

**SCHEME FOR COMPENSATORY
AFFORESTATION OVER 159.680 ha OF
NON-FOREST GOVT. LAND IDENTIFIED
IN VILLAGE SIKULAPDA, PHULJHAR &
RAIDIHA UNDER BANSAPAL TAHASIL OF
B.J.P. RANGE OF KEONJHAR FOREST
DIVISION AGAINST
KHANDBANDH IRON ORE MINES
OF
M/s ODISHA MINING CORPORATION LTD.**

ELEMENTS OF THE SCHEME FOR COMPENSATORY AFFORESTATION

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Decision Support System analysis of Non-forest land identified in village Sikulapda, Phuljhar & Raidiha under Bansapal Tahasil of B.J.P. Range

Sl. No.	Name of the Patch	Verified in Decision Support System (in ha)				Length of barbed wire fencing (in KM)
		Total Area	Non-forest	Open Forest	MDF	
1	Sikulapda Block- I	18	10	5	3	2.22
2	Sikulapda Block- II	44	8	22	14	4.10
3	Phuljhar	46	4	18	24	3.00
4	Raidiha Block- I	48	1	16	31	2.71
5	Raidiha Block- II	5	0	3	2	1.32
	Total	161	23	64	74	13.35

CHAPTER-I

BRIEF NOTE ON THE PROPOSED FOREST DIVERSION PROPOSAL

The mining lease of Khandbandh Iron ore mine was granted over 905.175 acers or 366.311 ha vide letter No. III (A) II-9/63- 11708, dated 22.11.1963 of Govt. of Odisha Mining & Geology Department. The said Mining lease was executed on dated 30.11.1963 for a period of 30 years with effect from 30.11.1963 to 29.11.1993 over an area of 366.311 ha. The first RML was applied on 09.11.1992 one year prior to expiry of the original mining lease period. The second RML was applied on 06.11.2012 over the said area from extension of ML period 30.11.2013 to 29.11.2033.

The Mining Lease of Khandbandh Iron Ore Mines of M/s OMC Ltd lies between longitude E 85⁰ 23'12.66888" – 85⁰ 24' 45.86016" and latitude N 21⁰ 55' 40.27579" – 21⁰ 57' 29.90066" in Survey of India topo sheet no. F 45 N 5. The said mining lease over 366.311 ha involves 97.217 ha Village Forest, 209.973 ha DLC forest land and 37.999 ha Non-forest land recorded as Forest as on 25.10.1980. The instant diversion proposal has been submitted over 345.189 ha (Revenue forest-97.217 ha, DLC Forest-209.973 ha and 37.999 ha Non- Forest land recorded as Forest as on 25.10.1980) including safety zone area over 6.77 ha Forest land for diversion under Section-2 (ii) of Forest (Conservation) Act, 1980. The certified status of the non-forest land, involved in the mining lease, depicts that 37.999 ha non-forest land in village Khandbandh, Guruda & Jaroli is Forest as on 25.10.1980. The total broken up land, involved in the mining lease, is 129.095 ha.

Non-forest Govt. land over 209.324 ha is required for compensatory afforestation for the said project. Out of 209.324 ha, 159.68 ha has been identified and allotted in villages Sikulapda, Phuljhar & Raidiha under BJP Range of Banspal Tahasil (earlier Telkoi Tahasil) of Keonjhar district vide letter No. 1740/Rev dated 29.06.2006 and letter No. 679/Rev dated 30.04.2009 of the Collector, Keonjhar and for 49.644 ha has been identified and allotted in villages Kerapai and Balangi under Thuamul Rampur Tahasil of Kalahandi (S) Division in Kalahandi District vide letter No. 53/Rev dated 09.01.2014 and letter No. 1971/Rev dated 19.12.2016 of the Collector, Kalahandi in favour of Khandbandh Iron Ore Mines of M/s OMC Ltd for Compensatory Afforestation. The present Compensatory Afforestation scheme has been prepared at the prevailing wages @ Rs. 213.50 per man days with maintenance period of 10 (ten) years.

