# **ANNEXURE-4**

# COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION)

М	Wage Rate @	Rs.345 p	oer day			
Nan	ne of the Division:- RAIRANGPUR FOREST DIVISION		Area (in I	la.) :-	1	На.
SI. No.		Preferable period of execution	Labour in Mandays	Labour Cost @ Rs.345/- per day	Material cost (in Rs.)	Total Cost (in Rs.)
1	2		3	4	5	6
	<u>Oth Year (Advance Wor</u>	rk) Pre-Plai	nting Opera	tion		
1	Survey,demarcation and pillar posting	Nov/Dec	2.00	690.00	0.00	690.0
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1.00	345.00	100.00	445.0
3	Site preparation (Cleaning & Removal of debrises	Nov/Dec	12.00	4140.00	0.00	4140.0
4	Creation of 4.00 mt wide inspection path	Feb/Mar	1.00	345.00	0.00	345.0
5	Allignment and stacking of pits	Feb/Mar	1.00	345.00	0.00	345.0
6	Digging of pits (45cm X 45cm X 45cm) in hard and gravelly soil	Feb/Mar	40.00	13800.00	0.00	13800.0
7	Contruction of Temporary Labour Shed, Drinking water facility and First Aid etc.	Jan/March	0.00	0.00	3500.00	3500.0
	Total-0th year-		57.00	19665.00	3600.00	23265.00
		Planting Ye		10000.00	0000.00	23203.00
	Refilling of pits by altering the dugout soil of the pits,	June/July	7.50	2587.50	5000.00	7587.50
1	application of organic compounds/CDM/FYM & mixing the same properly					
2	Transportation of 18 months old polythene bag seedlings in hired truck/tractor from the Permanent/Mega Nursery to planting site including loading & unloading (Average lead of 10 RKM) & stacking the seedlings @Rs.6/- per seedlings (1100 Nos.)	Jul/Aug	0.00	0.00	6600.00	6600.00
3	Watering polypot seedlings at planting site	Jul/Aug	2.00	690.00	0.00	690.00
4	Conveyance of polypot seedlings on head load from the stacking site to individual dugout pits within the planting site, applying insecticide, fertilizers & planting after scooping the soil with other applied materials & pressing the soil perfectly around the planted seedlings	Jul/Aug	22.50	7762.50	0.00	7762.50
5	Cost of Fertilizer and insecticide  (a)NPK/Bio-fertilizer @ 50 gms/plant as basal dose=50kg @30/- per kg = 1500.00  (b) Urea/Vermicompost/Mo Khata/any other fertilizer in two subsequent doses @ 750/-  (c) Insecticide /Bio-pesticide @5 gms/plant =5 kg @Rs.150/- per kg =Rs.750.00	July/Aug	0.00	0.00	3000.00	3000.00
6	Casuality Replacement @10% (100 Nos.)	July/Aug	2.50	862.50	0.00	862.50
7	1st weeding & Manuring	Aug/Sep	12.00	4140.00	0.00	4140.00
	2nd Weeding Soil working (1mt diameter around the plants) Manuring	Oct./Nov.	15.00	5175.00	0.00	5175.00
	Fire line tracing (2m wide fire line over 400m long including maintenance of inspection path	Feb/Mar	3.00	1035.00	0.00	1035.00
10	Watch & Ward including watering as per requirement	Aug-Mar	12.00	4140.00	0.00	4140.00
	Total-1st year-		76.50	26392.50	14600.00	40992.50

