DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

THE PROJECT FOR DEVELOPMENT PLANNING FOR THE RAPID PROMOTION OF RECONSTRUCTION AND DEVELOPMENT IN JAFFNA DISTRICT (PHASE 2)

MONITORING REPORT

MARCH 2012

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

IC NET LIMITED
ORIENTAL CONSULTANTS CO., LTD.

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The Project for Development Planning for the Rapid Promotion of Reconstruction and Development in Jaffna District
(Phase 2)

Monitoring Report

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1. Background of the Monitoring

1.1 Background of the Project

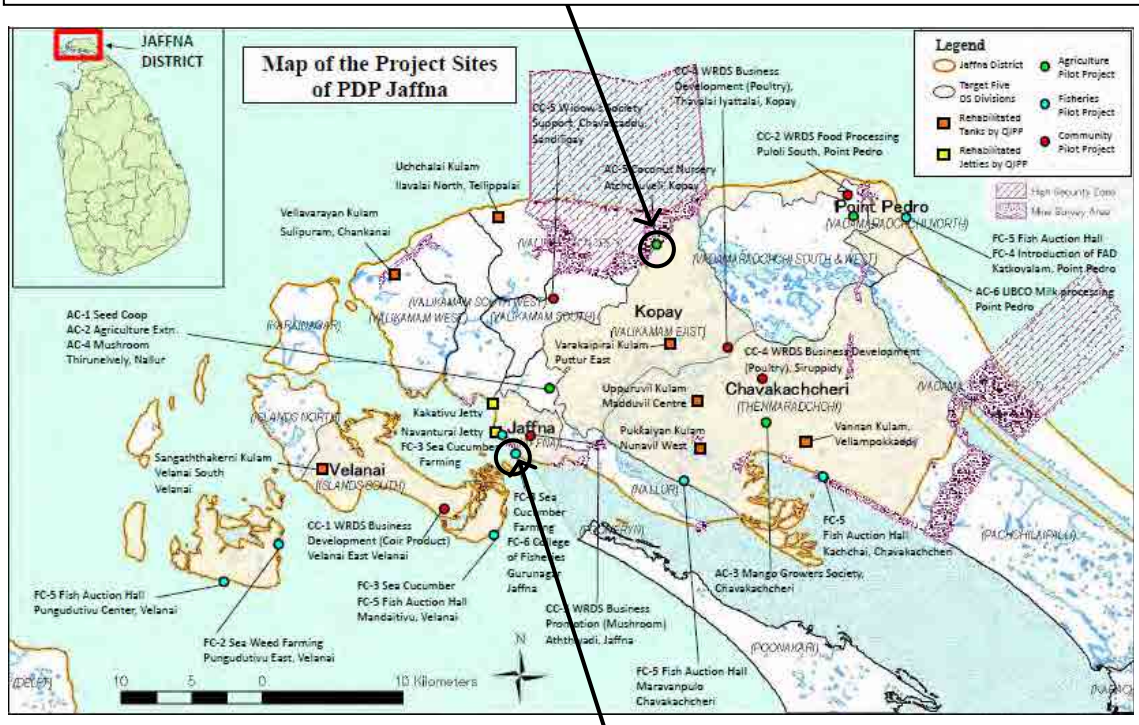
"Construction Work of Regional College of Fisheries and Nautical Engineering (NIFNE/COF) and Atchuhuveli Coconut Nursery (CCB)" and "Equipment Procurement for COF" have been implemented as the Urgent Rehabilitation Component Batch 2 (as a part of Pilot Projects) under "The Project for Development Planning for the Rapid Promotion of reconstruction and Development in Jaffna District" which was conducted from March 2010 to December 2011. Outlines of the above project are shown in the following figure（Source: Map of the Project Sites of PDP Jaffna, in the Final Report of "The Project for Development Planning for the Rapid Promotion of reconstruction and Development in Jaffna District"）

Atchuhuveli Coconut Nursery (CCB)

Location: Atchuhuveli Vasavilan Road, Atchuhuveli (Jaffna)

Background: This pilot project was a combination project with an Infrastructure Rehabilitation Component to fully recover the production of Atchuhuveli Coconut Nursery of CCB so that a large number of local farmers can obtain quality seedlings from the nursery at a reasonable price.

Description: Construction of Facilities (Building for Office/Training 109m^2、Repairing wells for Agricultural irrigation, Boundary wall to exclude vermin 1,865m、Access Road 130m and other related facilities）



Regional College of Fisheries and Nautical Engineering (NIFNE/COF)

Location: 2nd cross street Gurunagar, Jaffna

Background: This pilot project supported the construction of school building and provision of training equipment for capacity building of the College so as to make the College the leading and prominent fisheries and nautical engineering training and education institute in the Northern Province.

Description: Construction of Building for College 380m^2 and Equipment Procurement (40 books, 70 units of Fishing Equipment, Training Tools and others）

1.2 Overview of the Project

a) Project: Reconstruction of Regional College of Fisheries and Nautical Engineering Jaffna and Rehabilitation of Atchuhuveli Coconut Nursery Jaffna

b) Description: See above“1. 1 Background of the Project”

c) Employer: Sri Lanka Office, Japan International Cooperation Agency

d) Engineer: PDP-Jaffna JICA Study Team
(IC Net limited and Oriental Consultants Co., Ltd.)

e) Responsible Agency: National Institute of Fisheries and Nautical Engineering (NIFNE) /Regional College of Fisheries and Nautical Engineering Jaffna (COF), Atchuhuveli Coconut Nursery Jaffna (CCB)

f) Ordering: Order by JICA Sri Lanka Office

g) Contract Method: Fixed Lump Sum Contract

h) Contract Price: LKR 64,039,000

i) Contractor: Buildmart Lanka (PVT) Ltd

j) Date of Contract/Construction: 15 March 2011

k) Date of Completion / Handover: 15 September 2011

l) Defect Liability Period: 6 months (Expiration: 14 March 2012)

2. Monitoring for Atchuhuveli Coconut Nursery (CCB)

Picture 2a: Entrance of Facility

Picture 2b: Facility and Coconut Nursery

2.1 Defect Inspection

2.1.1 Preliminary Inspection

In order to implement an efficient defect inspection, the Engineer (JICA Study Team) conducted a preliminary inspection with the Recipient (persons responsible for maintenance of the facility) and the Contractor prior to confirmation as per the following schedule.