CHAPTER- II

DETAILS OF LAND IDENTIFIED FOR COMPENSATORY AFFORESTATION

A. LAND IDENTIFICATION AND JOINT VERIFICATION OF THE IDENTIFIED SITE.

The site for Compensatory Afforestation has been identified in village Sikulapda over 62.058 ha, Phuljhar over 46.397 ha & Raidiha over 51.225 ha under Bansapal Tahasil in B.J.P. Range of Keonjhar Forest Division over 159.680 ha and has been jointly verified by the Tahasildar, Bansapal, Revenue Inspector, Kanjipani, Range Officer, B.J.P. Range and Forest Section Officer, Kanjipani. The identified land has been allotted in favour of Khandbandh Iron Ore Mines of M/s Odisha Mining Corporation Ltd by the Collector, Keonjhar vide letter No. 1740/Rev dated 29.06.2006 and letter No. 679/Rev dated 30.04.2009. The identified bearing Khata No. 51 & plot No. 10, 11(P), 176(P) & 317(P) of Sikulapda village, Khata No. 154(AAA) & plot No. 1836(P), 1945, 1946, 1969 & 1970 of Phuljhar village and Khata No. 35(AAA) & plot No. 136(P), 137, 138(P), 139(P) & 295(P) of Raidiha village.

B. INFORMATION ON NON-ENCROACHMENT AND NON-ENCUMBRANCE.

The Tahasildar, Bansapal has given certificate of non-encroachment and non-encumbrance in respect of the non-forest Govt. land identified and allotted for Compensatory Afforestation.

C. INFORMATION ON LAND STATUS.

The land schedule and land status of 159.680 ha land identified and allotted for Compensatory Afforestation is furnished hereunder:-

Tahasil	Village	Khata No.	Plot No.	Area taken for instant proposal for CA (in ha).	Kissam
Banspal	Sikulapda	51	10	16.000	Parbat- II
			11(P)	11.700	Parbat- II
			317(P)	17.100	Parbat- II
			176(P)	17.258	Parbat- II
	Total			62.058	
	Phuljhar	154	1836(P)	3.833	Parbat- II
			1945	10.086	Parbat- II
			1946	15.598	Parbat- II
			1969	12.344	Parbat- II
			1970	4.536	Parbat- II
	Total			46.397	
	Raidiha	35	136(P)	9.2310	Parbat- II
			137	15.2000	Parbat- II
			138(P)	15.7472	Parbat- II
			139(P)	6.6602	Parbat- II
			295(P)	4.3866	Parbat- II
	Total			51.2250	
Grand Total			159.680		

D. SUITABILITY OF IDENTIFIED SITE FOR COMPENSATORY AFFORESTATION.

The identified land is free from encroachment and encumbrance. This land is neither covered under Section-4 of Orissa Forest Act, 1972 nor included in DLC report.

The non-forest Govt. land identified in villages Sikulapda, Phuljhar & Raidiha are in three patch situated in hilly slopes with existing growth of Sal and its associates. The slope of the identified site is moderate and suitable for Compensatory Afforestation in ANR with gap plantation model@ 400 seedling per ha over 159.680 ha.

The topography of the area is mainly hilly. The soil is prone to erosion necessitating soil-moisture conservation measures. Available depth of sandy-loam soil is conducive for plantation with suitable soil-moisture conservation measures. The average temperature varies from 13.5° C minimum in December to 45°C maximum in May. The annual rainfall varies from 1200 mm to 1500 mm. The maximum rainfall is received during the rainy season from July to September. The identified land is considered for Compensatory Afforestation in ANR with gap plantation model over 159.680 ha. The CA scheme is envisaged to be executed with involvement of Sikulapda & RaidihaVSS.

CHAPTER-III

DELINEATION OF PROPOSED AREA ON SUITABLE MAP

III(1) GPS COORDINATES AND GPS MAP OF THE COMPENSATORY AFFORESTATION SITE

The area has been demarcated through GPS survey and 68 nos of 4' height RCC pillars have been posted around the identified area and the GPS survey data showing latitude & Longitude of each point and their chainage with bearing has been depicted in the village sheet map (Map Enclosed). A durable sign board has been erected at the identified site at a conspicuous location with name of the project, year of allotment, name of the scheme, details of plots etc. depicted there on.

CHAPTER- IV

AGENCY RESPONSIBLE FOR COMPENSATORY AFFORESTATION

IV(1) AGENCY RESPONSIBLE FOR PLACEMENT OF FUNDS

The user agency shall provide funds for raising Compensatory Afforestation as per the approved scheme.

