SCHEME FOR COMPENSATORY
AFFORESTATION OVER AN AREA OF 180
HA. IN DEGRADED FOREST LAND IN
DAITARY DPF OF SUKINDA RANGE IN
CUTTACK FOREST DIVISION UNDER
SUKINDA TAHASIL OF JAJPUR DISTRICT

AGAINST DIVERSION OF 75.635 HA OF FOREST LAND FOR DEVELOPMENT OF OUTER HARBOUR, INNER HARBOUR INCLUDING WESTERN DOCK AND MECHANIZATION OF EXISTING OPERATIONAL BERTHS

PARADEEP PORT TRUST, ODISHA

CUTTACK FOREST DIVISION CUTTACK

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LAND SUITABILITY CERTIFICATE BY DIVISIONAL FOREST OFFICER, CUTTACK FOREST DIVISION

1-This is to certify that 180.0 Ha. of degraded Forest land identified in Daitary DPF in Sukinda Range of Cuttack Forest Division under Sukinda Tahasil of Jajpur District is suitable for the purpose of Compensatory Afforestation under Aided Natural Regeneration (ANR) with Gap Plantation of 75,635 seedlings to ensure the planting of 1000 seedlings per hectare in lieu of proposed diversion of Forest land over 75.635 Ha. for development of Outer Harbour, Inner Harbour including Western Dock and Mechanized of existing operational berths by Paradeep Port Trust, Odisha under Ministry of Shipping, Govt. of India.

2-The said land is a compact patch in a portion of Daitary DPF and free from all sorts of encumbrances and encroachment and also suitable for execution & further management.

Place: Cuttack

Date:

Divisional Forest Officer
Cuttack Forest Division
Divisional Forest Division
Cuttack Forest Division

Official Seal.....

Scheme for Compensatory Afforestation over an area of 180 ha. in degraded Forest land in Daitary DPF of Sukinda Range in Cuttack Forest Division under Sukinda Tahasil of Jajpur District against diversion of 75.635 Ha of Forest land for development of Outer Harbour, Inner Harbour including Western Dock and mechanization of existing operational Berths

By PARADEEP PORT TRUST, ODISHA

1. INTRODUCTION:

Paradeep Port Trust, Odisha under Ministry of Shipping, Govt. of India has submitted a diversion proposal of 75.635 Ha. of Forest land in Jajpur District under Cuttack Forest Division for non-forestry purpose i.e. development of Outer Harbour, Inner Harbour including Western Dock and mechanized of existing operational Berths

The Project involves 75.635 Ha. of forest land. In lieu of this 180 Ha., Degraded Forest land has been identified for raising Compensatory Afforestation in Aided Natural Regeneration (ANR) with Gap Plantation in Daitary DPF under Cuttack Forest Division.

2. <u>LOCATION OF DEGRADED FOREST LAND FOR COMPENSATORY AFFORESTATION.</u>

The degraded forest land identified is a portion of Forest Block named as Daitary DPF under Sukinda Range of Cuttack Forest Division and also under Sukinda Tahasil of Jajpur Revenue District. It is mostly undulating ground which possesses degraded growth of Misc species due to biotic interference like collection of firewood by the local stake holders, grazing and Podu cultivations.

3. DESCRIPTION OF EXISTING VEGETATION.

The main species noticed Sal (Shorea robusta), Pia-sal(Pterocarpus marsupium), Asan(Terminalia tomentosa), Dhaura(Anogeissus latifolia), Kasi(Bridelia retusa), Mankada Kendu(Diospyros embryopteris), Karada, Bel(Aegle mannelos), Bahada

(Terminalia belerica), Kochila (Strychnos nux-vomica), Sunari (Cassia fistula), Amla (Emblica officinalis) etc.

4. TOPOGRAPHIC & SOIL

The site Daitary DPF is shown in Topo-sheet Number F45N-12. The topography is hilly terrain (more than 30° slope) having northern aspect. The soil type is bouldery soil having large exposed rocks in most of the places. Though the mapped area is 185 Ha, the net area is 180 Ha which will accommodate the planting of 75,635 seedlings required for 180 Ha ANR Gap plantation.

