

**COMPLIANCE REPORT TO YOUR ORDER DT. 16<sup>TH</sup> NOVEMBER 2010**

**SPECIFIC CONDITIONS:**

- i. The total quantity of the dredged material of 35,00,000 cu.m shall be dumped at the specified offshore dumping site of Cochin Port at outer sea, about 15.6 km from the shore.

**The dredging work has been completed. Material were dumped as per above direction.**

- ii. The approach channel shall be properly demarcated with lighted buoys for safe navigation and adequate traffic control guidelines shall be framed. The fishermen shall be suitably educated and informed about the traffic guidelines.

**The approach channel has been clearly marked with lighted buoys in association with Cochin Port. Cochin port trust provides Vessel Traffic Management Service (VTMS) to all vessels within port area.**

- iii. The material dredged by cutter suction dredger will be used for land development work and for beach nourishment approved by Cochin Port Trust. Dredged material from Trailer Suction Dredger will be dumped at the specified offshore dumping site of Cochin Port at outer sea, about 15.6 km from the shore.

**The materials dredged from Cutter suction Dredger were dumped on the western side of the terminal as per the instruction of Cochin Port Trust; this area has been allocated by Cochin Port Trust for dumping.**

**The Dredged material from Trailer Suction Dredger was dumped at the designated dumping site of Cochin Port at outer sea, about 15.6 km from the shore.**

- iv. The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.

**PLL has set up Environment Management Cell under Vice President – Operation & Maintenance, team includes HSE department, Civil Department and Lab operation department for effective implementing the stipulated environment safeguards.**

- v. The project proponent shall take up mangrove plantation/green belt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management Plan for such mangrove development.

**In FY 2014-2015 Petronet LNG Ltd, Kochi, arrived at an agreement with Kerala State Social Forestry for a mangrove afforestation project in Ernakulum district, the total cost of the project is 71.05 lakhs. Petronet LNG Limited have already transfer fund of Rs.30.00 lakh for the Mangrove Afforestation Project which is entitled "Project for Mangrove afforestation in Ernakulam district" All details with regard to this project has already been submitted along with six monthly compliance report dated 03th March-2015; an updated progress report of the project is enclosed as Annexure # 1.**

PLL has also developed green belt along the periphery boundary wall. Green belt is about 10.48% of total area of our site.

- vi. The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purpose.

**Budget allocated for environment safeguard will not be diverted for other purposes.**

**GENERAL CONDITIONS:**

- i. Adequate provision for infrastructure facilities including water supply fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid damage to the environment.

**We have completed the construction and commissioning of our plant. During both the phases, adequate provisions were provided to avoid any damage to the environment.**

- ii. Full support shall be extended to the officers of this Ministry/Regional Office at Bengaluru by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.

**PLL will extend full support to the officers of this ministry's Regional Office, Bangalore and the officers of the Central and State Pollution Control Board during the inspection for monitoring purpose by furnishing full details and action plans including the action taken reports in respect of mitigate measures and other environmental protection activities.**

- iii. A Six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bengaluru regarding the implementation of the stipulated conditions.

**PLL is submitting required six monthly monitoring reports to the Regional Office of MoEF, Bengaluru.**

- iv. Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.

**PLL will comply with additional conditions, if any suggested by the ministry or any other competent authority in writing.**

- v. The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.

**PLL is aware about the rights of the ministry and have noted this condition.**

- vi. In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.

**PLL has not carried out any deviation or alteration in the project. PLL will comply with this requirement and will take permit from the Ministry prior to any deviation, alteration and modification in the project.**

- vii. The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.

**PLL had already informed the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project vide letter dated 5th Sept-2008, from Director (Technical) addressed to Additional Director, MoEF, Delhi and copy marked to regional officer.**

- viii. A copy of the clearance letter shall be marked to concern Panchayat/Local NGO, if any, from whom any suggestion/representation has been made received while processing the proposal.

**No specific suggestion/representation has been made / received from any authority while processing the proposal.**

- ix. Kerala Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/Tehsildar's office for 30 days.

**Complied by Kerala State Pollution Control Board.**

E2-461/2014

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Social Forestry Division, Ernakulam  
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Date: 28-03-2016*

From  
**K.J. Martin Lowel**  
Assistant Conservator of Forests

To

The Vice President (O&M)  
Petronet LNG Ltd.