IV(2) AGENCY RESPONSIBLE FOR EXECUTION OF COMPENSATORY AFFORESTATION

The Territorial Wing of the Forest Department i.e. Divisional Forest Officer, Keonjhar Division will be assigned with the task for execution of Compensatory Afforestation.

CHAPTER- V

DETAILS OF WORK SCHEDULE PROPOSED FOR COMPENSATORY AFFORESTATION

A. PLANTING PLAN

Planting Plan reflects the species specific treatment of the identified site. Choice of species is based on the geo-morphology of the site, soil-texture, structure, fertility and depth, proneness of the site to water logging etc. Specific treatment of the site in terms of soil and moisture conservation intervention will be depicted in the treatment map. A treatment map will invariably be prepared for Species to be planted and treatments to be applied to the different patches shown in the treatment map and planting plan. This plan will be followed when actual planting is carried out.

Species to be planted:-

1. *Syzium cumini* (Jamu)
2. *Adina cardifolia* (Kuruma)
3. *Anogeissus latifolia* (Dhaura)
4. *Accacia catechu* (Khair)
5. *Dalbergia sissoo* (Sissoo)
6. *Azadirachta indica* (Neem)
7. *Gmelina arborea* (Gambar)
8. *Terminalia belerica* (Bahada)
9. *Terminalia chebula* (Harida)
10. *Pongamia pinnata* (Karanja)
11. *Emblica officinalis* (Ainla)

B. PRE-PLANTING OPERATION

B(I)-RAISING OF PLANTATION STOCK- NURSERY-

Nursery will be raised @880/ ha seedlings for village- Sikulapada and @440/ ha seedlings for village- Phuljhar & Raidiha including seedlings for 10% causality replacement under ANR model for 159.680 ha.

B(II)-SURVEY, DEMARCATION & PILLAR POSTING, GPS READING WITH MAPPING-

The planting area has been surveyed and demarcated through GPS survey and 68 nos. of 4' height RCC pillars have been posted at inter visible distance (as per the direction of forest Range Officer, BJP Range) with GPS co-ordinates, forward and backward bearing, pillar No. and distance between pillars inscribed in it. A GPS map in the scale of 1:4000 has been prepared along with GPS co-ordinates forward and backward bearing, pillar No. and distance between pillars reflected in the map. A durable sign board has been erected at a conspicuous location with name of the site, scheme, area etc. depicted on it.

B(III)-SITE PREPARATION AND SILVICULTURAL OPERATION INCLUDING CLEARANCE OF WEED, CLIMBER CUTTING, HIGH STUMP CUTTING, SINGLING OF SHOOTS-

The clearing of the site involving removal of invasive weeds, bushes, climbers, high stumps and singling of shoots will be taken up preferably by the end of February and latest by the end of March. Pits of the dimension 30 x 30 x 30 cm. will be dug @ 800 & @ 400 per ha in the available gaps over 159.68 ha preferably 2 months before or at least a month before planting of seedlings.

C. PLANTING OPERATION

Planting of seedlings will be taken up in the month of July. The polythene covering of the balls of earth will be carefully removed before planting. Care will be taken to see that the ball of earth is not broken while doing so. The seedling with the ball of earth will then be placed firmly in the pit and buried at such a depth that the root collar is well below the surface of the soil. The soil around the plant will be well compacted with the heel as a final step so that there is a proper bond between the ball and the surrounding soil. The earth close to the collar will be slightly elevated so that rain water does not accumulate very close to the plant.

D. POST PLANTING OPERATION

D(1)-CASUALTY REPLACEMENT

The entire area will be gone over in the same order as plantation was carried out and casualties, if any, will be replaced as soon as the main plantation operation is over.

D(2)-WEEDING AND SOIL WORKING

Regular and efficient weeding will start immediately after sprouting of the stumps is complete or after the seedlings have started throwing up new buds.

D(3)-MANURING AND INSECTICIDE APPLICATION

On degraded sites urban compost or farmyard manure, wherever available, will be added to the soil while refilling the pits. As regards artificial fertilizers, the minerals required and dosage @ 50 grammes of patent mixtures like 'Gromor' or N.P.K. (2:2:1) will be applied in two split doses one in August and the other in September.

D(4)-SOIL MOISTURE CONSERVATION MEASURES

Special Soil Moisture Conservation Measures will be taken up through construction of LBCD structures of dimension 10' x 10' x 5' to the tune of 160 nos. over the entire plantation site and staggered trenches of dimension 2.5 x 0.5 x 0.5 mtr to the tune of 300 Nos. per ha over 159.680 ha.