5. CLIMATIC CONDITION

The climate condition of the area favoring growth of dry deciduous forest having average annual rainfall of 75-100 Cm and maximum temperature 45 degrees Centigrade. The summer season is from March to June, winter from November to February and riny season is from July to September.

6. OBJECTIVE OF THE SCHEME

It is mandatory requirement under the provision of FC Act, 1980.

- a. To replenish the loss of forest land to be diverted for non-forestry purpose.
- b. To generate employment to the villagers living around the area.
- c. To increase the ground water table through soil & moisture conservation.
- d. To increase the bio-diversity for improvement of the local ecology particularly Fodder plants palatable to herbivores and other wild animals so as to maintain good population ration of herbivores and carnivores.
- e. To fulfill the requirement of fuel wood and small timber of the local inhabitants and also the livelihood through NTFP in future.
- f. To provide a green clothing to the area by means of artificial regeneration or plantation in order to reduce soil erosion.

7. ECO- RESTORATION OPERATION

- a. All high stumps are to be removed.
- b. Coppice with multiple shoots should be singled out by retaining the sound ones.
- c. Complete protection against the fire, grazing & illicit felling shall be ensure.

d. The area should be managed under JFM mode i.e. involving local VSS members from inception of this project.

e. The indigenous hardy species as shown in the choice of species should be preferred for artificial regeneration.

f. Preference should be given to species suitable for wild animal.

8. PLANTATION TECHNIQUE

The area should be well demarcated before raising plantation by GPS survey. A map should be prepared and followed for execution of the plantation basing on the soil depth. Preferably indigenous species are to be planted coupled with soil & moisture conservation measures. The species of plantation will be 2mt x 2mt,

9. CHOICE OF SPECIES

Considering the edaphic & micro climate conditions of the site, the following species

recommended. Common Name	Scientific Name	Suitable for
Ambada	Spondias pinnata	ANR Gap Plantation
Anla	Emblica officinalis	-do-
Arjuna	Terminalia arjuna	-do-
Asana	Terminalia tomentosa	-do-
Bahada	Terminalia belerica	-do-
Bara	Ficus bengalenssis	-do-
Bela	Aegal marmelos	-do-
Bija	Pterocarpus marsupium	-do-
Harida	Terminalia chebula	-do-
Jackfruits	Atocarpus hetrophyllus	-do-
Jamun	Syzigium cuminii	-do-
Kaitha	Limoniaa acidissima	-do-
Karanja	Pongamia Pinnata	-do-
Mango	Mangifera indica	-do-
Neem	Azadirachta Indica	-do-
Siris	Albizia lebbeck	-do-
Sisoo	Dalbergia Sisoo	-do-

10. SURVEY & DEMARCATION

The area should be clearly surveyed by GPS in the field with reference to the map to ascertain the exact area available for plantation. The masonry pillars of 4 feet height should be erected on the boundary of the site preferably on the curvatures pained in white colour & the pillar number with GPS reading i.e. latitude has to be written on the pillars in black.

The plantation needs to be indicated by sign boards at corners or point of intersection with artifacts like roads, inspection paths & boundary lines. The sign board should contain the names of plantation site, area, year of planting, planting module, number of seedlings planted and other details if necessary.

Extra man days are required for cleaning of weeds as the assigned area is covered with full of woody weed growth.

11. NURSERY

- A good nursery is the pre-requisite for a successful plantation. All care should be taken to raise healthy & sound seedlings of required sizes before they are put to plantation size. Planting of Six Month old seedlings above species shall be taken up. Nursery programme must be planted out as per the Guidelines in the plantation manual so that a good stock of healthy seedlings can be raised. 10% extra seedlings be raised to cover the shortfall due to casually in the nursery stage.
- b. The temporary nursery should be raised near the plantation site as far as practicable.
- c. A good variety of local seeds should be collected.
- d. Proper treatment of seeds should be done as per the manual.
- e. Shifting of polythene bags one seedling is recommended not only to develop resistance for isolation but not allow the roots striking into the ground soil.

12. PROTECTION.

The important element of successful plantation is protection. Watchers are to be engaged on daily wage basis for 10 years. Barbed wire fencing shall be taken up in the plantation where ever necessary.

