="list-style-type: none"> <li>✓ It is proposed to introduce farming Fisheries to maintain the sustainable Development of the fishing industry In the lagoon area. This is because Lagoons are a suitable site for the liberation and culture of useful resources. Marine life for liberation and culture would include shrimp (panaeus spp.) milkfish (chanos), fake Ceylon moos (gracilaria spp. ) mangrove crabs (Scylla spp.), swimming crabs (portunus spp.).</li> </ul>
24.03.2011	2.00pm – 4.00pm	Sea cucumber farming lectures	<ul style="list-style-type: none"> <li>• Introduction sea cucumber fisheries.</li> <li>• Biology and Ecology.</li> <li>• Food and feeding.</li> <li>• Reproduction and life cycle.</li> <li>• Embryonic and larval development of sea cucumbers.</li> <li>• Holothurians as food and medicine</li> <li>• Steps taken in cleaning teat fish for export.</li> <li>• Processing sand fish.</li> <li>• Sri Lankan status.</li> <li>• Future development of the industry.</li> <li>• Hatchery production.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Many small set nets are installed in the lagoons of Jaffna. Such nets consist of nets stretched between wooden sticks stuck into the sea bottom. The depth of water is to 2 fathoms and it is very shallow so sticking sticks into the sea bottom is possible. Using the same method, nets can be stretched around several sticks, using the space that has been surrounded for culture. Culture method using such surrounded space is called pen culture.</li> </ul>

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25.03.2011	9.00am – 1.00pm	Field visit to Tuna and shrimps Processing center.	<ul style="list-style-type: none"> <li>• Good quality benefits for Fishermen and consumers.</li> <li>• Current fish handling practices and short comings.</li> <li>• How to improve the fish Quality and safety.</li> <li>• The importance of handling and storage ocean tuna.</li> <li>• Proper icing.</li> <li>• How to ice a box of fish.</li> <li>• Unloading of fish.</li> <li>• Control of hazards and the environment.</li> <li>• Temperature control.</li> <li>• Factory hygiene and sanitation.</li> <li>• Handling of Shrimp, ice and cooling.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Identified the following system.</li> <li>✓ Management responsibility, quality system.</li> <li>✓ Product development, product identification and traceability.</li> <li>✓ Process control.</li> <li>✓ Inspection and testing.</li> <li>✓ Inspection and test status.</li> <li>✓ Control of non – conforming product.</li> <li>✓ Handling, storage, packaging and delivery.</li> <li>✓ Quality records.</li> <li>✓ Internal quality audits.</li> <li>✓ Cleaning and disinfection.</li> </ul>
25.03.2011	2.00pm -4.00pm	Sea bass culture Lectures.	<ul style="list-style-type: none"> <li>• Different larval stages of Sea bass.</li> <li>• Site selection.</li> <li>• Electricity.</li> <li>• Transport.</li> <li>• Constructing a hatchery.</li> <li>• Water quality management.</li> <li>• Water quality management in brood stock section.</li> <li>• Feeding regime.</li> <li>• Spawning.</li> <li>• Grow out ponds.</li> <li>• Pond construction.</li> <li>• Water quality management in grow out ponds.</li> <li>• Harvesting.</li> <li>• Using of own equipments.</li> <li>• Avoiding effects of predatory birds.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Lagoons with no or few inlets to the outer sea will be the target place, so it is expected that recapture rate after liberation will be high. The target species could be shrimp, mangrove crabs, swimming crabs and sea bass culture since such a project is high in public interest, it should be undertaken with the cooperation of related organizations such as national and local public organizations and institutions.</li> </ul>