(1) Prior Confirmation

Prior Confirmation was done by the Engineer and the Contractor with the Recipient at CCB on 20 – 24 February 2012.

(2) Consultation

The Engineer specified the methodology of the repair work to the Contractor on 2 March 2012, after the Defect Inspection Plan (Draft) prepared by the Engineer was approved by the JICA Sri Lanka office on 1 March 2012.

(3) Preliminary Inspection

A preliminary inspection was done by the Engineer with the Contractor and the Recipient at CCB on 5 March 2012. Major items for repair work were as follows. Details are shown in Appendix 1: Preliminary Inspection.

1) Cracks on the boundary wall should be repaired.
2) Door lock at entrance door is hard turn. It should be repaired.
3) Floor cracks in the porch should be repaired.
4) Wall cracks inside the building should be repaired.
5) Water leaking from the air conditioner in the lecture hall should be repaired.
6) Ceiling lights had a problem at the parking that should be repaired.

2.1.2 Repair Work

Base on the prior confirmation and the preliminary inspection, the repair work by the Contractor under the Engineer's supervision was carried out from 2 to 7 March 2012.

2.1.3 Defect Inspection

The joint defect inspection was carried out at 11:00 on 14 March 2012, in the presence of witnesses of the Employer, the Contractor, the Engineer and the Recipients. The parties confirmed that all defects were rectified. Details are shown in Appendix 2: Defect Inspection.

2.1.4 Repair Work for Defects

No defects were identified.

2.1.5 Update of Maintenance Plan and Guidance of O & M Handbook

Considering the condition of facility maintenance and the result of the defect inspection, on 15 March 2012, the Engineer held a workshop with the persons responsible to instruct maintenance items and the revised "O&M Handbook" and "Action Plan" which were prepared by the Recipient and the Engineer at the time of hand over. Details of the revised Action Plan are shown in Appendix 1.

The revised items are as follows:

a) Sash: Dusting once a week

   Dusting the sash was added for removing the sandy dust on the sash because it might cause damage by adhering to sash bracket etc.

b) Air-conditioner: Vacuuming dust once a week/ Periodic Inspection once in 3 months.

   During the preliminary inspection, the air-conditioner problem was identified. Therefore vacuuming and periodic inspection were added to the action plan.

c) Boundary wall: Curing with water once a week

   Curing with water on the boundary wall was added to prevent cracks due to shrinkage and drying by direct sunlight.

2.2 Effectivness (Impact)

2.2.1 Facility Usage

(1) Increased Number of Trainees

Before the Project, CCB held seminars with farmers under tents in the field once a month. The seminars were often postponed due to weather conditions. After hand over of the facility, CCB held seminars with 22 Farmers Organisations (FOs) and 19 Woman Rural Development Societies (WRDS) 7 to 9 times a month without negative influence by the

weather. The new lecture room with fully equipped air conditioning and larger capacity increases the number of trainees from 100-150 per month to 270-360 per month.

Table 2.1: Number of Trainees of Atchuhuveli Coconut Nursery

Date	Previous	Oct/2011	Nov/2011	Dec/2011	Jan/2012	Feb/2012
Day of training	Once a month	3,4,7,12,141 8,19,20,27	7,8,9,15,16 24,25,28	6,7,8,9,15 16,28	5,6,7,12,181 9,20,26,27	6,7,8,9,13 14,16,17
No.of Trainee	100～150	356	306	272	360	309

13 lectures in a single day

Source: Interview by JICA Study Team

(2) Increased Number of Lecture

Training opportunities for the farmers increased after the construction of the new facility, although small lectures in the field were held before. The current training courses, 13 lectures in a single day, are as follows. In order to stop the damage from, mite pests that have been prevalent in Sri Lanka in recent years, “pest and disease” was added to the course.

Table2.2: Atchuhuveli Coconut Nursery Training course

1	Coconut Mother Palm Selection
2	Coconut Seed Selection
3	Coconut Nursery Land Selection
4	Coconut Nursery Management
5	Pest & Disease
6	Type of Planting method
7	Lining & Planting Holes
8	Fertilizer Application
9	Mulching Methods
10	Cover Crops
11	Weeding
12	Intercrop
13	Industrial Program

Source: Interview by JICA Study Team

(3) Elimination of Vermin Damage

The boundary wall with a total length 1,865m, eliminated vermin damage at the coconut nursery completely.

(4) Expansion of Production of Coconut Nursery

According to eliminated vermin damage by the boundary wall and repair of the agricultural well, the nursery area increased more than 3 times than before. Now, the nursery can produce 160,000 coconut seedlings compare with 50,000 seedlings before.

2.2.2 Impact to the Surrounding Area

(1) Model Centre of the Northern province

The head office of CCB in the Northern Province is located in Jaffna district. The CCB in Jaffna, therefore, has a significant role in the region and leads the other 4 districts, including Killinochchi, Mulaitivu, Mannar and Vavuniya. The new facility, as a model facility, can hold meetings and conduct guidance concerning operation and management inviting CCB staffs from other districts.

