



**SCHEME FOR SITE SPECIFIC**

**COMPENSATORY AFFORESTATION SCHEME OVER 17.297 AC OR 7.000 HA OF  
PETCHHELA PROTECTED FOREST LAND IN KENDRAPARA DISTRICT IN LIEU OF  
DIVERSION PROPOSAL FOR PARADIP-NUMALIGARH CRUDE OIL PIPELINE  
PROJECT BY M/S. NUMALIGARH REFINERY LTD. GUWAHATI, ASSAM.**

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## **CHAPTER- I**

### **BRIEF NOTE ON THE PROPOSED FOREST DIVERSION PROPOSAL**

#### **Introduction**

Numaligarh Refinery Limited (NRL) a Government of India Enterprise, operates a 3.0 MMTPA Refinery at Numaligarh in the District of Golaghat, Assam since 2000. Now, NRL is expanding its refining capacity from existing 3.0 MMTPA to 9.0 MMTPA to cater to the growing demand of petroleum products namely Petrol, Diesel, LPG, Kerosene etc. in the Eastern and North eastern States and parts of West Bengal, Bihar and Jharkhand.

The additional Crude Oil required for the expansion will be imported at Paradip Port in Odisha and transported via a cross country Pipeline to Numaligarh. Government of India vide Ministry of Petroleum and Natural Gas's (MOP&NG) letter No. F. No R-11023/01/2015-OR.dated 28th January 2019 has approved the capacity expansion project of NRL along with Crude Oil pipeline from its proposed Crude Oil Terminal at Paradip (Odisha) to Numaligarh (Assam).

The pipeline shall be laid by acquiring the Right of User (RoU) as per the provisions of Petroleum and Mineral Pipelines (P & MP) Act, 1962. The proposed 1630 km long Paradip-Numaligarh Crude Oil Pipeline (PNCPL) will be laid across non forest land. The pipeline will be laid 1.2 m (approx) below the natural ground level and the land shall be restored back to its normal position after laying the pipeline.

The pipeline project also includes associated facilities such as Sectionalizing Valve (SV) / Tap off/ metering /receiving/ dispatch/intermediate pigging and intermediate pumping stations.

#### **Land involved**

These project extents over an area of 8.270 Ac or 3.347 Ha. Forest land for Paradip-Numaligarh Crude Oil Pipeline Project by M/s. Numaligarh Refinery Ltd. Guwahati, Assam.



## CHAPTER- II

### **DETAILS OF LAND IDENTIFIED FOR COMPENSATORY AFFORESTATION**

#### **A. Land identification of the proposed site**

The identified Degraded Revenue Non-Forest area is under the possession of Revenue Department. The Compensatory Afforestation has been identified in PURI District. The site located on Survey of India Open Series Topo Sheet No. **73 L/11** confined within Latitude: 20°23'36.21"N & 20°23'31.62"N, Longitude: 86°39'44.37" E & 86°39'56.89" E for UTM **Zone - 45**. The proposed areas are free from encroachment, other encumbrances and found suitable for plantation.

#### **Details of Selection of Site**

**District:** Kendrapara.      **Location:** Petchhla PF      **Soil Type:** Clayey mud, Sandy soil.

**Topography:** -Hilly/Undulating/Plain: The topographical configuration of the identified site is Plain.

**Slope:** The site selected for Compensatory Afforestation is a low land plain with gentle slope.

Whether the area is bearing any root stock of vegetation: The site selected for Compensatory Afforestation has least root stocks and the existing vegetations are in degraded stage.

**Temperature:** The area experiences cold weather between November - January when the temperature drops to less than 13.9° C. the temperature rises steadily from January onwards reaching 30° C to 41° C in summer (May). So, it is under tropical condition with limited rainy days.

**Climate& Rainfall:** The area has tropical climate with monsoon rains from June to September and occasional rains during the autumn. This area also experiences occasional gusty wind to heavy thunderstorms during summer season (April to June). Monsoon breaks out in early to middle of June and continues up to September. The average annual rainfall is about 1500 mm under the influence of southwest monsoon. On average, there are about 141 rainy days. The humidity is maximum in the month of July to August (97%) and minimum in February (40%). The wind velocity varies between 40 KMPH and 80 KMPH, although occasional higher values have also been reported. Lightening incidents are rarely reported in this area.