26.03.2011	9.00am – 11.00am	Sea weed culture Lectures.	<ul style="list-style-type: none"> <li>• Sea weeds classification most sea weeds belong to one of three divisions.</li> <li>• Currents, seawater temperature, salinity, tides and wave action.</li> <li>• Economic importance.</li> <li>• Global seaweed production and trade.</li> <li>• Seaweed resources of Sri Lanka.</li> <li>• Seaweed industry in Sri Lanka.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Attention should also given towards developing hybrid species with superior growth and nutritional characteristics, as the same has been proved successful in countries like Japan.</li> <li>✓ Rather opting for high-volume-low-value seaweed, culture of high – value seaweeds should be aimed for, as part of integrated coastal and national development programmes.</li> </ul>
26.03.2011	11.15am – 1.15pm	Sea weed culture Lectures.	<ul style="list-style-type: none"> <li>• zonation the marine – environment can be subdivide in to two fundamentally different ecosystems.</li> <li>• Main communities containing seaweeds.</li> <li>• Portion of a farm plot.</li> <li>• Off – bottom culture method.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Since it requires low inputs, and provides good returns and can employ many people seaweed culture is a good industry for coastal communities.</li> <li>✓ Seaweed poly culture in association with molluscs and</li> </ul>

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			<ul style="list-style-type: none"> <li>• Problems and prospects SL</li> <li>• Seaweed Mari culture.</li> </ul>	fishes seems to have good prospects to increase harvest and profits.
26.03.2011	2.15pm – 2.45pm	The role of crab bank system.	<p><b>Crap</b> Over view, species for culture, growth and feeding habits, migration and spawning selecting site for culture, poly culture with milk fish and shrimps,</p>	✓ fattening blue brown crab fisheries, harvesting in ponds, poly culture of mud craps with milk fish and shrimps.
26.03.2011	3.00pm -4.00pm	Evaluation and award of certificates.	<ul style="list-style-type: none"> <li>• Received certificates.</li> </ul>	✓ Annexed photos.

**6. Result and Discussion**

<u>subject</u>	<u>Obtained knowledge &amp; technique.</u>	<u>How to adopt the training in CFNE in Jaffna.</u>
Fish handing Lectures (Multiday Fishing Practices)	Lectures was excellent. They used multi-media projector issued hand-out. We gained knowledge theory and practical	We can be adopt this subject in three month fishing technology training course. we have been conducted sea food processing mobile training such as dried fish sea food preservation and processing but we will share the modern technique and hignic to the trainees for make fish, ambulthial seaweeds (moss paddy ) training also four our community mainly, woman.
Sea food processing Lectures – dry fish Production and quality Improvement.	<ul style="list-style-type: none"> <li>• Quality of dry fish production</li> <li>• Personal hygine .</li> <li>• Packing of try fish.</li> <li>• Dry fish sale at the market.</li> </ul>	Proposed to provide mobile training programme for with this adopted method.
Sea food processing Practical – Maldives Fish and dried fish Processing.	<ul style="list-style-type: none"> <li>• Identification of material and produce of ingredients. technical method of preparation of Moldive fish and methodology.</li> <li>• Practical, demonstrations.</li> </ul>	Proposed to provide mobile training programme for the member of fishermen co-operative society and widow who were affected by war.
Sea food processing Practical – Smoked Fish and dried fish Processing.	<ul style="list-style-type: none"> <li>• Identification of material and produce of ingredients. technical method of preparation of Moldive fish and methodology.</li> <li>• Practical, demonstrations.</li> </ul>	Materials, ingredients however the type of fire wood is very important in smoking when selecting fire wood, the smoke should make any harm to the product the prepared smoked fish should be stored in a refrigerator for long