D(5)-PROTECTION AGAINST FIRE AND BIOTIC INTERFERENCE

It is proposed to protect the CA plantation from grazing by domestic animals using Barbed wire fencing (7 Strands). The total length of such Barbed wire fencing for both the patches which comes to 13.43 Km (13430 M). Fire line tracing will be ensured to protect the plantation from fire and watch & ward will be provided as per the approved norm for protecting the plantation from grazing with involvement of Sikulapda & RaidihaVSS.

CHAPTER- VI

**COST STRUCTURE OF PLANTATION, PROVISION OF FUNDS AND UTILIZATION
COST NORM FOR ANR PLANTATION @ 800 PLANTS PER HECTARE
WAGE RATE Rs. 213.50/- PER DAY (VILLAGE - SIKULAPADA)**

**A. ESTIMATE OF COST FOR 1.00 HA. UNDER ANR PLANTATION MODEL
0th year (Advance work) Pre-planting operation.**

Sl. No	Item of Work	Preferable period of execution	Person days	Labour (Rs.)	Material (Rs.)	Total (Rs.)
1	Survey demarcation and Pillar posting , GPS Reading with mapping	Nov/Dec	2	427.00	0	427.00
2	Site Preparation	Nov/Dec	2	427.00	0	427.00
3	Silviculture Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc.	Jan/Feb	5	1067.50	0	1067.50
4	Nursery cost (6 months old seedling) part @ Rs. 9.45/- seedling (Rs. 6.67 in 0th year + Rs. 2.78 in 1st year) for 880 seedlings (800+80)	Jan-Mar	22	4697.00	1470.00	6167.00
5	Contingency and Unforeseen Expenditure		0		230.00	230.00
Sub Total			31	6618.50	1700.00	8318.50
1st Year operation						
1	Nursery cost (6 months old seedling) balance @Rs. 2.78 for 880 seedlings	Apr-Jul	11	2348.50	246.00	2594.50
2	Pitting 30 cm cube size	Feb/Mar	24	5124.00	0	5124.00
3	Carriage and planting including casualty replacement	Jul/Aug	20	4270.00	0	4270.00
4	Complete weeding, Soil working, Manuring	Aug/Sep	24	5124.00	0	5124.00
5	Cost of vermicompost @ 200 gms/ plant @ Rs. 20/- per kg = Rs. 3200.00 and Granular Insecticide 5 gms/ plant @ Rs. 80 per kg = Rs.320.00	Aug/Sep	0	0	3520.00	3520.00
6	Cost of chemical fertilizer (a) Urea 70 gms/ plant in two subsequent doses @ Rs.6 per kg =Rs 336.00 (b) NPK 50 gms/ plant @ Rs. 24/- per kg= Rs. 960.00 as basal dose	Feb/Mar	0	0	1296.00	1296.00
7	Fireline Tracing and inspection path		3	640.50	0	640.50
8	Silvicultural Operation involving clearance of weeds, cutting of climbers, singling of shoots etc.		15	3202.50	0	3202.50
9	Soil Conservation Measures (Staggered trenches of dimension 2 m x 0.5 m x 0.5 m @ 60 nos per ha) or its equivalent		20	4270.00	0	4270.00
10	Watch & ward		7	1494.50	0	1494.50
11	Contingency and Unforeseen expenditure		0	0	338.00	338.00
12	Fireline Tracing and inspection path	Feb/Mar	3	640.50	0	640.50
Sub Total			124	26474.00	5400.00	31874.00
2nd year operation						
1	Casualty Replacement including cost of seedling, carriage and planting		4	854.00	756.00	1610.00
2	Complete weeding and Cultural Operations		8	1708.00	0	1708.00