(2) Restoration of Electricity Distribution to the Neighbouring Area

Due to the war in 1990s, high-voltage electrical power lines were destroyed in the area. Since then, power supply to the area including the coconut nursery had been cut off. The rehabilitation of Atchuhuveli Coconut Nursery contributed to re-electrification of the area and benefited the neighbouring area, such as, a training school and residences.

Picture 2c: Leading in Power Line

Picture 2d: Power Meter

2.3 Sustainability

2.3.1 Structural Aspects of Operation and Maintenance

As the head office of CCB in the Northern Province, located in Jaffna district, CCB Jaffna has an advantage in management and operation of the facility. Under the supervision of the Regional Manager of the Northern Province, Atchuhuveli Coconut Nursery has 1 facility administrator, 3 workers and 1 security guard. In case of training sessions, 3 more trainers are dispatched from outside.

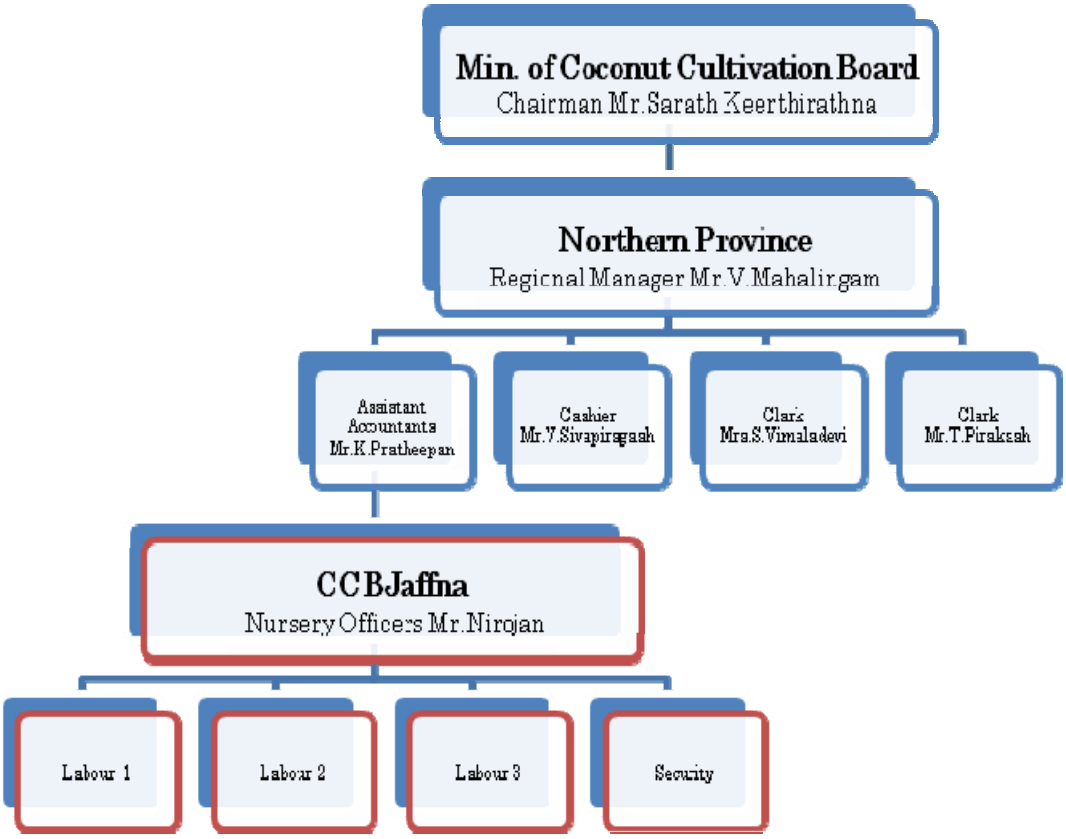


Figure2.1: Organisation of Atchuhuveli Coconut Nursery

2.3.2 Technical Aspects of Operation and Maintenance

Under the supervision of the Regional Manager who participated in the O&M workshop at the time of hand over, the persons responsible for facility maintenance have carried out maintenance of the constructed facilities and supplied equipment according to the O&M Handbook and the Action Plan.

2.3.3 Financial Aspects of Operation and Maintenance

(1) Operation and Maintenance Cost

As maintenance cost for the facility, Ministry of Coconut Cultivation pays LKR150,000 a month. Actual expenditure is around LKR62,000 a month and the LKR88,000 balance is carried forward to the next year. The average of monthly balance for the last 6 months is as follows.

Table2.3: Monthly O&M Cost of Atchuhuveli Coconut Nursery

Description	Payment（LKR/Month）
Service	**8,000**
Electricity	8,000
Water	N/A
telephone	N/A
Internet	N/A
Maintenance	**45,000**
Salary for the Staff (4 staff members)	42,000
Cleaning goods	3,000
Supplies	**9,000**
Stationery	4,000
Drinking Water	N/A
transportation	5,000
Sub total	**62,000**
From Ministry	**150,000**
Balance, carry forward to next year	**88,000**

Source: Interview by JICA Study Team

(2) Training Cost

CCB Jaffna conducts training sessions around 7 to 9 times a month. The training cost is paid from a separate budget from the Ministry of Coconut Cultivation. Trainee allowance is LKR325 a day. A sample training cost in October 2011 is as follows.

Table2.4: Training cost in October 2011

Description	Payment（LKR/Month）
Trainee allowance (356 persons)	**115,700**
Training Material（LKR120 x 356）	42,720
Refreshments（LKR75 x 356）	26,700
Meals（LKR130 x 356）	46,280
Miscellaneous	**2,000**
Total	**117,700**

Source: Interview by JICA Study Team

2.4 Conclusion, Lessons Learned and Recommendations

2.4.1 The issues and Constraints of Facility Maintenance

The facility has been maintained well and its condition is similar to the condition at hand over. The following points for better maintenance, nevertheless, were confirmed by the persons responsible for facility maintenance, after expiration of the defect liability period.