	2nd Year	Maintenanc	e			
1	Transportation of 100 seedlings from the Nursery to Plantation site including loading, unloading & Conveyance by Tractor @Rs.6/- per seedlings	July	0.00	0.00	600.00	600.00
2	Casualty replacement 10%	July	2.50	862.50	0.00	862.50
3	Cost of Fertilizer and insecticide  (a) Cost of Insecticide / Bio-pesticide @5 gms / plant =0.5 kg @150/- per kg = Rs.75/-  (b) Urea/NPK/Bio-fertilizer/vermicompost/Mo Khata/ any other fertilizer Rs.2800.00	July/Aug.	0.00	0.00	2875.00	2875.00
	Weeding (complete Weeding) Manuring & Soil working (1mt diametre around the plants)	Sep / Oct	15.00	5175.00	0.00	5175.00
6	Fire line tracing (2m wide fire line over 400m long including maintenance of inspection path	Feb/March	3.00	1035.00	0.00	1035.00
7	Watch & Ward including watering as per requirement	April-March	18.00	6210.00	0.00	6210.00
	Maintenance of Temporary Labour Shed, Drinking water facility and First Aid etc.	April-March	0.00	0.00	1000.00	1000.00
	Total-2nd year-		38.50	13282.50	4475.00	17757.50
	3rd Year	<u>Maintenance</u>				4
1	Cost of fertilizer (Urea/NPK/Bio-fertilizer/vermicompost/Mo Khata/ any other fertilizer)	July/Aug.	0.00	0.00	2800.00	2800.00
2	Weeding (complete Weeding) Manuring & Soil working (1mt diametre around the plants)	Sep / Oct	15.00	5175.00	0.00	5175.00
3	Fire line tracing (2m wide fire line over 400m long including maintenance of inspection path	Feb/March	3.00	1035.00	0.00	1035.00
4	Watch & Ward including watering as per requirement	April-March	18.00	6210.00	0.00	6210.00
5	Maintenance of Temporary Labour Shed, Drinking water facility and First Aid etc.	April-March	0.00	0.00	1000.00	1000.00
	Total-3rd year-		36.00	12420.00	3800.00	16220.00
	4th Year Mainten	ance AR Pla	ntation			
1	Fire line tracing (2m wide fire line over 400m long including maintenance of inspection path	Feb/March	3.00	1035.00	0.00	1035.00
8	Watch & Ward including maintenance of vegetative fencing	April-March	18.00	6210.00	0.00	6210.00
	Total-4th year-		21.00	7245.00	0.00	7245.00
	5th Year Mainten					
1	Fireline tracing (2m wide fire line over 400m length)	Feb/March	3.00	1035.00	0.00	1035.00
8	Watch and Ward	April-March	18.00	6210.00	0.00	6210.00
	Total-5th year-	ower ID Die	21.00	7245.00	0.00	7245.00
4	6th Year Mainten					
2	Fireline tracing (2m wide fire line over 400m length)	Feb/March	3.00	1035.00	0.00	1035.00
3	Pruning of branches, singling out of multiple shoots Watch and Ward	Jan/March	3.00	1035.00	0.00	1035.00
3		April-March	18.00	6210.00	0.00	6210.00
	Total-6th year	anco ID Dios	24.00	8280.00	0.00	8280.00
1	7th Year Mainten Fireline tracing (2m wide fire line over 400m length)	Feb/March		4000 001	o oct	4
_	Watch and Ward	April-March	3.00	1035.00	0.00	1035.00
0	Total-7th year-	April-Match	18.00	6210.00	0.00	6210.00
_	Total-/til year-		21.00	7245.00	0.00	7245.00

	8th Year Main	tenance AR Plan	<u>itation</u>			
1	Fireline tracing (2m wide fire line over 400m length)	Feb/March	3.00	1035.00	0.00	1035.00
8	Watch and Ward	April-March	18.00	6210.00	0.00	6210.00
-	Total-8th ye	ar-	21.00	7245.00	0.00	7245.00
		tenance AR Plar	itation			
1	Fireline tracing (2m wide fire line over 400m length)	Feb/March	3.00	1035.00	0.00	1035.00
8	Watch and Ward	April-March	18.00	6210.00	0.00	6210.00
0	Total-9th ye	ear-	21.00	7245.00	0.00	7245.00
		ntenance AR Pla	ntation			
1	Fireline tracing (2m wide fire line over 400m length)	Feb/March	3.00	1035.00	0.00	1035.00
8	Watch and Ward	April-March	18.00	6210.00	0.00	6210.00
-	Total-10th ye	ear-	21.00	7245.00	0.00	7245.00

Divisional Forest Officer,
Rairangpur Division.
Divisional Forest Officer
Rairangpur Division

#### **OVER AN AREA 17.795 HA. DIVERSION OF FOREST LAND**

#### SCHEME PREPARE FOR AN AREA OF 1 HA. CA SCHEME

#### ABSTRACT

SI. No.	Year	No. of Mandays	Labour Cost (in Rs.)	Material Cost (in Rs.)	Monitoring Evaluation, Learning Documentation and Other Contingency (5%) of (4+5)	Cost of Seedlings @Rs.54.54 per seedlings	Total Cost (in Rs.)
1	2	3	4	5	6	7	8
1	0th Year	57.00	19665.00	3600.00	1163.25	0.00	24428.25
2	1st Year	76.50	26392.50	14600.00	2049.63	59994.00	103036.13
3	2nd Year	38.50	13282.50	4475.00	887.88	5454.00	24099.38
4	3rd Year	36.00	12420.00	3800.00	811.00	0.00	17031.00
5	4th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
6	5th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
7	6th Year	24.00	8280.00	0.00	414.00	0.00	8694.00
8	7th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
9	8th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
10	9th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
11	10th Year	21.00	7245.00	0.00	362.25	0.00	7607.25
	Total-	358.00	123510.00	26475.00	7499.25	65448.00	222932.25