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		time use important methodology of smoked fish
Fish handling Lectures (Coastal Fisheries)	<ul style="list-style-type: none"> <li>• Why fish important as animal foods</li> <li>• Main steps on fish handling.</li> <li>• Catching of fish.</li> <li>• Steps of fish handling of board.</li> <li>• Handling of fish on board – current practice.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Store fish on board – improvements.</li> <li>✓ Added adequate ice and temperature could be controlled and minimized physical damages.</li> <li>✓ Handling of fish on board.</li> <li>✓ Washing could be done by using clean sea water, Proper icing.</li> <li>✓ Retail sale at the landing site .</li> </ul>
Sea food processing lectures	Natural sea weeds are processed into snake such as sea weeds crackers. Among all natural health foods, sea weed contains the highest amount of protein without any cholesterol it is suitable for all ages, sea weeds are delicious, high in iron calcium and vitamin. A prepared moss pudding by lecture. We tasted and was delicious 110 species for phy colloid production (e.g. agar, carrageenan)	Proposed to provide mobile training programme for the member of fishermen co-operative society and widow who were affected by war.
Sea food processing Practical – Sea weed processing	Sea weeds has a very important role to play towards betterment of coastal fishing communities and as a valuable exchange earner many edible sea weeds species are available on the S.L. coast, attempts should be made to develop products suitable for the Sri Lankan palate and to popularise the same amongst the public then advanced technology should introduced e.g – simple agar medium – up to bacteriological media.	We proposed moss jelly pudding and sea weed processing mobile training for women it will help them for self employment.
Sea food processing Practical – Fish Ambulthial	<ul style="list-style-type: none"> <li>• Preparation of ambulthial</li> <li>• Method of cleaning an cutting of fish</li> <li>• Use of ingredient &amp; Methodology.</li> <li>• Practical and demonstration.</li> </ul> <p>identification of material and preparation of ambulthial important the prepared ampulthial can be use long period and important methodology of ambulthial</p>	Proposed to provide mobile training programme for the and tsunami (we sugesed to pay food and incentive to them follow this training programme)
Shrimp farming lectures	<ul style="list-style-type: none"> <li>• Identification characters of penaeus monodon, life cycle of panaeus monodon , different larval stages of shrimp soil quality, topology, construction of hatchery obtaining of water to hatchery and purification of water, stocking and managing feeding of brood stock, spawning, after all the treated eggs are dipped into high aeration water procedure for checking fertility, selection of eggs, larval rearing section, collecting and counting naupli, water quality parameters in the larval rearing section treatment and feeding in larval</li> </ul>	<ul style="list-style-type: none"> <li>✓ Grow out ponds construction. Water quality management feeding and feed management in grow out ponds, consolation harvesting, check post larval be bore sterilization of water avoiding of stress conditions maintenance of the algal level proper construction of dykes.</li> </ul>

	rearing section. Nursery section.	
Sea cucumber farming lectures	We have gained knowledge sea cucumber fisheries biology, ecology, global status Sri Lankan status, fishery types re production and life cycle respiratory system, breeding types re production, future development of the industry hatchery production maintenance of brood stock spawning behaviour, thermal stimulation rearing of the post larva feeding rates, temperature, dissolved oxygen, rearing of juveniles types of setting bases juvenile diet.	Sea cucumber are found on the sea floor worldwide large and healthy brood stock specimens catch destined for processing we are making arrangement to develop in this field for provide and hatchery production with the help of ocean university Colombo.
Field visit to Tuna and shrimps Processing center.	<ul style="list-style-type: none"> <li>• The importance of handling and storage ocean tuna.</li> <li>• Proper icing.</li> <li>• How to ice a box of fish.</li> <li>• Unloading of fish.</li> <li>• Control of hazards and the environment.</li> <li>• Temperature control.</li> <li>• Factory hygiene and sanitation.</li> <li>• Handling of Shrimp, ice and cooling.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Inspection and testing.</li> <li>[</li> <li>✓ Inspection and test status.</li> <li>✓ Control of non – conforming product.</li> <li>✓ Handling, storage, packaging and delivery.</li> <li>✓ Quality records.</li> <li>✓ Internal quality audits. Cleaning and disinfection</li> </ul>
Sea bass culture Lectures	<ul style="list-style-type: none"> <li>• Various type of sea bass such as black sea bass, white bass striped bass, yellow bass, pacific sea basses white sea basses are fresh water fish, belongs to the, sea bass family, it lives in the larger rivers and lakes silvery, striped body and divided dorsal fin a good game fish length to 18 inches striped bass the best known sea bass .</li> <li>• The striped bass is a superb food and game fish growing up to 12516 through half that weight is more typical</li> </ul>	Various kind of sea bass cage culture and pond culture to adopt commercially viable large scale culture technologies and to provide them with good marketing facilities through proper channels.
Sea weed culture Lectures.	<ul style="list-style-type: none"> <li>• Different types of sea weeds and to identify by their unique features culture methods of sea weeds several tropical species are but have not been observed south of kalpitiya.</li> <li>• Sea grass beds develop in surf shelters sub tidal biotopes they thrive best in shallow lagoons man grow forests are best in sheltered. They occur mainly identified material and preparation of moss jelly pudding and agar pudding. Around lagoons and in estuaries we observed single rope floating raft culture technique and portion of farm</li> </ul>	<ul style="list-style-type: none"> <li>✓Sea weed poly culture in association with molluscs and fishes seem to have good prospect to increase harvest and profit.</li> <li>✓The need of the, encourage and promote coastal fishermen population at suitable sites through combined efforts of respective state government, research institutes, sea weed industry marine products export development authority and local NGOS.</li> </ul>