(1) Maintenance for Boundary wall to exclude vermin

The cracks in the cement material, such as the mortar cement and cement blocks, have been

found due to shrinkage and drying by direct sunlight. There were many cracks in the south wall that gets direct sunlight and is sheltered from the moist sea breeze from the north coast. The cracks from drying can be mitigated by curing with water applied to the wall consciously. In addition, the growth of trees which were planted around the boundary wall by CCB shall be beneficial for maintaining the boundary wall.

(2) Maintenance for Hardware

Hinges, keys, door closers etc. for the doors and windows are easy to damage due to the facility locations where are there is a great deal of airborne dust and dirt. Therefore, regular cleaning, adjustment of the screws and supplemental lubricating oil are required for special maintenance.

2.4.2 Establishment of System for Facility Maintenance

(1) Organization for Facility Maintenance

The Regional Manager of CCB Northern province and the Engineer clarified the scope of management for facility maintenance for further improvement of maintenance.

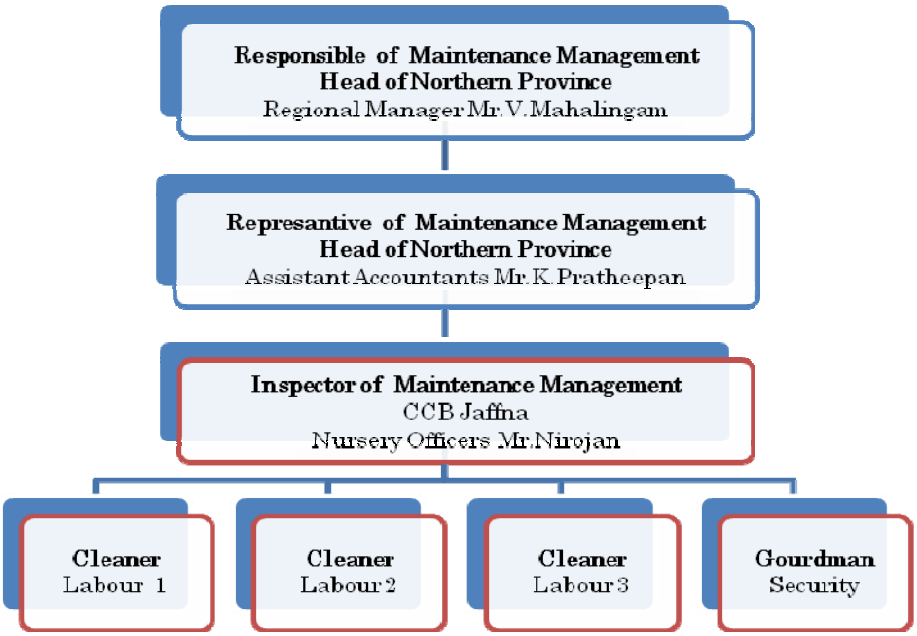


Figure2.2: Maintenance Organisation of Atchuhuveli Coconut Nursery

(2) Tools for Facility Maintenance

The facility has been kept well by good maintenance. However, there are no records, such as frequency of cleaning, date of maintenance of equipment or date of checking the facilities situation. The Engineer proposed a diary as a maintenance tool to CCB and the diary sheet can ensure and improve the quality of maintenance management.

Table 2.5: Diary Maintenance Sheet（Sample）

O & M Check Sheet	Atchuhuveli Coconut Nursery, Jaffna		Date / /	Sheet No. 1 / 1
Inspector Name			Signature	
Room/Place	Door/Window Check	Furniture & Equip Check	Light & A/C & Fan Check	Cleaner Name & Cleaning Check	Note
Entrance Pouch					
Corridor					
Administration Office					
Tea Corner					
Lecture Room					
Male Toilet					
Female Toilet					
Store					
Other Notice					

Check by

Source: JICA Study Team

2.4.3 Recommendations for Facility Maintenance

More trainees from FOs and WRDS are expected so that Atchuhuveli Coconut Nursery needs to conduct more training. The Regional Manager of the Northern Province is planning to move the existing administration office of CCB Jaffna form Jaffna town centre to the compound of Atchuhuveli Coconut Nursery, along with the rapid reconstruction of infrastructure at the area

such as an access road, which is in progress and a telephone line. CCB Jaffna including Atchuhuveli Coconut Nursery, as the model facility is expected to lead other CCBs in the Northern Province to improve coconut production.

Picture 2e: Rehabilitation of Road

Picture 2f: Old CCB Office

3. Monitoring for Regional College of Fisheries and Nautical Engineering (NIFNE/COF)

Picture 3a: North Side Gate

Picture 3b : Seaside Gate (West)

3.1 Dedect Inspection

3.1.1 Preliminary Inspection

In order to implement an efficient defect inspection, the Engineer (JICA Study Team) conducted a preliminary inspection with the Recipient (persons responsible for maintenance of the facility) and the Contractor prior to confirmation as per the following schedule.

(1) Prior Confirmation

Prior Confirmation was done by the Engineer and the Contractor with the Recipient at COF on 20 – 24 February 2012.

(2) Consultation

The Engineer specified the methodology of repairing work to the Contractor on 2 March 2012, after the Defect Inspection Plan (Draft) prepared by the Engineer was approved by the JICA Sri Lanka office on 1 March 2012.

(3) Preliminary Inspection

Preliminary Inspection was done by the Engineer with the Contractor and the Recipient at COF on 4 and 10 March 2012. Major items for the repair work were as follows.