13. CONTROL

a. The nursery journal, plantation journal and other records shall be maintained separately in accordance with the provision of "The Odisha Forest Plantation Manual 1977" indicating the physical & financial achievement. Necessary entries with regard to plantation activities undertaken shall be entered in the journals and shall be produced before the inspecting officer. In case of any eventually like cyclone, thunder storm, hail storm etc. if caused destruction to the plantation, this should also be noted. It is also necessary to note the distribution of rain fall which not only helps in the growth of plants at site but also acts as a guideline for the ensuing years nursery schedule to be formulated.

b. For protection, measures shall be taken to save the plantation from fire incidents & prevent accidental trespass of cattle, goat etc. to the premises of the nursery. Boundary area will be scrapped to a width of 2mt during February / March and the cut materials are to be burnt under strict supervision. The inspection path around 4 Ha. plot shall have to be laid out and weed growth are to be scrapped.

13. SOIL & WATER CONSERVATION METHOD

It is to be taken up the soil and moisture conservation work. Small gullies are to be plugged by the live plants. Either area will be dried out quickly water conservation measures will be taken by digging staggered trenches. These trenches will be dug along the contour in a continuous manner. The dimension of the trenched will be 2.5 mt. x 0.5 mt. x 0.5 mt. and dug out earth will be kept on the lower hill sides. It should be 300 numbers in an average per hectare. Staggered trenched are to be aligned 15 mt. apart along the contour and 7.56 mt. across the contour. Check dams are proposed to be constructed out of dry rubbles across the nallaha and gullies. The cost of SMC work is included in plantation cost norm.

14. PEOPLES PARTICIPATION

The local communities are to be involved for the protection of the plantation. The VSS is to be formed (If not formed earlier) and incentive to be given to the VSS for their active participation in protecting the plantation. Livelihood option and EPA are to be taken to improve the socio-economic status of the people living around the forest. For effective protection of area, watch and ward shall be provided during the project period (From inception to 10th year) and subsequently the plantation will be looked after by the VSS.

15. WATCH & WARD

7 nos. of Watcher per Ha/year should be engaged round the year for 10 years starting from the inception of the plantation.

16. SOIL & MOISTURE CONSERVATION MEASURES.

As the area is in a valley soil conservation measures like stagard trench of size 2 mt \times 0.5 m x 2 mt @ 60 Nos. /Hectare shall be constructed to observe rain water for the

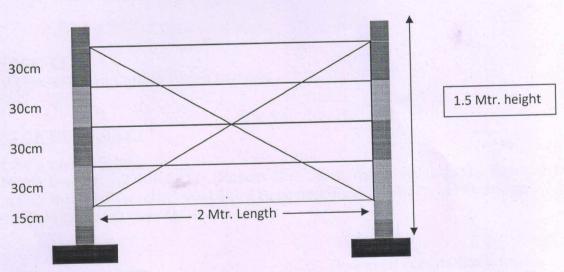
seedlings planted.



17. FENCING AND TRENCH

To protect the plantation from grazing and other biotic interference, fencing shall be taken up over 7500 mtr. of periphery by barbed wire fencing all around.

BARBED WIRE FENCING DESIGN



Specification

1. T Shape Pillar Size : 1.5 Mtr. X 6" X 4"

Spacing Pillar to Pillar : 2 Mtr.
 No. of Strands : 5 Nos
 No. of Cross Section : 2 Nos

5. Height of each Strand: 15cm, 45cm, 75cm, 105cm, and 135cm

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18. MONITORING AND EVALUATION

The scheme shall be executed and monitored by the Divisional Forest Officer, Cuttack Forest Division from time to time. To facilitate this, the User Agency shall bear the cost of infrastructure required and shall provide also the infrastructural facilities.

19. FUNDING AGENCY

The Paradeep Port Trust, Odisha under Ministry of Shipping, Govt. of India will pay the cost of Afforestation. The above amount is to be deposited by user agency in CAMPA fund through e-portal mode only. The cost of Comp. Affn. of 1,37,08,527/- (Rupees One Crore Thirty Seven Lakhs Eight Thousand Five Hundred Twenty Seven) only is to be paid by the User Agency on receipt of demand notice from Divisional Forest Officer, Cuttack Forest Division in proper head of account respectively. However the User Agency will furnish an undertaking to pay any additional amount in case the wage rate is escalated between date of recommendation of this proposal & issue of Stage-II approval issued by MoEF & Climate Change for diversion of forest land.

