

**SCHEME FOR COMPENSATORY AFFORESTATION FOR DIVERSION OF FOREST LAND
FOR CONSTRUCTION OF 220 KV LILO TRANSMISSION LINE FROM EXISTING LOC 70
OF 220 KV MALKANGIRI - BALIMELA TRANSMISSION LINE TO 220/ 33 KV GRID SUB-
STATION, KHAIRPUT, GOVINDPALLI IN MALKANGIRI FOREST DIVISION OF
MALKANGIRI DISTRICT, ODISHA**

Introduction:-

This scheme is prepared for Compensatory Afforestation in forest land in view of diversion of forest by OPTCL, Jeypore. OPTCL, Jeypore a State Government undertaking company for proposed construction of 220 KV LILO Transmission line from existing LoC 70 of 220 KV Malkangiri - Balimela Transmission line to 220/ 33 KV Grid Sub-station, Khairput, Govindpalli in Malkangiri Forest Division of Malkangiri District, Odisha. The Transmission line is proposed over a total area of 132.196 Ha. out of which 4.499 Ha. is Protected Reserved Forest & 44.283 Ha. area is under Revenue Forest (Jungle KISSAM) category, which is scattered over of 132 nos. of Forest Patches. However, the OPTCL, Jeypore has agreed of provide fund for raising of compensatory plantation over 97.564 Ha. having Protected Reserved Forest in lieu of 48.782 Ha. Forest Land of Malkangiri Division.

1. DETAILS OF LAND FOR COMPENSATORY AFFORESTATION

District- Malkangiri
Village- Ranginiguda
Tahasil- Chitrakonda

The Reserved Forest land for compensatory has been identified in Ranginiguda PRF over 97.564 Ha. under Chitrakonda Range of Malkangiri Forest Division. The Range Officer, Chitrakonda vide his Memo No. 408 dated 10.03.2021 reported that the proposed area is free from encroachment and encumbrances and suitable for plantation from management point of view is outlined as below.

Land schedule of land prepared for Compensatory Afforestation.

Tahasil	Village	Name of Forest Block	Extent of Area in Ha	Proposed area for plantation in Ha.	Status
Chitrakonda	Ranginiguda	Ranginiguda PRF	97.564 Ha.	97.564 Ha.	PRF

2. Description of Area:-

i. Whether the site selected for compensatory Afforestation is a land bank or not:

This identified forest land is under the control of Forest department and classified as "Protected Reserved Forest" and it is not a land bank.

ii. If the CA Site is other than the land bank, reasons be given:-

There is no alternate suitable land is available. Therefore the Forest Land area has been selected for CA.

iii. In case of non-forest area identified for CA , then what is the distance of CA site from the adjoining forest boundary:-

The CA site is selected inside the Ranginiguda Protected Reserved Forest.

iv. Soil type:- Alluvial (Morrum Soil)

v. Topography:- The topography configuration of the identified site is small hilly.

vi. Slope:- Gentle to moderate slope.

vii. Whether the area is bearing any root stock of vegetation: - No

viii. Temperature:- This area experiences cold weather between November to January when the temperature drops less than 12° C. The summer is very severe in Malkangiri and sometimes the temperature rises from February onwards reaching 42° C to 45° C in summer.

ix. Climate and Rainfall:- The area has a tropical to sub-tropical climate with monsoon rains from 2nd week June to September and occasional rains during winter. This area also occasional gusty wind to heavy thunderstorms during summer seasons (April to June). The rainfall is about 1410.00 mm.

3. Plantation Model:- The identified site is Ranginiguda PRF over 97.564 Ha. has poor soil depth with gentle slope. It is proposed for taking of block plantation @ 1600 plants/Ha.