1) Crack on the boundary wall should be repaired.
2) Water leaking at the piping joint under the tea counter should be repaired.
3) Air conditioner in the lecture room was not working and should be repaired
4) Rain water leaking on ceiling panel at the computer room should be corrected.
5) Noise from the windows should be solved.
6) Noise from the ceiling fan should be solved.
7) Switch for the exhaust fan was not working properly and should be corrected.
8) Glass covering on the louver for prevent the entry of water during a rainstorm would be done through the Contractor’s goodwill.

During the rainy season, October to December, rain water was entering in through the louver during storms. The Contractor was requested by the Recipient to solve this issue by covering the louver with glass. In addition, due to the faults of the users broken glass and damage to the hand pump were found in the one-day boat, and this was repaired by the Contractor before the preliminary inspection. Other donated equipment has been found to be in good condition and without damage.

3.1.2 Repair Work

Base on the prior confirmation and the preliminary inspection, the repair work by the Contractor under the Engineer's supervision was carried out from 2 to 13 March 2012.

3.1.3 Defect Inspection

The joint defect inspection was carried out at 13:30 on 14 March 2012, in the presence of witnesses of the Employer, the Contractor, the Engineer and the Recipients. The parties confirmed that all defects were rectified.

3.1.4 Repair Work for Defects

No defects were identified.

3.1.5 Update of Maintenance Plan and Guidance of O & M Handbook

Considering the condition of facility maintenance and the result of the defect inspection, on 16 March 2012, the Engineer held a workshop with the persons responsible to instruct maintenance items and the revised "O&M Handbook" and "Action Plan" which were prepared by the Recipient and the Engineer at the time of hand over. Details of the revised Action Plan are shown in Appendix 1.

The revised items are as follows.

a) Sash: Dusting once a week

   Dusting the sash was added to remove the sandy dust on the sash because it might cause damage by adhering to the sash bracket etc.

d) Air-conditioner: Vacuuming dust once a week/ Periodic Inspection once in 3 months.

   During the preliminary inspection, the air-conditioner problem was identified. Therefore vacuuming and periodic inspection were added to the action plan.

3.2 Effectivness (Impact)

3.2.1 Usage of Facility and Equipment

In addition to the existing training sessions, the following training programmes are implemented due to the improvement of the facility and equipment of the COF.

(1) Three Month Course (Outboard Motor Repair and Maintenance Training)

The objective of training is to learn about repair and maintenance for outboard motors, and consists of practical training at the workshop (66 hours), lectures at the lecture hall (66 hours) and on boat training using the supplied boats (6 hours). The training tends to be held twice a week (on Saturday and Sunday) every three months, considering providing an opportunity for the trainees from other districts. Due to reconstruction of the facility and the procurement of equipment under the Project, the training environment was improved significantly. In the past, the COF conducted lectures using pictures because they had no equipment for the purpose, and then, sent the trainees to the COF Tangalle to attend training on a wheel type one-day boat because it did not have the same type boat. After the Project, the trainees can learn about repair and maintenance works using the donated equipment at the workshop, and practice the training for the wheel type one-day boat which belong to the COF Jaffna. Now, the COF Jaffna can accommodate trainees from other districts including Trincomalee and Batticaloa for this training programme. The number of trainee increased to around 30 to 35, while it was around 5 to 10 in the past.

Table 3.1: Three Month Training Course

	Curriculum	**Hours (Days)**	**1st Month**	**2nd Month**	**3rd Month**
1	Two stroke Outboard motor & four stroke diesel engine (OBM)	42(7)	•• •• •• •		
2	Engine Maintenance	21(3.5)	••	••	
3	Fishing Vessels fibber glass repair	18(2.5)		• ••	
4	Fuel System, Ignition System, Cooling System, Lubrication System & Gear System	12(2)		••	
5	Engine Operation & Fault finding	12(2)		••	
6	Navigation & Seamanship	21(4)			•• • •
7	Practice on the Boat	6(1)			•
8	Final Examination	6(2)			••
	Total Hours (Days)	**138 (24)**	**54 (9)**	**51 (8)**	**33 (7)**

Source: Interview by JICA Study Team

Picture 3c: Wheel Type One-day Boat

Picture 3d: Ten Day Training Course

(2) Ten day Course (Marine Charts and Satellite Navigation Training Course)

The procured marine charts and satellite navigation equipment can be utilised in the Marine Charts and Satellite Navigation Training Course. The ten day training consists of practice at the workshop (24 hours), and lectures at the lecture hall (30 hours) from Monday to Friday, 5 days a week. This is a new training course thanks to the new equipment procured under the Project. The number of trainees is around 30 to 35.

Table3.2: Ten Day Training Course

	Curriculum	Hours (Days)	1st	2	3	4	5	6	7	8	9	10
1	Geographical Measurement of the Earth	12 (2)	•	•								
2	Marine Chart Reading Compass Reading	18 (3)			•	•	•					
3	Communication SSB Radio Telephone & Reception of Safety Message, SOS	12 (2)						•	•			
4	Operation of Satellite Navigation Equipment	6 (2)								•	•	
5	Engine Operation & Fault finding	6 (1)										•
	Total Hours (Days)	**54 (10)**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

Source: Interview by JICA Study Team

(3) Library/Computer Room

The COF opens the Library/Computer Room to the trainees during training sessions, so that the trainees can utilise the computers and books.

(4) Food Processing/ Multipurpose Room

This room tends to be used for meeting purposes now, although no training using the room has been conducted so far.

Picture 3e：Multipurpose Room

3.2.2 Impact to the Surrounding Area

The COF Jaffna is the only government institute for fishery education and training in the Northern Province. A number of NGOs and donors expect to hold fishery training at the school. The three month training and the ten day training, in fact, are training programmes funded by the International Organisation for Migration (IOM).