20. EXECUTING AGENCY

Divisional Forest Officer, Cuttack Forest Division.

21. TOTAL COST OF THE PROJECT

The total cost of the project will be

A. Cost of Plantation- Rs. 1,37,08,527/- (Rupees One Crore Thirty Seven Lakhs Eight Thousand Five Hundred Twenty Seven) only (To be deposited in CAMPA fund through e-portal mode only by the User Agency)

> Divisional Forest Officer, **Cuttack Forest Division**

SCHEME FOR COMPENSATORY AFFORESTATION-RDF GAP PLANTATION OVER 180 HA IN SUKINDA RANGE OF CUTTACK FOREST DIVISION UNDER JAJPUR DISTRICT

FOREST DIVISION	UNDER JAJI OR DISTRICT
Name of the Scheme :-	COMPENSATORY AFFORESTATION (RDF
Name of the Project :-	Proposal for Comp. Afforestation-RDF with Gap Planting over 180 Ha in village Nagada inside Daitary DPF of Sukinda Range for M/s. Paradeep Port Trust, Odisha in Sukinda Tahasil of Jajpur District
Name of Implementing Agency:-	Divisional Forest Officer, Cuttack Forest Division

4 MODEL	ANR with Gap
1. MODEL	421
2. NO. OF PLANTS PER HA. 3. TOTAL AREA TO BE PLANTED(In HA.)	180.0
4. TOTAL PERIMETER AREA (In MTR.)	7,500
5. TOTAL NOS. OF PLANTS TO BE PLANTED	75,635
	213.50
6. Wage Rate [Per MD]	

SI. No.	Item of Works	Period of execution	Man- days	Labour Cost @ Rs.213.50	Material cost	Total in Rs.
1	2	3	4	5	6	7
1	Prenarat	ory Operatio	n (0th Ye	ear)		
1	Survey, Demarcation and Pillar Posting, GPS Reading with mapping	Nov/Dec	2	427.00	0.00	427.00
2	Site Preparation	Nov/Dec	2	427.00	0.00	427.00
3	Silvicultural Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc.	Jan/Feb	5	1,067.50	0.00	1,067.50
4	Barbed wier Fencing around the perimeter @ Rs. per 1 Rmt (Appx.). Detailed Calculation furnished below	Jan-March			704.04	3,133.11
5	Nusery cost (6 months old seedlings)part @Rs.10.09 seedlings(Rs.7.12 in 0th year + Rs.2.97 in 1st year) for 463.1	Jan-March	11	2,348.50	784.61	
6	seedlings(421+42.1) Pitting 30 cm cube size	Feb- March	12	2,562.00	0.00	2,562.00
7	Contingency & unforeseen			0.00	176.00	176.00
-	Expenditures Total of 0 th Year :-		32	6,832.00	960.61	7,792.61