4. Schedule of Plantation programme:-

Details of year wise break up of requirements of funds as under:

Year	Area in Ha	Rate / Ha	Total Amount
0 th year	97.564 Ha.	35750.40	3487952.03
1 st year	-do-	32256.84	3147106.34
2 nd year	-do-	17859.45	1742439.38
3 rd year	-do-	12465.60	1216193.80
4 th year	-do-	5877.90	573471.44
5 th year	-do-	5877.90	573471.44
6 th year	-do-	5877.90	573471.44
7 th year	-do-	5877.90	573471.44
8 th year	-do-	5877.90	573471.44
9 th year	-do-	5877.90	573471.44
10 th year	-do-	5877.90	573471.44
Total	97.564 Ha.	139477.59	13607991.59
			Or Say 13608000.00
Cost of Barbed wire fence over 5.678 Km @ Rs. 645006/-per RKM			3683603.00
Total			17291603.00
Maintenance of fencing on 3 rd , 6 th & 9 th year (2% of cost per each year)			221017.00
Total			17512620.00
Add 15% of total cost towards EPA/incentive to VSS			2626893.00
Total			20139513.00
Add Escalation Cost (20%)			4027903.00
G. Total			24167416.00

5. Technical Details:-

Objective of the scheme:-

i) The main objective of the scheme is to take up the Block Plantation in forest land and every possible effort shall be made to successful establishment of plantation.

ii) Creation of asset for the community meets their bonafide requirements and also generate employment to improve the socio-economic status during the implementation of the scheme.

a) General Details:-

i) Survey and demarcation of boundary:- The identified area is to be surveyed and GPS co-ordinate of each pillar will be taken. Survey and posting of R.C.C pillars will be done by User Agency.

ii) Spacement:- The spacement adopted for plantation is 2.5 mtr x 2.5 mtr .

iii) Species:- Although indigenous species are to be preferred in the plantation, considering adverse soil and moisture conditions the following species are to be planted.

Sl. No.	Common name	Scientific name	Remarks
1	Bada Chakunda	Samanea saman	-
2	Teak	Tectona grandis	Potted seedling from pre-sprouted stumps will be planted
3	Khair	Acacia catechu	-
4	Bamboo	Dendracatamus strictus	In lower areas with good soil depth
5	Babool	Acacia arabica	In lower areas with good soil depth

iv) Method of raising plantation:- Block plantation over 97.564 Ha. shall be taken up with 1600 plants per Ha. at a spacing of 2.5 mtr x 2.5 mtr. The standard size of pit 30 cm x 30 cm x 30 cm shall be dug in the entire area. The planting of polypot seedlings will be taken up after onset of monsoon. At the time of planting, insecticides and fertilizers shall be applied as a basal doze depending on the requirement.

Post planting operations shall be including causality replacement, weeding, soil working and other operations to be carried out as per calendar of operations.

v) Soil and moisture conservation works:- Half-moon trenches should be constructed on down side of the plants. In the slopes staggered trenches of 2.5m x 0.5m x 0.5m should be dug in between the planting line along the contours. On the other hand Gully plugging, check dams and percolation pits to be constructed as per site specification.

vi) Protection:- Protection should be done by way of watch and ward and people's participation.

6. Proposed monitoring mechanism:- The scheme shall be executed by the department staffs through regular inspection and checking. All prescribed records are to be maintained by the department staffs.

7. Any other information:- Work to be carried out as per the technical advice of the concerned forestry experts such as D.F.O, ACF and Range Officer concerned .

8. Total cost of the project:- The total cost of the project will be Rs. 2,41,67,416.00 (Rupees Two crore forty one lakh sixty seven thousand four hundred sixteen) only, which shall be payable by the User Agency as per the advice of Divisional Forest Officer.


Divisional Forest Officer,
Malkangiri Forest Division.
Malkangiri Forest Division
Malkangiri