Sir,


Sub: Project on Mangrove Afforestation in Ernakulum Dist. – progress report -reg.

Ref: That office let. No. PLL/KOCHI/HSE/2013-14/C-02

I submitting herewith a progress report of the Mangrove Afforestation Project funded by Petronet LNG Ltd. as on 25.3.2016 for the kind perusal and for valuable suggestions if any.

Thanking You

With Regards



Assistant Conservator of Forests  
Social Forestry, Ernakulum

## Progress Report of Mangrove Afforestation Project in Ernakulam Dist., Kerala

### Background of the Project:

The coastal region of the Ernakulam dist. blessed with rich natural heritage of mangroves were severely destructed for various reasons such as setting up of developmental projects, shortages land for housing of indigenous communities, higher land value, changes in lifestyle, lack of awareness on importance of mangrove ecosystem etc. As an attempt to compensate the ecological loss due to mangrove destruction, Petronet LNG Ltd. has provided financial assistance to Kerala Forest Department through implementation of the project called "Mangrove Afforestation in Ernakulam District". This project is implemented by Social Forestry Division, Ernakulam. The major components of the project are 1) Mangrove planting 2) Protection of existing mangroves by taking up habitat improvement programmes 3) Providing incentives to owners of mangrove areas 4) Conducting awareness programmes 5).Establishment of mangrove information centers (Mangrove Park) etc.

### Implementation of the Project:

First installment of the project cost of Rs. 30 lakhs was handed over to Kerala Forest Department on 16.3.2015.

a) **Planting Operations:** Forest department raised mangrove seedlings suitable to the locality and carried out planting through indigenous people especially fishermen community. Planting was done mainly by women group called "Kundumbasree". The details of the planting are given below

Sl. No.	Name of place and status of land	Species planted	No. of seedlings planted
1	Kadaekurishu Canal Bank in Nayarambalam Panchayath land (on22.06.2015)	<i>Rhizophora mucronata</i>	4000
2	Canal bank at Pachuvekkar (North), Nayarambalam Panchayath land (on 23.06.2015)	<i>Rhizophora mucronata</i>	2500
3	Vijayan Canal Thodu, Chellanam Panchayath land (on 09.07.15)	<i>Rhizophora mucronata</i>	2500
4	Banks of Pvt. Fish Farm at Chellanam, owned by Sri. Thankachan (on 07.10.15)	<i>Rhizophora mucronata</i> <i>Bruguiera gimnorrizha</i>	1500 1500
5	Canal bank at Pachuvekkar (south), Nayarambalam Panchayath land (on 04.12.2015)	<i>Bruguiera gimnorrizha</i>	2500
6	Along the banks of Anjiliathara bund road, Kumbalangi, Kumbalangi Panchayath land (on 27.01.16)	<i>Bruguiera gimnorrizha</i>	2200
	<b>Total no. of mangrove seedlings planted</b>		<b>16700</b>





Three months old *Rhizophora mucronata* seedlings



Transporting seedlings for planting



Panchayath President and Ward Member  
Planting seedlings at Kadekuseri on 22.06.2015



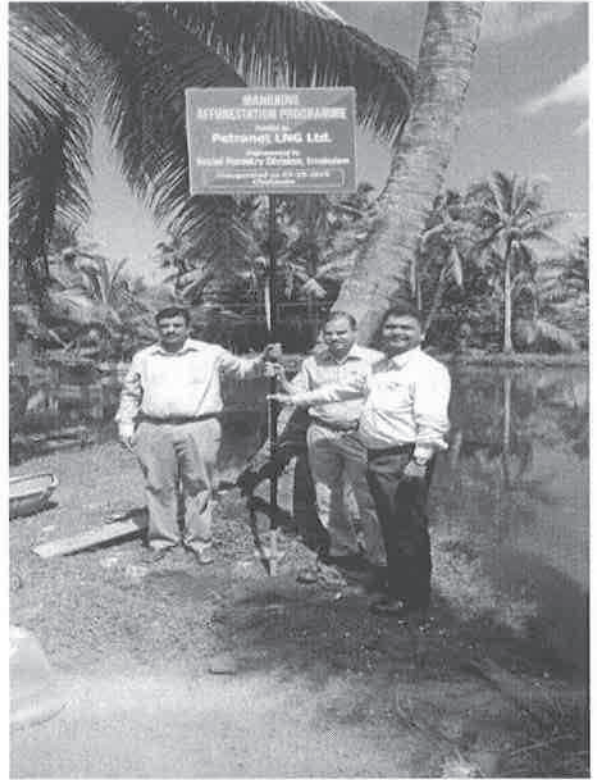
A view after planting (23.6.15)