- 1 Priority must be given to the indigenous local species available nereby to the site of Plantation.
- 2 10% indigenous fruit bearing trees must be preferred to Plantation.
- 3 Site Specific Soil Conservation work like LBCD, Gully Plugging, Staggered Trench, Graded Bund, etc. may be taken up.
- 4 Chain link fencing can be adopted in the CA Plantation taken up outside the forest area and Bamboo twings fencing may be prefered
- 5 Watering facilities for procurement of water & watering may be adopted as per the availability of water.
- The Cost Norm of various items can be changed with the approval of the concerned RCCFs keeping the overeall cost norm fixed for each financial year.

### **Land Suitability Certificate**

An area of 17.795 Ha. of Forest Land is to be diverted for NHAI (Rehabilitation and upgradation to four laning of 7.6 KM stretch (KM 229.00 to 236.600) inside buffer Zone of Similipal Tiger Reserve of Baharagoda to Singhara Section (KM 199.200 to KM 310.806) of NH-49 in Mayurbhanj district of Odisha. In lieu of this, User Agency has submitted 35.787 Ha of DGPS surveyed map which is in Soso mouza as detail below.

Mouza	Khata No.	Plot No.	Kisam	Gross Area as per record in Acre	Required Area in Acre	Required Area in Ha.
	490 (Rakhit)	2572 (P)	Bagayat-II	11.25	7.712	3.121
		2631 (P)	Bagayat-II	3.61	1.921	0.777
Soso		2927 (P)	Bagayat-II	9.06	8.076	3.268
3080		3005 (P)	Bagayat-II	12.50	12.488	5.054
		3006 (P)	Bagayat-II	1.05	0.966	0.391
		3007 (P)	Bagayat-II	65.58	57.268	23.176
Total-		6 Plots		103.05	88.431	35.787

The same has duly verified through DSS developed by FSI. Hence, 35.787 Ha of effective CA land is available for raising of CA against the diverted area of 17.795 Ha. of Forest Land. Accordingly, over an area of 35.787 Ha of Revenue Land has been identified in two patches for raising of Compensatory Afforestation.

This is to certify that 35.787 Ha. of Revenue Land (Bagayat-II) in Soso mouza Khata No.490 (Rakhit) under Bahalda Tahasil of Mayurbhanj are identified for Compensatory Afforestation and found suitable for plantation from management point of view. No plantation has been carried out in the aforesaid area previously.

Divisional Forest Officer, Rairangpur Division.

> **Divisional Forest Officer** Rairangpur Division

#### **EXECUTIVE SUMMARY**

The Scheme of Compensatory Afforestation over an area of 35.787 Ha. has been prepared in lieu of diversion of forest land over an extent of 17.795 Ha. for NHAI (Rehabilitation and upgradation to four laning of 7.6 KM stretch (KM 229.00 to 236.600) inside buffer Zone of Similipal Tiger Reserve of Baharagoda to Singhara Section (KM 199.200 to KM 310.806) of NH-49 in Mayurbhaj district of Odisha. The Proposed Compensatory Afforestation area has been identified in Soso mouza Khata No.490 (Rakhit) under Bahalda Tahasil of Mayurbhanj district. Adopted one scheme to accommodate 35787 nos. of seedlings as per Suitability of site specific land, the details as follows:-

Over an area of 35.787 Ha. under Rairangpur Forest Division, Rairangpur, Mayurbhanj. The said C.A area has been proposed for Compensatory Afforestation @ 1000 plants /Ha. in Block plantation mode for which 35787 nos. of seedlings will be planted in 35.787 Ha with other associated works like SMC work, Inspection Road, Rest Shed, Re-generation cleaning and associated activities as and when required.

#### **Details of Compensatory Afforestation Scheme:**

Two no of patch has been selected for raising of Compensatory Afforestation in Block plantation mode @ 1000 plants/ Ha. with maintenance up to ten years (with 0th year) are prepared as per One Time Cost Norm for Compensatory Afforestation as approved by PCCF, Odisha Bhubaneswar vide his 0.0 No. 1109 dt 08.11.2021 as follows: Block Plantation @ 1000 Plans/Ha.