3	Soil working and manuring		8	1708.00	0	1708.00
4	Cost of fertilizer and insecticide (a) Vermicompost 200 gms/ plant @ Rs. 20/ per kg = Rs.3200 (b) Granular insecticide 5 gms/ plant for 80 plants 400 gms @ Rs. 80/- per kg=Rs.32.00		0	0	3232.00	3232.00
5	Fireline Tracing and inspection path		1	213.50	0	213.50
6	Soil conservation Measures (Renovation of staggered trenches etc.)		8	1708.00	0	1708.00
7	Watch & ward (whole year)		7	1494.50	0	1494.50
8	Contingency and Unforeseen expenditures		0	0	224.00	224.00
Sub Total			36	7686.00	4212.00	11898.00
3rd Year operation						
1	Complete weeding and Cultural Operations		4	854.00	0	854.00
2	Soil working		4	854.00	0	854.00
3	Fireline Tracing and Inspection Path		1	213.50	0	213.50
4	Watch & Ward (Whole Year)		7	1494.50	0	1494.50
Sub Total			16	3416.00	0	3416.00
4th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.00	0	427.50
Sub-Total			3	640.50	0	640.50
5th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Sub-Total			3	640.50	0	640.50
6th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Sub-Total			3	640.50	0	640.50
7th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Sub-Total			3	640.50	0	640.50
8th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Suh-Total			3	640.50	0	640.50
9th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Sub-Total			3	640.50	0	640.50
10th Year operation						
1	Fireline Tracing and Inspection Path		1	213.50	0	213.50
2	Watch & Ward and Cultural Operation		2	427.50	0	427.50
Sub-Total			3	640.50	0	640.50

ABSTRACT

Sl.	Item of Work	Person days	Labour (Rs.)	Material (Rs)	Total (Rs)
1	0 th year operation	31	6618.50	1700.00	8318.50
2	1 st year operation	124	26474.00	5400.00	31874.00
3	2 nd year operation	36	7686.00	4212.00	11898.00
4	3 rd year operation	16	3416.00	0	3416.00
5	4 th year operation	3	640.50	0	640.50
6	5 th year operation	3	640.50	0	640.50
7	6 th year operation	3	640.50	0	640.50
8	7 th year operation	3	640.50	0	640.50
9	8 th year operation	3	640.50	0	640.50
10	9 th year operation	3	640.50	0	640.50
11	10 th year operation	3	640.50	0	640.50
	Total	228	48678.00	11312.00	59990.00
	Total- village Sikulapada- 62.058 ha				3722859.42

**COST NORM FOR ANR PLANTATION @ 400 PLANTS PER HECTARE
WAGE RATE Rs. 213.50/- PER DAY (VILLAGE PHULJHAR & RAIDIHA 97.622 ha)**

**B. ESTIMATE OF COST FOR 1.00 HA. UNDER ANR PLANTATION MODEL
0th year (Advance work) Pre-planting operation.**

Sl No	Item of work	Preferable period of execution	person days	Labour (Rs)	Material (Rs)	Total (Rs)
0th year						
1	Survey demarcation and pillar posting , GPS reading with mapping	Nov/Dec	2	427.00	0	427.00
2	Site Preparation	Nov/Dec	2	427.00	0	427.00
3	Silviculture Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc.	Jan/Feb	5	1067.50	0	1067.50
4	Nursery cost (6 months old seedling) part @ Rs. 9.45/- seedling (Rs. 6.67 in 0th) year + Rs. 2.78 in 1st year) for 440 seedlings (400+40)		11	2348.50	735.00	3083.50
5	Contingency and unforeseen expenditure		0		165.00	165.00
	Sub Total		20	4270.00	900.00	5170.00
1st year						
1	Nursery cost (6 months old seedling) balance @Rs. 2.78 for 440 seedlings	Apr-Jul	5	1067.50	223.00	1290.50
2	Pitting 30 cm cube size	Feb/Mar	12	2562.00	0	2562.00
3	Carriage and planting including casualty replacement	Jul/Aug	10	2135.00	0	2135.00
4	Complete weeding, Soilworking, manuring	Aug/Sep	12	2562.00	0	2562.00
5	Cost of vermicompost @200gms/plant @Rs. 20/-per kg=Rs. 1600.00 and Granular insecticide 5 gms/ plant @ Rs. 80 per kg=Rs.160.00	Aug/Sep	0	0	1760.00	1760.00
6	Cost of chemical fertilizer (a) Urea 70 gms/plant in two subsequent doses @ Rs.6 per kg =Rs 168.00 (b) NPK 50 gms/plant @ Rs. 24/- per kg= Rs. 480.00 as basal dose		0	0	648.00	648.00
7	Silvicultural operation involving clearance of weeds, cutting of climbers, singling of shoots etc.	Sep/Oct	15	3202.50	0	3202.50