## **CHAPTER- III**

### **AGENCY RESPONSIBLE FOR COMPENSATORY AFFORESTATION**

#### **A. Agency responsible for placement of funds, demarcation, fencing etc.**

The User Agency (M/s. Numaligarh Refinery Ltd. Guwahati, Assam) will provide funds for raising Compensatory Afforestation as per the approved financial layout of the scheme. The area will be fenced off by posting of RCC Pillars & five strands of barbed wire with two diagonally crossed barbed wire for protection of the area against encroachment & to prevent grazing (as per Annexure-1). Signboards indicating "Compensatory Afforestation site under CAMPA" will be put up at strategic locations of fencing. Fencing work will be completed before undertaking plantation activities.

#### **B. Agency responsible for execution of compensatory afforestation**

The Forest & Environment Department i.e. Divisional Forest Officer, Rajnagar WL Division, Kendrapara will execute the Compensatory Afforestation programme .



## CHAPTER- IV

### DETAILS OF WORK SCHEDULE PROPOSED FOR COMPENSATORY AFFORESTATION

**A. Plantation Model:** The identified site in Petchhela PF, Kendrapara District over 7.0Ha. is suitable for taking up mangrove plantation as per the availability of topographic condition and tidal water entering to the site. The soil of the site is clay mud with salinity water which is only feasible for mangrove plantation. Thus, it is proposed to take up Mangrove Plantation (Seedling Origin).

**Special Objects of Compensatory Afforestation Scheme are as follows:**

- To restrict the degradation by reducing the biotic interference to barest minimum and reverse the trend towards the process of restoration of vegetation.
- To develop the forest by providing site-specific silvicultural treatment.
- To facilitate the boosting of natural regeneration and ensure their establishment.
- To take up appropriate fishbone Channel as soil moisture conservation (SMC) measures to improve the soil and tidal water into the plantation.
- To improve the biodiversity of these blocks.

**Item of works to be taken up:**

To achieve the above objectives, the following items of works are mainly prescribed to be taken up

- Survey & Demarcation of Boundary.
- Perimeter Fencing.
- Site Clearance & Planting in gaps
- Fishbone Channels.
- Protection of Plantation
- Peoples Participation
- Monitoring& Evaluation Mechanism

**Survey & Demarcation of Boundary:** The identified area has been surveyed by DGPS and map has been prepared. The area will be demarcated with RCC pillars of size 1.0 m x 15 cm x 15 cm for clear demarcation of the area.

**Fencing:** To protect the plantation from grazing and other biotic interference, it will be provided with Iron Mesh & Chain Link Wire over an area of 7.0 Ha.

**Site Clearance & Planting:** Plantation over 7.0 Ha. shall be taken up with planting model of Mangrove Plantation (Seedling Origin). Site clearance and cleaning to be done in the treatment area to create gap for plantation. Silvicultural cleaning by cutting of high stumps, removal of weeds, removal of plants in congested areas will be done, so that the plants get optimum condition for growth. All post planting measures like casualty replacement, digging of fish bone channel, fire protection etc. will be undertaken.

**Species:** Although indigenous species are to be preferred in the plantation, considering adverse soil & moisture conditions, we may go for hardy exotic species wherever required, so that the plants are able to survive. For success of plantation in interior tribal areas, plantation of fruit and NTFP species plays a great role since economic species have a little value for local people. Considering the topography, soil and moisture availability of the plantation area, the following species will be planted.

Name of species	Common name	Name of species	Common name
<i>RhizophoraSpp</i>	Rai	<i>Kandeliacandel</i>	Sinduka
<i>Excoecariaagallocha</i>	Guan	<i>Sonneratiacaseolaris</i>	Orua
<i>Pongamia pinata</i>	Karanja	<i>Heritiera Spp</i>	Sundari
<i>AviceniaSpp</i>	Bani	<i>Hibiscus tiliaceous</i>	Bania
<i>Sonneratia apetala</i>	Keruan	<i>Thespesia populnea</i>	Habali
<i>Bruguieragymnorrhiza</i>	Banderi	<i>Xylocarpus granatum</i>	Sisumar

**Digging of fishbone channels:** - Since the survival of mangrove plantation is purely relay on upcoming of tidal water into the plantation.