Division	Range	Mouza	Khata No.	Plot No.	Area Identified in Ha.	Area found suitable for plantation in Ha.	Total Number of Seedlings to be planted
1	2	3	4	5	6	7	8
Rairangpur	Bahalda	Soso		2572 (P)	3.121	3.121	3121
Forest	Forest Division		490	2631 (P)	0.777	0.777	777
Division				2927 (P)	3.268	3.268	3268
			(Rakhit)	3005 (P)	5.054	5.054	5054
				3006 (P)	0.391	0.391	391
				3007 (P)	23.176	23.176	23176
		Total-		6 Plots	35.787	35.787	35787

# **SUMMARY OF THE COMPENSATORY AFFORESTATION SCHEME**

Sl. No.	Mode of Plantation	Area in Ha.	No. of seedlings to be planted
1.	Block Plantation @ 1000 plants/ Ha.	35.787	35787

Divisional Forest Officer,
Rairangpur Division.

Divisional Forest Officer
Rairangpur Division

COMPENSATORY AFFORESTATION SCHEME OVER 35.787 HA OF REVENUE REVENUE LAND IN MAYURBHANJ DISTRICT IN LIEU OF DIVERSION PROPOSAL OVER 17.795 HA OF FOREST LAND FOR NHAI (REHABILITATION AND UPGRADATION TO FOUR LANING OF 7.6 KM STRETCH (KM 229.00 TO 236.600) INSIDE BUFFER ZONE OF SIMILIPAL TIGER RESERVE OF BAHARAGODA TO SINGHARA SECTION (KM 199.200 TO KM 310.806) OF NH-49IN THE DISTRICT OF MAYURBHAJ, ODISHA.

#### INTRODUCTION

This Project is coming under the Jurisdiction of NHAI (Rehabilitation and upgradation to four laning of 7.6 KM stretch (KM 229.00 to 236.600) inside buffer Zone of Similipal Tiger Reserve of Baharagoda to Singhara Section (KM 199.200 to KM 310.806) of NH-49 in the district of Mayurbhanj. This Project will generate more revenue and also generate manpower in the area of Bamanghaty sub-division & adjoining area in Mayurbhanj District & overall development of Odisha State in General.

#### LAND INVOLVED

These project extents over an area of 17.795 Ha Forest Land for NHAI (Rehabilitation and upgradation to four laning of 7.6 KM stretch (KM 229.00 to 236.600) inside buffer Zone of Similipal Tiger Reserve of Baharagoda to Singhara Section (KM. 199.200 to KM 310.806) of NH-49 in the district of Mayurbhanj, Odisha.

# **DETAILS OF SELECTION OF SITE**

District:-Mayurbhanj

Division:-Rairangpur

Range:-Rairangpur

CA Land Location: Soso mouza Khata No.490 (Rakhit) under Bahalda Tahasil of Mayurbhanj district.

The Compensatory Afforestation has been identified in Soso mouza Khata No.490 (Rakhit) under Bahalda Tahasil of Mayurbhanj district. The site located on Survey of India Open Series Topo Sheet No.73 J/3 confined within the geo-coordinates mentioned as per ORSAC Map No.FDC-1087 UTM **Zone - 45** and indicated on the map enclosed as **Annexure-I**. The proposed areas are free from encroachment and found suitable for plantation.

**Description of Area**: The identified Bagayat-II Land is under the possession of Revenue Department.

Soil Type: Laterite to Red Soil mixed with Moorum.

Topography: -

Hilly/ Undulating /Plain: The topographical configuration of the identified site is plain.

Slope: The site selected for Compensatory Afforestation have medium to gentle slope.

Whether the area is bearing any root stock of vegetation: The site selected for Compensatory Afforestation has root stock 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 42°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 gutsy 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 1648 mm under the influence of south west monsoon. On average, there are about 147 rainy days. The humidity is maximum in the month of July to August (76%) and minimum in February (27%). The wind velocity varies between 15 KMPH and 27 KMPH, although occasional higher values have also been reported. Lightening incidents are rarely reported in this area.

**Plantation Model**: The identified compensatory afforestation site over 35.787 Ha. is having degraded in nature. The topography is gentle and has swallow soil, mixed with sand and laterite exposed rock. Thus, it is proposed to take up **Block Plantation** over 35.787 Ha @1000 Plants / ha. & SMC work in 35.787 Ha in this area.