	off bottom culture method and cage culture.	
The role of crab bank system.	<ul style="list-style-type: none"> <li>• Mud_crabs are normally found in break is water areas the berried females migrate to the sea to spawn. The young inshore in to the mouth of rivers where they grow to maturity. Mud crab juveniles (10 -40g) may be cough throughout year. Female crabs have been observed to die a few days after spawning the pond preparation of method fettering and harvesting.</li> <li>• The gage trap is use in mangrove creeks and usually set in the evening each trap is checked the following morning to remove the crab. After harvesting the traps are reset.</li> </ul>	<p>The mud crap is the most important crap for culture in the Jaffna because it inhabits muddy bottoms, mangrove areas and river mouth.</p> <p>We proposed to the crap fattening mobile training in coastal area of fisherman.</p>
Evaluation and awards of certificates.	Discussion	<ul style="list-style-type: none"> <li>• Received certificates. Annexed photos.</li> </ul>

## 7. Comments

A Fisheries Training centre was started in 1973 at 2<sup>nd</sup> cross street Jaffna. It is completely destroyed due to the recent war. It is a notable fact that the JICA Study Team has come forward to rehabilitate the Centre with the sponsorship of Jaffna Government Agent, and Chairman National Institute of Fisheries and Nautical Engineering.

In traditional fishing area of Jaffna, it is seen that the old traditional methods are adopted in fishing. At present we have to return back to our fishing standard in 1980, we might reach it only after 2020. If we increased our development activities very rapidly only we could attain that standard.

The present production of seafood is only 15,000 to 20,000 MT in the Jaffna district. From 1980 at an increase of 2 % per year in 2011. Jaffna District should have reached a target of 100,000 MT. At present fishermen in the Jaffna District are encountering coastal fishing restriction problems. It has made an impact on the Gurunagar fishermen also.

As a result 1500 families are losing Rs.30 Lakhs of income for a day from the Trawler business, and more than 1000 who are depending on other income will face a danger of losing their income.

After the war catastrophe, most of the youths have separated themselves from fishing activities. Today's requirement is reconstruction, development of coastal fishing, Technical advancement in deep sea fishing, Fisheries technical training, Breeding of seafood and processing of Seafood.

At least in 2020 we have to achieve the product made in the period from 1980 to 1983. These could be achieved by developing of

- a) maintenance of coastal areas,
- b) rehabilitation of coasts,

- c) tourist boats,
- d) purchasing deep-sea fishing boats and obtaining deep sea resources,
- e) rehabilitation of jetties with modern facilities,
- f) construction of boat repairing yards,
- g) building the damaged light houses,
- h) construction of sea channels,
- i) rehabilitation of roads,
- j) providing electricity and drinking water facilities,
- k) creation of a change in coastal fishing,
- l) avoiding destruction of small fishes,
- m) preventing pollution of sea environment,
- n) construction of ice factories,
- o) refrigerating and cool room facilities,
- p) tin fishing facilities,
- q) Preparation of fish food
- r) breeding facilities for sea-cucumber, prawns, crab etc.
- s) fish processing facilities.