3.3 Sustainability

3.3.1 Structural Aspects of Operation and Maintenance

The Regional College of Fisheries and Nautical Engineering, Jaffna (COF) is operated under the supervision of the National Institute of Fisheries and Nautical Engineering (NIFNE). The staff of COF Jaffna consists of the Assistant Director as principal and the Assistant Clark with three contract-based staff. For training purpose, four teachers are dispatched from other sources.

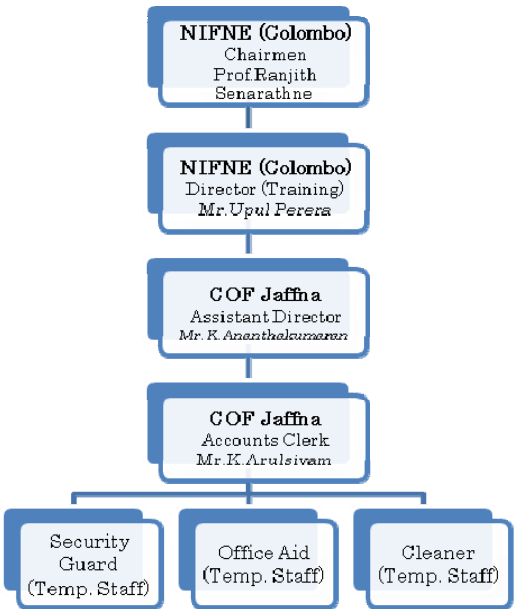


Figure 3.1: NIFNE/COF Organisation

3.3.2 Technical Aspects of Operation and Maintenance

A number of examples of facility deterioration were observed during the preliminary inspection not due to actual defects, but rather due to poor maintenance. The Engineer held a refresher workshop on facility maintenance considering the lack of motivation and low capacity for maintenance of the persons responsible. During the workshop, the Engineer instructed how to undertake operation and maintenance to confirm maintenance items and the revised O&M action plan.

3.3.3 Financial Aspects of Operation and Maintenance

(1) Operation and Maintenance Cost

The Engineer observed a lack of capacity for financial management of the COF. The COF did not have its own budget plan, so that COF could not get any special budget for maintenance from NIFNE. It was difficult for the COF to manage their budget for both salary payment for staff and facility maintenance. Therefore, the Engineer introduced a sample budget plan for operation and maintenance cost. A proposal of a monthly plan to NIFNE was prepared for getting budget to COF Jaffna, and it is expected to be paid by NIFNE on April 2012.

Table3.3: COF Monthly Cost

Description	Payment（LKR/Month）
Service	**19,500**
Electricity	12,000
Water	1,500
telephone	4,000
Internet	2,000
Maintenance	**61,500**
Salary for the Staff (3 staff members)	52,500
Cleaning goods	4,500
Garden Maintenance (Fertilizer)	500
Maintenance of A/C (10,500/3 months)	3,500
Maintenance of Boat	500
Supplies	**60,000**
Stationery	8,000
Drinking Water	1,500
Fuel for Boat	30,000
Goods for boat	500
transportation	20,000
Sub total	**141,000**
Misc. (20%)	**28,200**
Total	**169,200**
Estimated monthly cost	**170,000**

Source: Interview by JICA Study Team

(2) Training Cost

Regardless of the training course, the chief lecturer, supporting staff, training material and transportation fee etc. are bourn by COF, other expenses for the trainees such as, long-distance transportation costs, accommodation fees, and meals tend to be funded by NGO/donor in many cases.

Table3.4: Training Cost covered by COF

Description	Payment（LKR/Day）
Chef lecturer (1 person)	650
Supporting Staff (1 person)	450
Coordination Fee（1 set）	650
Training Material (1 set)	700
Transportation fee	1,200
Miscellaneous	800
Sub total	**4,450**
Administration Charge (30%)	1,335
Total	**5,785**

Source: Interview by JICA Study Team

3.4 Conclusion, Lessons Learned and Recommendations

3.4.1 The issues and Constraints of the Facility Maintenance

After hand over, the principal who was the person responsible for facility maintenance and management was replaced because he retired after 30 years in service in December 2011. The O&M Handbook, which included the action plan that was developed under the Project has not been put in practice since the replacement. For this reason, maintenance of the facility was insufficient so that there were a number of problems including dirt on the internal walls, external wall and scattered furniture. The loose screws on the door handle and the water leak under the sink were not repaired. There were many defects caused by lack of proper maintenance. The following points for better maintenance were confirmed by the persons responsible for facility maintenance, after expiration of the defect liability period.

(1) Enforcement of Operation and Maintenance

It is necessary to enforce that the “O&M Handbook” and “Action Plan” was prepared by the Recipient and the Engineer at the time of hand over. The Engineer conducted refresher training for maintenance management to the persons responsible for confirming organisation, roles and responsibilities of each staff for operation and maintenance.

(2) Increasing Facility Usage

The equipment failure and/or defects were ignored due to low usage of some equipment, such as the air-conditioner fan. In addition to regular maintenance, it is proposed to increase the number of seminars and study sessions to promote the frequent use of the facility.

3.4.2 Establish Organization System for the Facility Maintenance

(1) Organization for the Maintenance Facility

The operation and management cost is expected to be provided from NIFNE in the future. A new maintenance management system is needed. In order to enforce the "Maintenance manual" and "Action plan", the organisation for facility maintenance was clarified by the COF in the consultation with the Engineer.