ESTIMATE FOR BARBED WIRE FENCING

01)	02 Ply barbed wire (5Rmt per Kg)		
	7 straight strand x 1000Mt	=	7000Mt
	2 Diagonal strand = $2 \times \sqrt{(6.5)^2 + (8.2)^2} = 2 \times 10.50\text{ft}$ = 21.00ft X 400nos= 8400ft or	=	2560Mt
	Total -	=	9560Mt
	Requirement of Barbed wire per km		
	Cost per KM=9560/5=1912 Kg@ Rs.80/kg	=	Rs. 1, 52,960.00
02)	Construction of RCC Pillars of size		
	Length- 8ft, Bottom width 6''X6'', Top width- 4''X 4''		
	Reinforced with 6mm rods with proper curing		
	$\left\{ \frac{8' \times 6'' + 4''}{2} \right\} \times \frac{6'' + 4''}{2} = 1.34 \text{ cft or } 0.038 \text{ cum}$		
	i) Cost of C.C work 1:2:4=0.038 cum @ 5423.77/cum	=	206.10
	ii) Cost of rod including cutting, bending & binding		
	0.038X 0.9qtl=0.0342qtl@ Rs. 10,981.44/qtl	=	375.56
	iii) Contingency (15%) including	=	87.24
	Curing, stacking provision of hooks etc.....		
	Total -		Rs. 668.90 or Rs.669/-
	<u>Requirement of pillars per Km</u>		
	Spacing = 2.5mt X 2.5mt		
	Requirement = 1000mt/2.5mt	=400 Nos.	
	Strut pillar in every 10 th pillar = (400/10)X2	$= \frac{80 \text{ Nos.}}{480 \text{ Nos.}}$	
03)	Cost of pillar per KM=480@ Rs.669/- per pillar		Rs. 3, 21,120.00
	Fitting fixing of RCC Pillars in position with hbg metal (4cm) in C.M (1:4:8)		
	i) Digging of Pits 1.5' X 1.5' X 1.5' = 3.375cft/ pit		
	For 480 pits, 480X 3.375=1620 cft or 45.86 cum @ Rs. 13,373.00/100 cum= Rs. 6132.85		
	ii) Fixing of pillars with 4cm hbg metals in C.M (1:4:8)		
	Pit size-1.5' X 1.5' X 1.5' = 3.375cft		
	Deduct 1/3 rd of butt of pillar i.e. 3.375/3 = (-) 1.125cft		
	Total C.C work per pillar = 2.25 cft		
	For 480 Nos. pillars = 480X2.25=1080cft or 30.577cum@ Rs.3755.90/cum		Rs. 1, 14,844.15
04)	Labour for strengthening the barbed wire and fixing & clipping with pillars		
	70 Mandays per Km @ Rs. 311 =		Rs. 21,770.00
05)	Carriage of Barbed wire & pillars to work site		
	@ Rs.1000/ tld. and cost of loading & unloading within 5 km distance		
	Approximately 10 tld @ 800/tld =		Rs. 18000.00
06)	Provision of one iron Gate of size (4' X 5') on LS =		Rs. 7500.00
		Total =	Rs. 6, 42,327.00
		Labour Cess 1% =	Rs. 6,423.27
	Total Expenditure per 1 km of barbed wire fencing =		Rs. 6, 48, 750.27
		Or Rs. 648.75 or say Rs. 649/- per meter fencing.	
07)	Expenditure towards maintenance for 3 years (3 rd , 6 th & 9 th year)		
	@ 2% of cost per Rkm=3X 2%X Rs. 6, 48,750.27	= Rs. 38,925.00	
	Expenditure per 1 km of barbed wire fencing including maintenance (6,48,750.27 + 38,925.00) = Rs. 6,87,675.27		
	So, expenditure per running meter for fencing= Rs. 687.67/ Mtr or say Rs. 688.00.		
	(Rupees Six hundred eighty eight) only		

ANALYSIS

1.(a) Earth work excavation of foundation in hard soil with in initial lead 50m. and lift 1.5m. Including rough dressing and breaking clods maximum 5 to 7 cm. size including leveling & dressing etc. per % cum

Male Mulia	Piece rate	43.00	Rs. 311/-Man day	Rs.13, 373.00
Female Mulia				

Total - Rs. 13,373.00/ % cum

2. C.C/(1:4:8) using 4cm size hard granite metal including lying compacting, Curing with all cost, conveyance, royalty of materials etc. per Cum.(A/R 24 item. No.4)

H.G metal	0.96 Cum@ Rs.1223.40	Rs.1174.64
Sand	0.48 Cum@ Rs.443.00	Rs.212.62
Cement	1.72 Qntl@ Rs.630.00	Rs.1083.60
Massion 2 nd class	0.18 Nos@ Rs.401	Rs.72.18
Man Mulia	1.80 Nos@ Rs.311/day	} Rs.1212.90
Woman Mulia	1.40 Nos@ Rs.311/day	
Man Mulia	0.70 Nos@ Rs.311/day	

Total - Rs.3,755.90/Cum

3. Cement concrete (1:2:4) with 12mm size C.B.H.G chips including Cost, Carriage & Royalty etc. complete.

H.G Chips 12mm	0.96 Cum@ Rs.1581.40	Rs.1518.14
Sand	0.45 Cum@ Rs.443.42	Rs.199.53
Cement	3.23 Qntl@ Rs.630.00	Rs.2034.90
Massion 2 nd class	0.60 Nos@ Rs.401/day	Rs.240.60
Man Mulia	4.60 Nos@ Rs.311/day	Rs.1430.60

Total - Rs. 5,423.77/Cum

4. Cutting, bending, binding, straightening and tying the grills and placing in position including cost of M.S of Tor steel & binding wires etc.