SI. No.	Itom of Works	Period of execution	Man- days	Labour Cost @ Rs.213.50	Material cost	Total in Rs.
		3	4	5	6	7
1	Planting (- of -	ear)		
1	Nursery Cost (6 months odl seedlings)balance @2.97/- per	April-July	5	1,068.00	238.05	1,306.05
2	seedling for 463.1 seedlings Carriage and planting including	July/Aug	10	2,135.00	0.00	2,135.00
3	Casualty replacement Complete weeding, Soil working,	Aug/Sept	12	2,562.00	0.00	2,562.00
4	Manuring Cost of Vermi compost 200gm/plant @ Rs.21.35 per kg = Rs.1797.67 and Granular insecticide 5grms/plant @ Rs.85.4 per Kg=	Aug/Sept	0	0.00	1,977.44	1,977.44
5	Rs.179.767 Cost of chemical fertilizer (a) Urea 70 gms/ plant in two subsequent does @ Rs.6.405 per kg = Rs.188.75535 (b) NPK 50gms/plant @ Rs.25.62 per kg	A Sage	0	0.00	728.06	728.06
6	= Rs.539.301 as basal dose. Silvicultural Operation involving clearance of weed, climber cutting, high stump cutting, singling of shoots	Sept/Oct	15	3,202.50	0.00	3,202.50
7	etc. Soil conservation measures (Staggered trenches of dimension 2 m x 0.5 m x 0.5 m @ 60nos per ha)	Sept/Oct	20	4,270.00	0.00	4,270.00
8	or its equivalent Fire line tracing & inspection path	Feb/March	3	640.50	0.00	640.50
9	Watch and ward.	Aug- March	7	1,494.50		1,494.50
10		Wichort		0.00		340.53
-	Expenditures Total of 1st Year		72	15,372.50	3,284.08	18,656.58
-	Maintenar	ce Opera	tion (2 nd Year)	100000	1 252 52
-	Casualty Replacement including cost	July/Aug	2	427.00		830.52
- 2	of seeding, carriage and planting Complete weeding and cultural	Sept/Oct	4	854.00		
-;	operations Soil working & Manuring	Sept/Oct	4	854.00		
	Cost of Fertilizer & Insecticides (a) Vermicompost 200 gms/ plant @ Rs.21.35 per kg = Rs.1797.67 (b) Granular Insecticides 5 gms/plant @ Rs.85.4 per kg = Rs.179.767	7	0	0.00	1,977.44	1,977.44

SI. No.	Item of Works	Period of execution	Man- days	Labour Cost @ Rs.213.50	Material cost	Total in Rs.
		3	4	5	6	7
1	2 Soil conservation measures	Sept/Oct	8	1,708.00	0.00	1,708.00
5	(Renovation of Staggered trenches	Зериосі				
6	etc.) Fireline Tracing and Inspection Path	Feb/March	1	213.50	0.00	213.50
7	Watch and ward (Whole year)	April- March	7	1,494.50	0.00	1,494.50
8	Contingency & unforeseen Expenditures			0.00	386.44	386.44
	Total of 2 nd Year:-		26	5,551.00	2,767.39	8,318.39
	Maintenan	ce Operati	on (3 ^r	d Year)		
1	Repair and maintenance of Barbed wire fencing Rs.9608/	April- March	0	0.00	9,608.00	9,608.00
2	Complete weeding and cultural operations	Aug/Sept	2	427.00	0.00	427.00
3	Soil Working	Aug/Sept	2	427.00	0.00	427.00
4	Fireline Tracing and Inspection Path	Feb/March	1	213.50	0.00	213.50
5	Watch and ward (Whole year)	April- March	7	1,494.50	0.00	1,494.50
-	Total of 3 rd Year:-		12	2,562.00	9,608.00	12,170.00
	Maintenar	ce Operat	ion (4	th Year)		
-	Fireline Tracing and Inspection Path	Feb/March	1	213.50	0.00	213.50
2	Watch & ward and cultural operations		2	427.00	0.00	427.00
-	Total of Ath Voar:		3	640.50	0.00	640.50
	Maintenal	nce Operat	ion (5	th Year)		
	Fireline Tracing and Inspection Path	Feb/March	1	213.50	0.00	213.50
2	Watch & ward and cultural operations		2	427.00	0.00	427.00
-	Total of Eth Voor:		3	640.50	0.00	640.50
_	Maintena	nce Opera	tion (6	Sth Year)		
-	Fireline Tracing and Inspection Path	Feb/March	1	213.50		213.50
2	Watch & ward and cultural operations		2	427.00	0.00	427.00
-	Total of 6th Voar		3	640.50	0.00	640.50
_	Maintena	nce Opera	tion (7 th Year)		
-	Fireline Tracing and Inspection Path	Feb/March	1	213.50		
2	Watch & ward and cultura		2	427.00		
-	operations Total of 7 th Year:		3	640.50	0.00	640.50
	Maintena	nce Opera	tion (8 th Year)		
	ivialitella	Feb/March	1	213.50	0.00	213.50
1 2		al April-	2	427.00		
2	operations	March				The state of the s