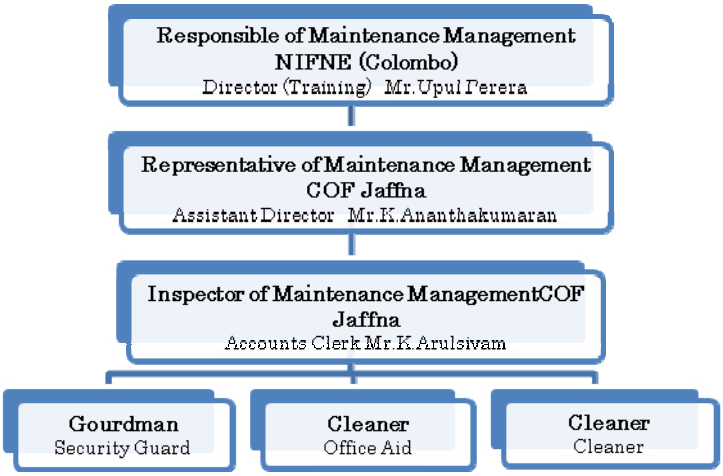


Figure3.2: Maintenance Organisation of COF

(2) Tool for Maintenance Facility

In order to improve frequency of checking for cleaning the facility and the condition of equipment, the Engineer proposed a diary as a maintenance tool to COF and the diary sheet can ensure and improve the quality of maintenance management.

Table 3.5: Diary Maintenance Sheet（Sample）

O & M Check Sheet	Regional College of Fisheries and Nautical Engineering, Jaffna			Date / /	Sheet No. 1 / 1
Inspector Name				Signature	
Room/Place	Door/Window Check	Furniture & Equip. Check	Light & A/C & Fan Check	Cleaning Check	Note
GF. Entrance Veranda					
GF. Entrance Lobby /Recep.					
GF. Visitor's Waiting					
GF. Assi. Director Office					
GF. Staff Office					
GF. Work Shop					
GF. Store					
GF. Tea Corner					
GF. Female Toilet					
GF. Disable. Toilet					
GF. Male Toilet					
Stair					
1F. Lecture Hall					
1F. Store					
1F. Balcony					
1F. Display Corner					
1F. Store					
1F. Library					
1F. Multi. Room					
1F. Terrace					
GF. Security hut					
GF. Rest Room					
GF. Store					
GF. Store for fishing net					
Other Notice					
Check by					

Source: JICA Study Team

3.4.3 Recommendations for Facility Maintenance

Motivation of NIFNE and COF on facility maintenance increased through the defect inspection and the O&M workshop. NIFNE was aware that the operation and maintenance budget was needed through their participation in the joint defect inspection. In addition, the COF could understand the essential points of maintenance through participation in the O&M workshop, and

confirm roles and responsibilities of each staff member. For the operation of COF, on the other hand, NIFNE has a plan to dispatch teachers to the COF from Colombo (one expert for the operation and maintenance of machine, one expert for the fishing, and one expert for diving) until the middle of April 2012. Currently, only one teacher is appointed and other teachers are dispatched tentatively depending on the situation. The appointment of new teachers can contribute to expanding the training courses and recruitment of new trainees in the future.

4. Lessons Learned and Recommendations for the Urgent Rehabilitation Component Batch 2

Lessons learned from the implementation and defect inspection of the Urgent Rehabilitation Component Batch 2 are summarised below.

(1) Coordination with the Central Government in the Project Formulation Stage

During the project formulation, ideas for operation and maintenance of the facility between NIFNE as a central government representative and the COF as a Jaffna authority were not the same. In the grant aid scheme of Japan's ODA, the scope of works is clarified officially by the bilateral agreement between the donor and a responsible agency in the central government. Therefore, both central and local authorities strictly follow the agreement. The authority responsible for the facility can secure financial support from the central government automatically. In this Project, however, the financial support could not be obtained from the central government, although the memorandum concerning operation and maintenance was agreed between the JICA study team and Sri Lankan authorities. For facility construction projects in the future using a scheme similar to this project, the financial commitment from central government should be emphasised strongly. The agreement or memorandum among the parties should include not only the roles and responsibilities of each government authority but also concrete budget for operation and maintenance.

(2) Active Participation of the Recipient for Project Implementation

During the construction stage, the CCB and the COF as well as the Engineer and the Contractor actively participated in the monthly construction meetings. This communication helped deepen understanding for construction and trust between the construction side and the user side, so that the project was completed without any major delays. Also, it contributed to carrying out the repair work efficiently before the defect inspection.

It is effective to facilitate persons responsible for the facility to participate in the process of facility construction, so that they are motivated for operation and maintenance, and their opinions can reflect to the construction works.

(3) Utilising Defect Liability Period for Risk Control

It was difficult to complete a perfect design under this scheme considering the various conditions such as climate constraints because the period from project formulation, site investigation, detail design, and bidding to actual construction was quite limited. For this reason, various small adjustments of the design within the contract price were necessary during the construction period. There was no design defect under the Project due to the good coordination

and reasonable adjustment of the design getting agreement from the Recipient and the Contractor. However, the adjustment for the glass covering on the louver at COF to prevent the entry of water during a rainstorm was needed after the completion of the construction, and was done by the Contractor's goodwill at the defect inspection stage. This is one of the problems due to lack of understanding of outsiders including the Engineer and the Contractor for climate conditions in Jaffna.

In conflict affected areas such as Jaffna, it was difficult to secure local engineers or contractors who have enough knowledge and experience, so that the Project used engineers and technicians who have good skill but less experience in the region. This problem seems to be difficult to prevent under the constraints, so that a defect liability period can be a risk hedge for solving unexpected problems after completion of construction works.

(4) Issues for Operation and Maintenance Training

The O&M workshops prior to the hand over were effective. The maintenance manual and action plan that were developed during the workshop have been practiced under the leadership of the facility manager in the CCB. The facility of COF, on the other hand, had a number of problems due to the replacement of the facility manager. Lack of motivation of the new facility manager without any training on operation and maintenance, and insufficient guidance at the time of replacement seem to be the cause of this.

It is necessary to develop simple guidelines and manuals considering technical transfer and human resource replacement in the future. However, the technical transfer seems to be dependant on individual expertise and has limitations. Therefore, repeated training can be effective using opportunities after the completion of a project like this defect inspection.