Expand of the harbour activities: They may develop into deep sea fishing harbour.

Under the Deep-sea fishing, catching of tuna fish and Japanese type of nets and perpendicular fishing hook and nets could be obtained within the Sri Lanka Economical Zone which is about 200 nautical miles from Point Pedro. To give training for this purpose and to provide the modern technical trainings, the construction of two story building has been started at 2<sup>nd</sup> Cross street Jaffna with the assistance of Government agent and the JICA Study Team. The benefits from this are:

- a. This Training centre will find out ways and means for the benefits to reach male and female youths and the fishermen.
- b. Considering the new requirement of need for fish processing and fish breeding. The JICA Study Team has come forward to give training to the officers of the College.

Explorations and researches on Aquatic-Biology should be undertaken for the proper management of Aquatic resources in the coastal areas of Jaffna. In 1990 breeding of Milkfish was done successfully and harvested. But now people are being settle down in those places. This Breeding of milkfish, crab and prawns could be done in the coastal area of Jaffna from Siruthivu towards Southwest of Alaipiddy. You can also grow marsy plants and other moss used for medicines. Even though there are many resources, the reason for the non development of aquatic breeding field, is less information and knowledge, and non interest in this field for the people. Therefore in order to increase the interest about aquatic breeding it is very essential to provide education and lecturers to the people in this field. By proper management of available natural resources we could make progress and prosperity.

The development of Aquatic breeding industry does not merely depend in the hands of experts. It is one which should be formed by the hard work and effort of policy makers, investors, engineers and citizen of all sectors.

According to a Chinese Proverb “Grow fish wherever there is water” if we could use all the water fronts available for aquatic breeding we could get out from our present and many food and economical problems.

Educationally the practical problems faced by the fishermen are the need of management and administration training.

The interested youth requires:

1. fish farming,
2. sea food processing,
3. sea weeds farming,
4. breeding of sea-cucumber, prawns, crab training,
5. modern equipment and training in maintenance of boats,
6. technical training in deep sea fishing,
7. marine science and disaster management training,
8. safety at sea,
9. repairing of fiber glass boat and maintenance,
10. fishing technology,
11. swimming,
12. diving,
13. first aid at sea,
14. repairing and maintenance of out boat engines,
15. deep sea marine engine technology training,
16. seamanship training,
17. deck officers training (Diploma),
18. marine engine technology (Diploma),
19. motorman training, and
20. coxswain training.

The Chairman, National Institute and Nautical Engineering, Colombo has taken steps to provide the above training to the youths at the College of Fisheries and Nautical Engineering in Jaffna. The building works for the above school will be completed in 6 months time.

Trainees have gained theoretical & practical knowledge on sea food processing and fish farming. This training was aimed to the multi beneficial assisting and providing needed and guidance once the family member and community of fishing area having undergone the training are engaged in the fishing industry and generate an income and the certificate awarded will help them to obtain employment.

Generally educated person getting the training in this field will extend an awakening in the community level. Further this training will be guiding the educated to engage in modern method and

modern equipments which would be easy convenient and avoid the waste of human energy. We got technical knowledge about fish processing and shrimp & lobster processing during the field visit. It is also possible to identify the materials and using them with safety. The training is beneficial for self employment, business and as a trade while this will be beneficial to impart the training to others. The training was successfully completed at Ocean University. We have received the certificates and pen drives with enough information (practical & theory subject of sea food processing & fish farming)

## **8. Recommendation**

It is necessary to improve current processing techniques and at the same time introduce new more sophisticated techniques.

Additionally, skills and training in market research also need to be introduced. These techniques and skills can be imparted to local fisher folk through specialized training courses.

Planned and managed by NGOs: For example, through suitable training, local dried fish processing workers can learn how to effectively use certain spices while processing squid, octopus and some shellfish.

Introduction of fillet processing using vacuum packaging: Fillet processing of tuna, snapper and bottom fish like grouper, using vacuum- pack packaging is now becoming popular among export companies.

Need mobile vehicle for study observation and field training programme for improvement to develop activity or trainees.