Mangrove planting at Pachuvekkar North by Panchayath Member Sindhu and Uthaman(23.6.15)



V P (O&M) inaugurating planting of mangroves  
At Chellanam on 07.10.2015



V P (O&M), Manager (HSC), ACF (SF) at planting  
area, Chellanam on 07.10.2015



Inauguration of Mangrove planting at Pachuvekker  
South by Panchayath Member on 04.12.2015



Assistant Conservator, Social Forestry Ernakulam  
District planting mangrove seedlings (4.12.15)





A view of *Bruguiera gimnorrizha* nursery at Kumbalangi



Seedlings transported for field planting



A view of established *Bruguiera gimnorrizha* seedlings at Kumbalangi (photo taken on 26.03.16)



Seedlings of *Bruguiera gimnorrizha* growing at Pachuvekker south (29.01.2016)



Seedlings of *Bruguiera gimnorrizha* growing at Pachuvekker south (29.01.2016)



Seedlings of *Rhizophora mucronata* growing at Njarakkal Panchayath area (26.03.2016)



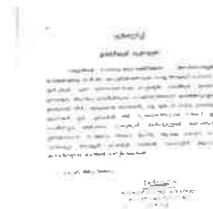
b) **Incentives to mangrove owners:** Wide publicity was given through mass media such as newspaper for inviting application to prove incentives to mangrove owners. Some of such news appeared in leading news dailies are given below. Even though, a lot of queries were received via. telephone a very few people was willing to participate in the project. This is because they feared that once they received any benefit from forest department they could not use their land for any other purposes in future. When compared to land cost, benefit they get is also less. Only because of the hard work of forest department staff a few are now come forward to participate in the project. Fish fingerlings were supplied to persons who are willing to participate in the project. In the coming years more people are expected to be involved in this programme.



Deccan Chronicle- 30.7.15



Mathrubhoomi –26.7.15



Forest Dep. notification-24.7.15



Malayala Manorama-11.7.15



Hindu – 22.6.15



V P (O&M) inaugurating distribution of Fingerlings to Farmer at Chellanam on 07.10.2015



Farmer releasing fingerlings to pond (7.10.15)

c) **Extension Activities:** One of the objectives of this project is to create awareness among the local people on ecological and socio-economic importance of mangrove ecosystem and involve them in the protection of existing mangrove forests. In connection with this, several training classes was conducted for indigenous community especially for fishermen. The self-help group of women was given primary importance. In addition to indigenous groups, students, citizen conservators, elected members of Panchayaths, nature clubs etc. were also included in extension programmes. Details of classes are given below.

Sl. No.	Date	Place or where camp/class conducted	No. of Days	Target group	Topic/ subject dealt with	Name and designation of faculty	No. of person attended classes
1	25.07.2015	Nayarambalam Panchayath	1	Kudumbasree members Ward-12	Planting, protection, conservation of mangroves and nature awareness	Rajendran D., DCF (Retd)	77
2	27.07.2015	Nayarambalam Panchayath	1	Kudumbasree members Ward-5	"	Rajendran D., DCF (Retd)	68
3	29.07.2015	Chellanam Panchayath	1	Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	61
4	08.08.2015	Vazhachal	1	Ghadhi Vichara Dhara, Gandhi Padanakendram, Njarakkal	Importance of wet lands and mangroves	Joseph Puthuserry, Citizen Conservator	57
5	03.09.2015	Mangalavanam	1	Citizen Conservators	Mangrove Conservation & Tree felling in public places	K.J. Martin Lowel, ACF, Social Forestry, Ernakulam	30