# 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 through artificial regeneration mode of plantation.
- 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 soil moisture conservation (SMC) measures to improve the soil and moisture regime.
- To improve the bio-diversity of these blocks.
- To meet the need of the local villagers with regard to firewood and small timber depending upon the productivity (from silvicultural operations like thinning, subsidiary silvicultural operation, climber cutting, cutting of high stumps, double shoot cutting etc.)

# 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.
- Fencing.
- Site Clearance & Planting @1000 Nos. seedlings / ha.
- Soil & Moisture Conservation Measures.
- Protection of Plantation.
- Peoples Participation.
- Monitoring & Evaluation Mechanism.

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

**Fencing:** Required as per Fencing Model F-I: Provision of Fencing with Bamboo Twigs and Thrones including 5 year maintenance for 35.787 ha.

Site Clearance & Planting: Plantation over 35.787 Ha. shall be taken up with planting model of AR(Block) 1000 plants/Ha. Site clearance and cleaning to be done in the treatment area to create plantation @1000 nos. seedlings per ha. Silvicultural cleaning by cutting of high stumps, removal of weeds, singling of multiple shoots, and 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, soil working, manuring, watering, 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 where ever 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
Terminalia arjuna	Arjun
Azadirachta indica	Neem
Pongamia pinata	Karanja
Emblica oficinalis	Anla
Dalbergia sissoo	Bali Sisoo
Dalbergia latifolia	Pahadi Sisoo
Gmelina arborea	Gambhari
Dendrocalamus strictus	Salia Bamboo
Terminalia tomentosa	Asana
Madhuca indica	Mahul
Terminalia belerica	Bahada
Acacia catechu	Khaira
Mangifera indica	Mango
Syzygium cumini	Jamu
Ficus benghalensis	Bara
icus religiosa	Pipal
Artocarpus heterophyllous	Panasa

**Soil and Moisture Conservation Works**: - Since most of the areas are hilly and undulating, half-moon trenches on down-hill side should be constructed on each plant. In the slopes, staggered trenches of 2m x 50Cm x 50Cm should be dug in between the planting line along the contours, and the excavated earth to be dumped, dressed at the downhill side to form a bond. The staggered contour trenches will act deposit of eroded soil moisture and check soil erosion.

**Protection of the Plantation:** - Fencing with Bamboo Twigs 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, Rairangpur Division with his staff and all prescribed records are to 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.

Divisional Forest Officer,
Rairangpur Division.

Divisional Forest Officer
Rairangpur Division.

Financial Outlay for raising of Compensatory Afforestation Scheme over an area of 35.787 Ha. in AR (Block) Plantation mode @ 1000 plants/ Ha. of Forest land in Rairangpur Forest Division to accommodate 35787 nos. of plants. The said scheme has been prepared as per One Time Cost Norm for Compensatory Afforestation as approved by PCCF, Odisha Bhubaneswar vide his 0.0 No. 1109 dt 08.11.2021 with commencement of plantation from 2021-22.

SI. No.	Description	Amount Rs.
1.	Cost of Plantations	
Α	AR (Block) Plantation @ 1000 plants per Ha. over 35.787 Ha. without fencing @ Rs.2,22,932.25 per Ha. with provision of 10 years maintenance	7978076.43
2.	SMC Activities like Staggered Trench, Percolation pit, Contour trench, Graded earthen bund, Sub surface Dyke & WHS as per the slope & site requirement @ Rs. 37,415/- per Ha. for 35.787 Ha.	1338970.60
3.	Watering Provision Watering Model-W-III: Bore Well fitted with Solar Pump Set — Solar System (One Solar Energy Pump 5 Ha. Plantation) Wage Rate @ Rs.345/- = Rs.442300/-	3096100.00
4	Fencing Provision Fencing Model F-I: Provision of Fencing with Bamboo Twigs and Thrones Wage Rate @345/- required @93431/- per Ha. (Including 5-year maintenance)	3343615.19
1	Sub-Total-	15756762.22
5.	Escalation (20%)	3151352.44
	Grand Total-	18908114.66
	Or Say-	18908115.00

Divisional Forest Officer, Rairangpur Division.

All CA will be raised outside forest area where heavy biotic pressure is experienced and the identified CA areas are arid in nature. So as to raise successful CA, provision of watering & fencing is a sine qua non for which watering & fencing provision is adopted.

Approved

F.D., S.T.R.-Cum-Regional Chief Conservator of Forests, Baripada Circle, Baripada.