8	Soil Conservation Measures (Staggered trenches of dimension 2 m x 0.5 m x 0.5 m @ 60 nos per ha) or its equivalent	Sep/Oct	20	4270.00	0	4270.00
9	Fireline Tracing and inspection path	Feb/Mar	3	640.50	0	640.50
10	Watch & ward	Aug-Mar	7	1494.50	0	1494.50
11	Contingency and unforeseen expenditure		0	0	319.00	319.00
Sub Total			84	17934.00	2950.00	20884.00
2nd year						
1	Casualty Replacement including cost of seedling, carriage and planting	Jul/Aug	2	427.00	378.00	805.00
2	Complete weeding and cultural operations	Sep/Oct	4	854.00	0	854.00
3	Soil working and manuring	Sep/Oct	4	854.00	0	854.00
4	Cost of fertilizer and insecticide (a) Vermicompost 200 gms/plant @ Rs. 20/ per kg=Rs.1600 (b) Granular insecticide 5 gms/plant for 40 plants 200gms @ Rs. 80/- per kg=Rs.16.00	Sep/Oct	0	0	1616.00	1616.00
5	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
6	Soil conservation Measures (Renovation of staggered trenches etc.)	Sep/Oct	8	1708.00	0	1708.00
7	Watch & ward (whole year)	Apr-Mar	7	1494.50	0	1494.50
8	Contingency and unforeseen expenditure		0	0	362.00	362.00
Sub Total			26	5551.00	2356.00	7907.00
3rd Year						
1	Complete weeding and cultural operations	Aug/Sep	2	427.00	0	427.00
2	Soil working	Aug/Sep	2	427.00	0	427.00
3	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
4	Watch & ward (whole year)	Apr-Mar	7	1494.50	0	1494.50
Sub Total			12	2562.00	0	2562.00
4th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50
5th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50
6th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50
7th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50
8th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50
9th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50

10th year						
1	Fireline Tracing and inspection path	Feb/Mar	1	213.50	0	213.50
2	Watch & ward and cultural operation	Apr-Mar	2	427.00	0	427.00
Sub-Total			3	640.50	0	640.50

ABSTRACT

Sl No.	Year	Mandays	Labour Cost (Rs.)	Material Cost (Rs.)	Total (Rs.)
1	0th Year	20	4270.00	900.00	5170.00
2	1st Year	84	17934.00	2950.00	20884.00
3	2nd Year	26	5551.00	2356.00	7907.00
4	3rd Year	12	2562.00	0	2562.00
5	4th Year	3	640.50	0	640.50
6	5th Year	3	640.50	0	640.50
7	6th Year	3	640.50	0	640.50
8	7th Year	3	640.50	0	640.50
9	8th Year	3	640.50	0	640.50
10	9th Year	3	640.50	0	640.50
11	10th Year	3	640.50	0	640.50
Total		163	34800.50	6206.00	41006.50
Total- village Phuljhar & Raidiha - 97.622 ha					4003136.54
Grand Total (A+ B)					7725995.96

ADDITIONAL COST PROPOSED

1	SMC measures- LBCD structure of dimension 10' x 10' x 5' @Rs. 6844.86/- per LBCD structure for 160 LBCD structures.	1095177.60	
2	Staggered trenches @130MD per ha over 159.68 ha.	4431918.40	
3	Additional incentive (3% of cumulative expenditure upto 4 th year) for VSS/Fr./FG proposed for more than 80% survival and very good growth during 4 th year of maintenance as per recommendation of DFO and RCCF. @Rs. 1666/- for 159.68 ha.	266026.88	
4	Additional EPA expenses if implemented through VSS at rate Rs.1200/- in 0 th Year, Rs.2400/- in 1 st Year, Rs.1800/- in 2 nd Year, Rs.600/- in 3 rd Year, Rs.600/- in 4 th Year, Rs.600/- in 5 th Year, Rs.600/- in 6 th year, Rs.600/- in 7 th year, Rs.600/- in 8 th year, Rs.600/- in 9 th year, Rs.600/- in 10 th year @ Rs. 10200/- for 159.68 ha	1628736.00	
5	Barbed Wire Fencing for 13.35 Km.	750500.00	10019175.00
	Barbed wire fencing- maintenance @ 5% /Annum for 10 year	500958.75	5009587.50
	Barbed wire fencing-Provision of gate @Rs. 9,600/ gate for 5 gates	9600.00	48000.00
Sub-Total			22498621.38

N.B:- Unit cost of LBCD structures of different dimension along with staggered trenches and Barbed wire fencing is enclosed as Annexure- I, II & III.