Ref-A/R- 2006 item No. 9 page 52

Taking output for 1QT

Cost & carriage of HYSD steel including 5%

For wastage & overlapping	1QT	1.05	5500.00	Rs.5775.00
Binding wire (GI)	Kg	8	80.00	Rs.640.00
Labour for cutting, bending, shifting of site lying & placing in position. Mate	Each	0.44	351.00	Rs. 154.44
Black smith special	Each	4	401.00	Rs.1604.00
Semi-skilled Mulia	Each	8	351.00	Rs. 2808.00

Total - Rs. 10,981.44/Qntl.


 Divisional Forest Officer,
 Malkangiri Forest Division.
 Malkangiri

**COST NORM FOR BLOCK PLANTATION FOR COMPENSATORY AFFORESTATION AT RANGINIGUDA
P.R.F. UNDER CHITRAKONDA FOREST RANGE OF MALKANGIRI FOREST DIVISION,
DIST:MALKANGIRI**

Spacing: 2.5 Mtr x 2.5 Mtr

No. of Plants to be Planted: 1600 Plants/ ha.

Wage rate: @ Rs. 311/- Per Man Day.

"0th" Year

Sl. No	Item of Work	Preferable Period of execution	Mandays	Amount (Rs.)	Material Cost (Rs.)	Total (Rs.)	Remarks
1	Survey, Demarcation & Pillar posting	Nov/Dec	2	622.00	0.00	622.00	
2	Site Preparation	Nov/Dec	12	3732.00	0.00	3732.00	
3	Alignment & Stacking of pits	Jan/Feb	2	622.00	0.00	622.00	
4	Digging up pits (30 cm cube)	Feb/Mar	40	12440.00	0.00	12440.00	
5	Nursery cost (6 Month's old seedlings) part@12.67/seedling (Rs. 8.83 in 0th year+ Rs. 3.84 in 1st year) for 1760 seedlings (1600+160)	Jan-Mar	44	13684.00	2948.00	16632.00	
	Total		100	31100.00	2948.00	34048.00	
6	Monitoring & Supervision charge 5% of the total cost					1702.40	
	G. Total		100	31100.00	2948.00	35750.40	

1st Year (Creation)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	
7	Nursery cost (6 Months old seedling) balance @ Rs. 4.04 for 1760 seedlings	Apl-Jul	21.5	6686.50	587.30	7273.80	
8	Carriage & Planting	Jul/Aug	21	6531.00	0.00	6531.00	
9	Cost of insecticides and Fertilizer		0	0.00	3232.00	3232.00	
10	1st Weeding (Complete weeding)	Aug/Sept	7	2177.00	0.00	2177.00	
11	Manuring	Aug/Sept	5	1555.00	0.00	1555.00	
12	2nd Weeding (Complete weeding)	Sept/Oct	5	1555.00	0.00	1555.00	
13	Soli working (50cm radius around plants)	Sept/Oct	7	2177.00	0.00	2177.00	
14	Soil conservation measure (SMC)	Sept/Oct	10	3110.00	0.00	3110.00	
15	Fire line and inspection path (2Mtr wide fire line over 400 Mtr long)	Feb/Mar	3	933.00	0.00	933.00	
16	Watch & Ward for 8 month (August to March)@ 1048/- per month	Aug-Mar	7	2177.00	0.00	2177.00	
	Total		86.5	26901.50	3819.30	30720.80	
17	Monitoring & Supervision charge 5% of the total cost					1536.04	
	G. Total		86.5	26901.50	3819.30	32256.84	