**Protection of the plantation:** - Iron Mesh & Chain Link Wire along the periphery of the plantation will be provided. Few watchers will also be engaged for protection of the plantation. Assistance of V.S.S is necessary for better protection of plantation.

**Peoples Participation:** In the recent times, no scheme shall be effective if the local villagers are not involved in the implementation of the scheme itself. The villagers who are having a right on the NTFP items in the adjoining forest area are to be associated with the implementation of the scheme at all different levels. For that, Van Samrakhyana Samiti (VSS) is proposed to be constituted in all the villages around the Compensatory Afforestation site. The villagers are to be motivated, inspired and above all, explained the benefits they will be getting, if plantation is protected by them.



**Monitoring & Evaluation Mechanism:** - The scheme shall be executed by the Divisional Forest Officer, Rajnagar (WL) Division, Kendrapara with his staff and all prescribed records will be maintained. In addition to internal monitoring by Forest Officers of State Government, a Monitoring Committee under item no. 3.4 (iii) of consolidated guidelines under F.C Act 1980 issued by MOEF, shall be established with a nominee of the Central Government to oversee that the stipulations, including those pertaining to Compensatory Afforestation are carried out.

**B. Provision of Utilization of Funds**

Rs. 42,67,474/- (Forty Two Lakhs Sixty Seven Thousands Four Hundred Seventy Four) Will be deposited by user agency on approval of the scheme to the Ad-Hoc CAMPA account and funds will be utilized for raising compensatory Afforestation by the Divisional Forest Officer, Rajnagar (WL) Division, Kendrapara on receipt of budgetary allotment from the Principal Chief Conservator of Forest of Odisha, Bhubaneswar.

  
Divisional Forest Officer  
Rajnagar (WL) Division, Kendrapara

Divisional Forest Officer  
Mangrove Forest Division (WL)  
Rajnagar



## **ANNEXURES**

# ANNEXURE III

## COST NORM FOR RAISING MANGROVE PLANTATION (SEEDLING ORIGIN) FOR COMPENSATORY AFFORESTATION AT PETCCHELA PF UNDER KENDRAPARA OF RAJNAGAR WILDLIFE DIVISION

As per onetime cost norm for Compensatory Afforestation of the Addl. PCCF, Forest  
Diversion & Nodal Officer, FC Act, Odisha vide Office Order No. 1109/9F-(Misc)-387/2021  
dtd. 08.11.2021

Spacing: **2 Mtr. X 2 Mtr.**

No. of Raising Mangrove Plant (Seedling Origin) to be planted - **3347nos.**

Wage Rate: **@ Rs. 311/- per man day**

Sl. No.	Description	Amounts (Rs.)
1.	Raising Mangrove Plantation (Seedling Origin) @2500 seedlings (with spacing 2m X 2m) over 1.33ha. without fencing @ Rs. 2,68,115/- per Ha. provisions of 10 years	3,56,593.00
2.	Fencing for Compensatory Plantation raised inside the Forest Areas using Bamboo Twig & Thorns per Ha.	7,34,762.00
3.	Soil Conservation Measures Structures like Staggered Trench, Percolation Pit, Contour Trench, Graded Earthen Bund, LBCD, Wire Mesh LBCD, Sub Surface Dyke & WHS as per the slope & site requirement on LS @ Rs. 37, 415/- per ha. over 7.0ha.	2,61,905.00
	<b>Total</b>	<b>13,53,260.00</b>
4.	Cost of Inspection Path	5,00,000.00
5.	Watch & Ward (02 nos watcher) for 10 years	20,34,240.00
	<b>Total</b>	<b>38,87,500.00</b>
6.	15% of Plantation cost towards EPS/Incentive to VSS Monitoring Evaluation	1,63,703.00
	<b>Total</b>	<b>40,51,203.00</b>
7.	Escalation Cost (20%)	2,18,271.00
	<b>Grand Total</b>	<b>42,67,474.00</b>
	<b>(Forty Two Lakhs Sixty Seven Thousands Four Hundred Seventy Four)</b>	