6	30.12.2015	Edavanakkad Gramapanchayath	1	Kudumbasree members & students of balasabha	Planting, protection, conservation of mangroves and nature awareness	John C.V., Environmentalist & Citizen Conservator	125
7	04.01.2016	Kumbalanghi	1	Kumbalanghi Gramapanchayath Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	67
8	14.01.2016	S.S. Araya U.P. School, Pallipuram	1	Students	"	Rajendran D., DCF (Retd)	60
9	15.01.2016	Mangalavanam, Ernakulam	1	Hidayathul Islam H.S.S. Students	"	John C.V., Environmentalist & Citizen Conservator	65
10	16.01.2016	Mangalavanam, Ernakulam	1	St. Mary's U.P.S., Njarakkal	"	John C.V., Environmentalist & Citizen Conservator	52
11	02.02.2016	Malippuram Aquarium Hall	1	High School, Edavanakkad	Importance of wetland & mangroves	K.J. Martin Lowel, ACF, Social Forestry, Ernakulam.	40
12	17.03.2016	Chellanam Grama Panchayath	1	Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	100
13	21.03.2016	Elamkunnapuzha Panchayath Hall	1	Selected members of Panchayaths, Academicians, Govt. Officials	Importance of mangrove forests & water conservation	Dr. C.M. Joy Professor & head of Botany Dep. SH College, Thevara	45

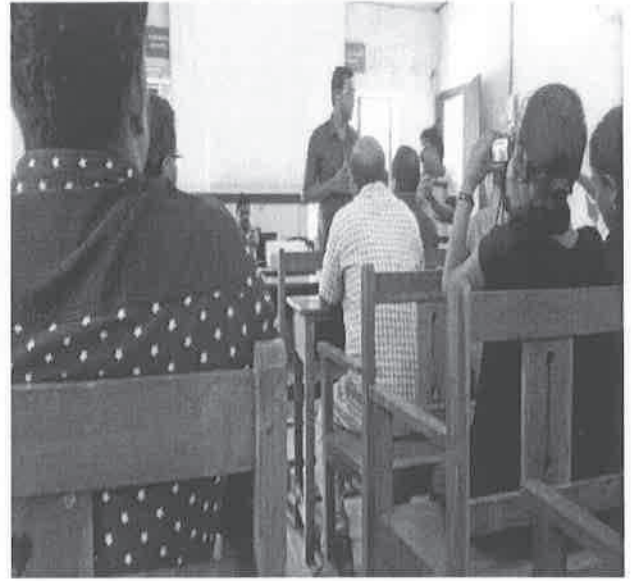


Mangrove awareness class at Nayarambalam for Kudumbasree Members on 27.7.15 & 28.7.15





Meeting of Citizen Conservators at Mangalavanam on 3.9.15.



Camp at Vazhachal on 8.8.2015



ACF, SF & Panchayath President, Kumbalangi Inaugurating training on mangrove planting at Kumbalangi Panchayath Hall on 04.01.16



Petronet LNG Engineer Sri. Nishanth Addressing gathering in a Citizen Connect workshop on Mangrove Conservation held at Elakunnapuzha Panchayath Hall on 21.03.2016



ACF, SF, Ernakulam addressing gathering in Citizen Connect workshop on Mangrove Conservation held at Elakunnapuzha Panchayath Hall on 21.03.2016



Petronet Officials discussing mangrove conservation issues with renowned environmentalist Prof. Seetha Raman on World Wet Land Day celebration held at Malippuram

In addition to various training classes and workshops, several Boards showing importance of mangroves were installed at various places



One of the board (6 x4 feet size) written the message “why should we conserve mangroves” is exhibited at Malippuram (26.03.2016)

d) **Setting up of Mangrove Information Centre:** A mangrove Information Centre was developed in 2 acre mangrove forest owned by Fisheries Department adjacent to Malippuram Fish Farm where a large numbers of people are visited everyday as part of Aqua Tourism. The Mangrove Park is on the way to the Fish Farm. This park will give good information on ecological importance of mangrove ecosystems and necessity for conserving mangrove forests. The work of the Park is expected to complete by the end of May 2016. People will have a resting facility and could feel the beauty of mangrove forests. Details of plants, animals and birds found in mangroves will be exhibited scientifically inside the Park.