2nd Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
18	Casualty Replacement with Nursery Cost	Jul/Aug	4	1244.00	2128.00	3372.00	
19	Weeding (Complete Weeding)	Sept/Oct	6	1866.00	0.00	1866.00	
20	Application of fertilizer	Sept/Oct	4	1244.00	0.00	1244.00	
21	Cost of fertilizer		LS	0.00	2752.00	2752.00	

22	Soil working (50cm Radius around plant)	Oct/Nov	7	2177.00	0.00	2177.00	
23	Fire line tracing (2 mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
24	Watch & Ward (12 months)@ 1497/- per month	Apr-Mar	15	4665.00		4665.00	
	Total		39	12129.00	4880.00	17009.00	
25	Monitoring & Supervision charge 5% of the total cost					850.45	
	G. Total		39	12129.00	4880.00	17859.45	

3rd Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
26	Weeding and Application of fertilizer	Aug/Sept	7	2177.00	0.00	2177.00	
27	Cost of fertilizer		0	0.00	1920.00	1920.00	
28	Soil working (50cm Radius around plant)	Oct/Nov	7	2177.00	0.00	2177.00	
29	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
30	Watch & Ward (12 months)@ 1497 /- per month	Apr-Mar	15	4665.00	0.00	4665.00	
	Total		32	9952.00	1920.00	11872.00	
31	Monitoring & Supervision charge 5% of the total cost					593.60	
	G. Total		32	9952.00	1920.00	12465.60	

4th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
32	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
33	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00	0.00	4665.00	
	Total		18	5598.00	0.00	5598.00	
34	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

5th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
35	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
36	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
37	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

6th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
38	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
39	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
40	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

7th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
41	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
42	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
43	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

8th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
44	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
45	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
46	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

9th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
47	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
48	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
49	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	

10th Year (Maintenance)

Sl. No	Item of Work		Mandays	Amount	Material Cost (Rs)	Total(Rs)	Remarks
50	Fire line tracing (2mtr wide fire line over 400 mtr long)	Feb/Mar	3	933.00	0.00	933.00	
51	Watch & Ward (12 months)@ 1497/- per ha	Apr-Mar	15	4665.00		4665.00	
	Total		18	5598.00	0.00	5598.00	
52	Monitoring & Supervision charge 5% of the total cost					279.90	
	G. Total		18	5598.00	0.00	5877.90	


 Divisional Forest Officer
 Malkangiri Forest Division
 Malkangiri

A B S T R A C T

Sl.No.	Name of the Project	Area to be afforested	Year of plantation	Cost norm per Ha (Rs)	Cost for 97.564Ha.
1	2	3	4	5	6
1	DIVERSION OF FOREST LAND FOR CONSTRUCTION OF 220 KV LILO TRANSMISSION LINE FROM EXISTING LOC 70 OF 220 KV MALKANGIRI - BALIMELA TRANSMISSION LINE TO 220/ 33 KV GRID SUB-STATION, KHAIRPUT, GOVINDPALLI OF OPTCLTD IN MALKANGIRI FOREST DIVISION OF MALKANGIRI DISTRICT, ODISHA.	97.564 ha.	"0"th Year (Adv.)	35750.40	3487952.03
2			1st Year	32256.84	3147106.34
3			2nd year	17859.45	1742439.38
4			3rd Year	12465.60	1216193.80
5			4th Year	5877.90	573471.44
6			5th Year	5877.90	573471.44
7			6th Year	5877.90	573471.44
8			7th year	5877.90	573471.44
9			8th year	5877.90	573471.44
10			9th year	5877.90	573471.44
11			10th year	5877.90	573471.44
	Total			139477.59	13607991.59
				Or Say	13608000.00
12	Cost of Barbed wire fencing over 5.678 Km @ Rs. 648750/- per Rkm.				3683603.00
	Total				1,72,91,603.00
13	Maintenance of fencing on 3rd, 6th & 9th year (2% of cost per each year)				221017.00
	Total				1,75,12,620.00
13	Add 15% of total Plantation cost towards EPA/Incentive to VSS				2626893.00
	Total				2,01,39,513.00
14	Add Escalation Cost (20%)				4027903.00
	Grand Total				2,41,67,416.00

(Rupees Two Crore forty one lakh sixty seven thousand four hundred sixteen) only.


 Divisional Forest Officer,
 Malkangiri Forest Division,
 Malkangiri