Major project translated into local languages and made available to the stakeholders to ensure holders participation to the training.

The most important beneficiaries need to be given incentive for the period of training.

Raise the respective standards and capacities to the required level, through training and provision of improved facilities will be important.

The suitable selection of members will be quite important.

Meeting will provide a plat form to listen to the voices and need of the local communities and will also be able to respond suitably to them.

## **9. Acknowledgement**

I express my thanks on behalf of the college of Fisheries & Nautical Engineering and trainers for having action to provide assistance for the trainers to training programme.

Thank you,

Yours faithfully,

Trainees,

Mr.E. Sebastiampillai, Mr. K. Ananthakumaran, Mr. K. Balachanthiran, Mr.M.M Piyasena.

Lecturer is demonstrating the method of cutting & other techniques on dry fish making.



Trainees actively participating in dry fish processing



Awarding of Certificate to the trainees by lectures last day



Trainees are in front of the Ocean University with their certificates



## Report on Fishing & Navigation Training Programme for Trainers' Training from 24<sup>th</sup> to 28<sup>th</sup> September 2011

### 1. Introduction

I wish to bring to your kind notice that above training programme was commenced with the authorization of Director Training, National Institute of College of Fishery & Nautical Engineering, Colombo collaboration with the JICA Study Team, especially Mr.K.Vasanthan, Fishery Development Specialist, has coordinated well to conduct the training programme. The training course was commenced on 24.09.2011 and completed on 28.09.2011.

Training vessel has been used for the trainers' training on demonstration of fishing, operation and mooring the vessels and Engine operation. It was very helpful to the trainees to get coxswain and E.R.A license. Practical knowledge in operating the bottom long line fishing, trawling, angling, navigation equipment such as compass, GPS, echo sounder and life saving equipments. After this training, the trainees are able to cooperate with us to conduct the certificate and mobile training programme in the College as well.

### 2. Training Programme

Detail agenda of the training is shown as follows;

Date	Theory	Practical	Subject.
24th Sept. 2011	03hrs	03hrs	Compass reading, Chart reading, Fishing gear and method.
25 <sup>th</sup> Sept. 2011	-	06hrs	Fishing demonstration on bottom long line, angling, and trolling.
26 <sup>th</sup> Sept. 2011	03hrs	03hrs	Safety at Sea, and Maintenance of vessel.
27 <sup>th</sup> Sept. 2011	03hrs	03hrs	Navigation equipment and mooring the vessel.
28 <sup>th</sup> Sept. 2011	03hrs	03hrs	Seaman ship, Making knots, Splicing and Distress signal operation of navigation equipments.

### 3. Resource Persons

The following resource persons have carried out this training programme.

S.No.	Name of Officer	Designation
01.	Mr.E.Sebastiyampilla	Assistant Director, COFNE
02.	K.Ananthakumar	College Instructor, COFNE
03.	Mr. J.Steepan	Seaman (Expert Fishermen from Gurunagar area)
04.	S.Theva	Marine Engine Technician

#### 4. Trainees

Following trainees were trained under this programme.

S.No.	Name of Officer	Designation
01.	Mr.T.Thadchanamoorthy	A Crew of One-day Boat
02.	Mr.A. Kanagaratnam	A Crew of One-day Boat
03.	Mr. M.Sritharan	A Crew of One-day Boat
04.	Mr.M.Jogenthirajah	A Crew of One-day Boat
05.	Mr.B.Jeyakanthan	A Crew of One-day Boat

#### 5. Result

##### First Day: Lecture Session

Trainees learnt the following subjects.