View of Mangrove Information Centre before development (9.10.15)



Entrance of Mangrove Information Centre (Park) at Malippuram (26.03.2016) - after development



View of Entrance of Mangrove Park, Malipuram (26.3.16)



Inside view of Park (II<sup>nd</sup> and III<sup>rd</sup> bridges)





Inside view of Mangrove Park at Malippuram (26.3.16)



Saplings of mangrove associated species planted along the way to Mangrove Park (26.3.16)

**e) Habitat Management:** Many people treating mangrove areas as a site for waste dumping. It promotes mosquito population and it becomes a big problem to local people. Due to scarcity of land, waste disposal is a big issue for Panchayath / Municipal Corporation authorities. As the part of this project waste dumped in mangrove areas are taken up with the involvement of local people. Removal of plastics and cutting of climbers were done occasionally which helped several mangrove plants to grow up well.



Plastic waste deposited in mangrove area at Malipuram (1.2.16)



Removal of waste by Women group at Malippuram on 02.02.2016



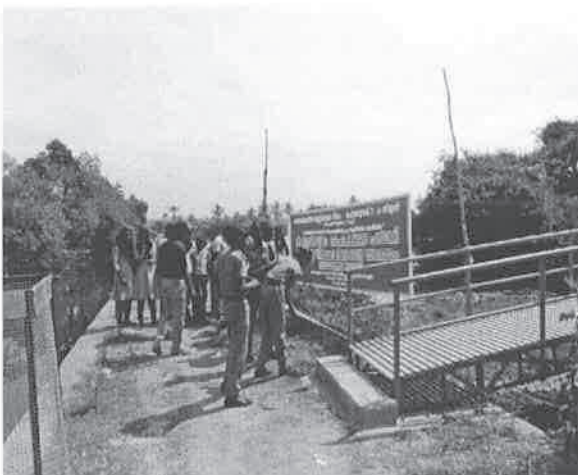


Inaguration of Habitate Improvement programme in Mangrove area at Kumbalangiby Paresh Prest on 12.01.2016



Mangroves infested by climbers at Kumbalangi

Women group cutting climbers at Kumbalangi on 12.01.15



Habitate improvement work by school students at Malippuram mangrove area on 2.2.16

Petronet staff along with students in habitate improvement programme at Malippuram on 2.2.16

**f) Drinking Water Facilities to Mangrove Area:** One of the major problems faced by coastal population is insufficient drinking water. One of the components of the project is to provide drinking water facility to people living in and around mangrove area. This incentive will be given especially to people those who are protecting mangrove area. The work in this regard is progressing.

In all the activities Petronet LNG staff is actively participated along with forest officials and mutual discussions were held before the implementation of any scheme/ activity.

#### **Challenges:**

One of the Challenges faced is non-availability of large extent of area for mangrove planting. Presently planting was done mainly along the ridges of waterbody. *Rhizophora* sp. is most suited for field planting and establishment rate is also high. However, people are not interested in *Rhizophora* as it is badly affects shrimp farming. In the case of *Bruguiera gimnorrhiza* which is one of the preferred species establishment percentage is very low. Sincere attempts are being made by Forest Department staff for finding out area for field planting and successful implementation of the project.

#### **Result:**

A large no. of mangrove seedlings was planted even though a stiff resistance was raised from local community at the beginning of project. Now the people are approaching forest department against felling of mangroves and coming forward to take up mangrove planting. This project certainly will improve the ecological status of existing mangroves. Several awareness classes were conducted for local people and school students regarding importance of mangrove ecosystem which helped to improve the knowledge of local community which will in turn to reduce the felling of mangrove trees. Some persons have come forward to take up planting in their own land. The removal of waste from mangrove areas has given a big support to the project especially from LSGs. The setting up of Mangrove Park is widely welcomed by local people on the ground that it will help to promote eco-tourism in remote areas such as Malippuram. Several people especially women of Coastal area has got job as the part of this project which in turn helped to improve up their social and economic status.





Birds sitting on a Mangrove Tree at wet land area, Kumbalangi (26.03.2016)

THANKS