SI. No.	Item of Works	Period of execution	Man- days	Labour Cost @ Rs.213.50	Material cost	Total in Rs.
	2	3	4	5	6	7
1	Maintenan	ce Operat	ion (9 th	Year)		
	Ivialities Deth	Feb/March	1	213.50	0.00	213.50
2	Fireline Tracing and Inspection Path Watch & ward and cultural	April- March	2	427.00	0.00	427.00
	operations Total of 9 th Year:-	March	3	640.50	0.00	640.50
	Maintenand	o Operati	on (10	th Year)		
	Waintenand	Feb/March	1	213.50	0.00	213.50
1 2	Fireline Tracing and Inspection Path Watch & ward and cultural	April-	2	427.00	0.00	427.00
	operations Total of 10 th Year:-	March	3	640.50	0.00	640.50
	lotal of 10° fear	G.Total:-	163	34,801.00	16,620.08	51,421.08

TOTAL COST FOR 1 HA.

Year	No. of	Labour Cost	Material Cost	Total
oth V	MD 32	6,832.00	960.61	7,792.61
0 th Year	72	15,372.50	3,284.08	18,656.58
1 st Year	Territoria	5,551.00	2,767.39	8,318.39
2 nd Year	26		9,608.00	12,170.00
3 rd Year	12	2,562.00	0.00	640.50
4 th Year	3	640.50		640.50
5 th Year	3	640.50	0.00	
6 th Year	3	640.50	0.00	640.50
7 th Year	3	640.50	0.00	640.50
8 th Year	3	640.50	0.00	640.50
9 th Year	3	640.50	0.00	640.50
THE STATE OF THE STATE OF	3	640.50	0.00	640.50
10 th Year TOTAL:-	163	34,801.00	16,620.08	51,421.08

TOTAL PROJECT COST FOR 180 HA.

101		JECT COST	Material Cost	Total
Year	No. of MD	Labour Cost	Material Cost	A TOTAL TOTA
0 th Year	5760	12,29,760.00	1,72,910.25	14,02,670.25
1 st Year	12960	27,67,050.00	5,91,134.10	33,58,184.10
2 nd Year	4680	9,99,180.00	4,98,129.66	14,97,309.66
	2160	4,61,160.00	17,29,440.00	21,90,600.00
3 rd Year		1,15,290.00	0.00	1,15,290.00
4 th Year	540	1,15,290.00	0.00	1,15,290.00
5 th Year	540		0.00	1,15,290.00
6 th Year	540	1,15,290.00	0.00	
7 th Year	540	1,15,290.00		1,15,290.00
8 th Year	540	1,15,290.00	0.00	1,15,290.00
9 th Year	540	1,15,290.00	0.00	1,15,290.00
10 th Year	540	1,15,290.00	0.00	1,15,290.00
TOTAL:-	29340	62,64,180.00	29,91,614.01	92,55,794.01

TOTAL:-	1,24,62,297.14
	12,46,229.71
OTAL :-	1,37,08,526.85
	1,37,08,527.00
	OTAL :-

Forest Range Officer Sukinda Range

Cuttack Forest Division Divisional Forest Officer Cuttack Forest Division

ESTIMATE FOR BARBED WIRE FENCING (PERIMETER 7,500 MTR.)

Particualars of work	Unit	Rate / each	Amount
1-Cost of RCC fence post size 7' X 6" X 4"(1 post over 2 meter) including loading,	3750 Nos	346.94	13,01,015.63
unloading & transportation to site 2-Cost of Barbed wire for 7500 Rmt with 7 layers parallaly and cross section(7500X7=52500 Rmt = 10500 Kg.(5mtr=1Kg appx.) including transportation to site.	10500 Kg.	106.75	11,20,875.00
3-Fixing of RCC Pillar in Base by CC over 1' X 1' X 1' size including cost of Cement, Sand, Chips etc.	3750 Nos.	106.75	4,00,312.50
4-Fixing barbed wire along all fence post with (5+2) strand both parallaly & Cross Section	3750 Nos.	96.08	3,60,281.25
5-Painting & numbering over 7500 Mtr. on			24,018.75
L.S. Total:-			32,06,503.13

Forest Range Officer
Sukinda Range

Divisional Forest Officer, Cuttack Forest Division Divisional Forest Officer Cuttack Forest Division