TOTAL COST OF PROJECT

1.	Plantation over 62.058 ha @800 seedlings/ ha of Rs. 59990.00	3722859.42
	Plantation over 97.622 ha @400 seedlings/ ha of Rs. 41006.50	4003136.54
	Total Plantation over 159.680 ha	7725995.96
2.	Additional Cost	22498621.38
	Sub Total	30224617.34
3.	Add 20% escalation	6044923.46
	Grand Total	36269540.80
		Or say
		36269541.00

(Rupees three crore sixty-two lakh sixty-nine thousand five hundred forty-one) only.

A. PROVISION OF FUNDS AND FUND UTILIZATION

Rs. 3,62,69,541.00 (Rupees three crore sixty-two lakh sixty-nine thousand five hundred forty-one) only shall be deposited by the User Agency M/s Odisha Mining Corporation Ltd on approval of the scheme in Ad-hoc CAMPA Account and the funds will be utilized for raising of Compensatory Afforestation by the Divisional Forest Officer, Keonjhar Division on allotment by the Principal Chief Conservator of Forests, Odisha, Bhubaneswar.


Divisional Forest Officer,
Keonjhar Division

CHAPTER- VII

DETAILS OF PROPOSED MONITORING MECHANISM

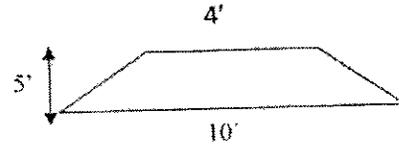
Compensatory Afforestation will be taken up in the identified site by the Range Officer, BJP Forest Range of Keonjhar Division. The Range Forest Officer, BJP Forest Range will undertake field checks of the works undertaken at the identified site and will be cross checked by the Asst. Conservator of Forests, (Affn.) and Divisional Forest Officer, Keonjhar Division. GPS co-ordinates along with other required information of Compensatory Afforestation will be uploaded in the e-Greenwatch Portal of NIC, MoEF&CC, Govt. of India for the purpose of online monitoring. Annual progress of plantation involving growth of planted seedlings, survival percentage etc. will be monitored and recorded in the plantation journal by the field staffs of BJP Forest Range and reported to the Divisional Forest Officer for necessary action. The same thing will be reported to the Regional Chief Conservator of Forests, Rourkela Circle and Chief Conservator of Forests (PP&A), O/o the Pr. Chief Conservator of Forests, Odisha, Bhubaneswar and necessary corrective measures will be followed if required so.



**Divisional Forest Officer,
Keonjhar Division**

Annexure-I

LOOSE BOULDER CHECK DAM



(A) Size - 10' x 10' x 5'

(i) Requirement of boulder (Procured from quarry)

$$\frac{1}{2} (10' + 4') \times 10' \times 5' = 350 \text{ cft or } 9.90 \text{ cum}$$

Cost of Boulder @ Rs. 199/- per cum for 9.9 cum - Rs. 1,970.00/-

(ii) Labour for construction of LBCD for 1 cum

Mulia 1.04 No x 213.50 = 222.04

Mason special 0.17No. x 273.50 = 46.49

Stone packer - 0.35No. x 233.50 = 81.72

Total = 350.25

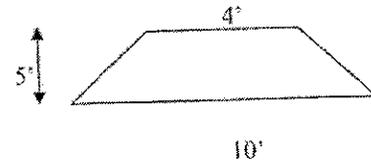
For 9.90 cum $9.90 \times 350.25 =$ Rs. 3467.47/-

Rs. 5437.47/-

(Rounded to Rs 5438/-)

Rate for 1 cum Rs. 549.25 per cum or Rs. 550 per cum

LOOSE BOULDER CHECK DAM



(A) Size-10' x 10' x 5'

(i) Requirement of boulder (Picked up and broken)

$$\frac{1}{2} (10' + 4') \times 10' \times 5' = 350 \text{ cft or } 9.90 \text{ cum}$$

@ Rs.185/- per cum

Rs. 1,831.50/-

(ii) Labour for construction of LBCD for 1 cum

Mulia 1.04 No x 213.50 = 222.04

Mason special 0.17No. x 273.50 = 46.49

Stone packer - 0.35No. x 233.50 = 81.72

Total = 350.25

For 9.90 cum $9.90 \times 350.25 =$ Rs. 3467.47/-

Rs. 5298.97/-

(Rounded to Rs 5300/-)

For 1 cum Rs.535.25/ cum or Rs. 535/- per Cum

N.B. The cost of transportation with a lead of 5 Kms- Rs.156.40/cum.