添付資料 1
Appendix 1

改訂版アクションプラン
Revised Action Plans

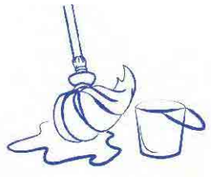
ACTION PLAN FOR MAINTENANCE OF CCB

Room /Place	Part of Cleaning	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Administration Office Tea Corner Lecture Room Corridor	Ceiling		Du	Du	Du	Meticulous cleaning Seasonal
	Wall		Du			Twice a Week
	Floor		Mo & Br		Vacuuming	Training period every day
	Door/Window		Wi & Du			Training period every day
	Furniture(F)/Electrical Equipment(E)	Du (F)		Du (E)		
Male Toilet Female Toilet	Ceiling			Du	Du	Meticulous cleaning Seasonal
	Wall		Du			
	Floor	Br				
	Door/Window		Wi & Du			
	Sanitary fittings	Wa				
Store	Ceiling				Du	Every 3 Months
	Wall				Du	Every 3 Months
	Floor				Vacuuming	
	Door/Window		Du		Wi & Br	Every 3 Months
	Shelf		Du			
Entrance Pouch	Ceiling	Du				
	Wall		Du		Du & Wa	In the rainy season
	Floor	Br			Br & Mo	In the rainy season
	Door/Window	Du & Wi				
Equipments	Air Conditioner			Du		Every 3 Months Service Maintenance

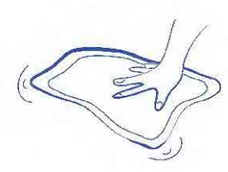
Legend 1

Sw: Sweeping

Mo: Mopping



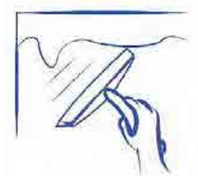
Du: Dusting



Room /Place	Part of Cleaning	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Around Building	Parking	Sw & Br				Floor Sweeping Post Dusting
	Road		Sw			After spray water
	Manhole for Drain		Wa		Br	Meticulous cleaning Every 3 Months
	Pump House	Du& Br				Daily Observation
	Water Tank				Wa & Br	Every 6 Months
	Agro Well				Wa & Br	Every 3 Months
	Boundary Wall		Curing		Wa & Br	Every 6 Months
	Septic Tank				By Specialist	Every Year

Legend 2

Wi: Wiping



Br: Brushing

Wa: Washing

Place	Part of Checking	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Equipment	Performance Check	✓				
Water Pump	Performance Check	✓				
City Power	Meter	✓				
	Cost			✓		
Building	Operation Check	✓				
	Overhaul facilities				✓	Every Year

Urgent rehabilitation Component (URC) Batch2
Prepared by CCB and facilitated by PDP Jaffna, JICA Study Team, on 15 March 2012

ACTION PLAN FOR MAINTENANCE OF COF

Room /Place	Part of Cleaning	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Director's Office **Staff Office** **Entrance Lobby** **Tea Corner** **Library** **Multi Purpose** **Lecture Hall**	Ceiling				Du	Every 3 Months
	Wall		Du			
	Floor	Sw	Mo			
	Door/Window	Du	Wi / Du			
	Furniture	Du				
Male Toilet **Female Toilet** **Disable Toilet**	Ceiling			Du		
	Wall		Wa			
	Floor	Wa & Br				
	Door/Window		Wi / Du			
	Sanitary fittings	Wa				
Work Shop	Ceiling			Du		
	Wall		Du			
	Floor	Sw	Mo			During raining season
	Door/Window		Wi & Du			During raining season
	Shelf	Br & Du				
Restroom for Crew (RC) **Security Hut(SH)** **Store**	Ceiling			Du		
	Wall			Du	Du (Store)	Every 3 Months for Store
	Floor	Mo			Du (Store)	Every 3 Months for Store
	Door/Window		Wi / Du (SH)	Wi (RC)	Wi (Store)	Every 3 Months for Store
	Shelf		Du		Du	Meticulous cleaning Every 3 Months
Stair/Corridor **1F.Store**	Wall		Du			
	Floor	Mo				
	Door/Window		Wi & Du			
	Shelf		Du		Du	Meticulous cleaning Every 3 Months
Others	Safety bars /Aluminium Fittings	Du	Du			
Equipments	Air Conditioner			Vacuuming		Every 3 Months Maintenance Service

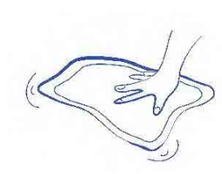
Room /Place	Part of Cleaning	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Entrance	Gate		Du			
	Paving Block	Sw	Br		Wi	During raining season
Sub Entrance	Gate		Du			
	Paving Block	Sw	Br		Wi	During raining season
Vehicle Entrance	Gate		Du			
	Paving Block	Sw	Br		Wi	During raining season
Around the Building	Canal				Shovelling	Every 3 Months
	Water Tank				Wa	Every 3 Months
	Septic Tank and Well				By Specialist	Every 6 Months
	Manhole				Watering	Every 3 Months

Legend

Sw: Sweeping

Mo: Mopping

Du: Dusting



Wi: Wiping

Br: Brushing

Wa: Washing

Place	Part of Checking	Frequency				Memo
		Daily	Weekly	Monthly	Others	
Equipment	Performance Check	✓				
City Water & City Power	Meter	✓				
	Cost			✓		
Building	Operation Check	✓				Durability check
	Overhaul facilities	(✓)		✓		Daily personal check Monthly group check

Urgent rehabilitation Component (URC) Batch2
Prepared by COF and facilitated by PDP Jaffna, JICA Study Team, on 16 March 2012