##### Morning

- Chart and Compass reading as lectures in the lecture hall.
- Description & function of magnetic compass and usage of magnetic and hydro compass,
- Geographical measurement of earth,
- Usage of compass in navigation,
- Earth magnetic field,
- Structure of compass,
- Marking on the compass dial,
- Working of the compass,
- Reading the compass and variation & deviation,

##### Afternoon

- Calculation of the compass error,
- Chart work, calculation of the angle between a points of latitudes and longitude,
- Measurement of distance and speed in navigation,
- Bearing & distance measurement of the chart,
- How to fix the compass on the vessel,
- Calculation of Greenwich mean time,
- Scale used in navigation chart,
- Type of navigation chart and symbol used in the chart,
- Construction of the direction in which a vessel should be street under the influence of wind and water current in order to reach a definite point by means of GPS, Echo sounder, Rader and Barrow meter.

##### Second Day: Fishing Demonstration



### Morning

The major theme was to angle the bottom long line fishing and plan the time of the departure, shooting line, hauling line demonstration and arrival including,

- Arrangement of fishing materials for trawling and angling,
- Usage & maintain standard fishing gear and equipment, demonstration of bottom long line,
- Baiting on hook, shooting and hauling of bottom long line,
- Identifying the catch of fish with hook.

Trainees are able to take appropriate measures during emergency situation on boat and perform duties of a seaman including,

- Check the engine battery, fuel system and lubrication system,
- Identifying watching duties in the vessel and responsibilities of respective duty officers.
- Water current, wind direction and operation of vessels,

### Afternoon

The trainees learnt also the following subjects during the fishing demonstration.

- Preparation of the vessels for the demonstration,
- Arrangement of food material,
- Bringing the fuel, water and first aid kits,
- Observation of the weather condition,
- Record of the quality of the sea water,
- Shooting line, hauling line and arrival of navigation & seaman ship,
- Maintenance of vessel and fishing gear after the completion of the fishing, and operation of vessel until reaching the harbor,

### **Third Day:** Safety at Sea, and Maintenance of Vessel

The major theme of the third day was mooring a vessel including,

- Identifying & classifying the marine vessels according their usage,
- Identifying the different types of anchoring points which are going to be used,
- Describe the rules & regulation,
- Usage of the international signing system and language for the communication,
- Identifying the types of accident to marine vessels
- Identifying and demonstrating mooring vessels on jetty and operation of the vessels in the channel with safety.

### **Fourth Day:** Navigation Equipment and Mooring Vessel

The trainees learnt the subjects on,

- Usage of distance signals when and where to be necessary
- A vessel entering harbor, direction technical terms used in using anchors,

- Lookout watcher duties, duties to be performed, releasing from watcher duty, and watcher duty at the harbor,
- Morse code signals, international flags, letter and meaning for different sound,
- Signaling light in vessel and navigation light,
- Chart reading, true course and compass course, calculation and finding the direction to return to the harbor,
- Finding the position of fishing ground using satellite navigator and map,
- Preparing the poster of duties and perform lookout duties.
- Checking the fuel, oil, batteries, electrical system, sea valve, bilges, gland packing and exhaust meters while running.

### **Fifth Day: Seamanship**

The trainees learnt the subjects on,

- Identifying the different arrangement of sailing vessels,
- Making the knots when using for fishing gear,
- Making hitches and bends,
- Making splices,
- Classification of fishing vessels,
- Over all length, beam, draught, water level, free boat, load line, gross tonnage and displacement,
- Selection and use of paint for maintaining marine vessels,
- Real object of fishing gear, tools and safety equipments,
- Uncoiling & coiling the twine and rope,
- Short, long, eye, cut and chain splice with use of floats and singers.

## **6. Analysis**

Generally, all the trainees have gained the necessary skills and knowledge in terms of fishing operation and navigation by means of one-day boat for the training program to be implemented by the Fisheries College in Jaffna in the near future. They will create an awakening in the fishing community level and pave the way for a renaissance in the livelihood of fishing community. Further this training will guide to educate and to engage in modern fishing equipments which would be very convenience and avoiding the waste of human energy.

We thank to all who have made arrangement for this training programme. Our special thanks go to the JICA Study Team and Mr. K. Vasanthan, staff of PDP-Jaffna. I wish all the best.

Thank you.

All Trainees



**Lecture on Navigation**



**Training on Net Making**



**Preparation of Training in the Sea**



**To the Sea for the Training**