ABSTRACT		
SL NO.	ITEM	REMARKS
1	Loose Boulder Check Dam(LBCD) Constructed from the boulder procured from the quarry	Rs. 550/Cum
2	In- situ collected, broken and utilized for construction of LBCD	Rs 535/Cum
3*	Cost of transportation within a lead of 5 Kms	Rs. 156.40/ Cum

* Rate will be proportionately enhanced for lead more than 5 km in specific cases.

[Signature]

Annexure-II

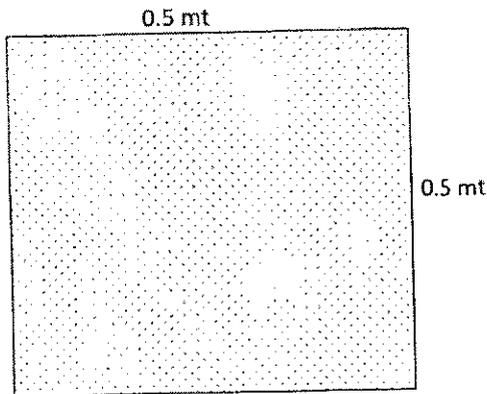
Staggered Contour Trench (2.5 mt x 0.5 mt x 0.5 mt)

Specifications:

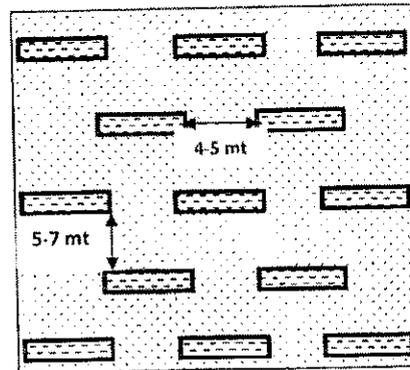
- Length - 2.5 mt
- Width - 0.5 mt
- Depth - 0.5 mt
- Cross Section - (0.5 mt x 0.5 mt) = 0.25 sq mt
- Earth Work - (2.5 mt x 0.25 sq mt) = 0.625 cum

	0-30° slope	Above 30° slope
Gap between Trenches (Horizontal)	4-5 mt	2-3 mt
Distance between contour lines (Vertical)	5-7 mt	3-4 mt
Cost of Staggered Trench per Ha	Rs 12,810 for 300 nos of ST	Rs 41,633.00 for 450 nos of ST

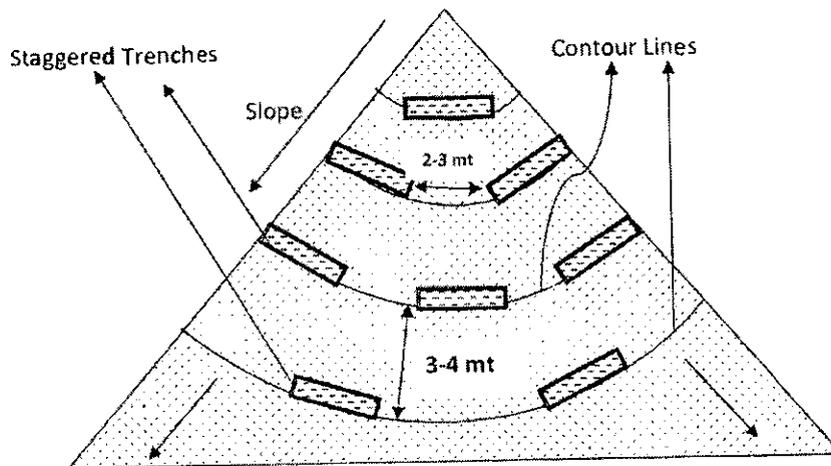
Cross Section of each staggered trench



Staggered Trenches Design in less than 30° slope



Staggered Trenches Design on more than 30° slope



Shree

ESTIMATE OF COST FOR ONE KM BARBED WIRE FENCING

No of pillars required 500 nos.		
Cost of 1 pillar	:	Rs. 568.00
Transportation charges	:	Rs. 244.00
Cost of base fixing	:	Rs. 244.00
Cost of fixing barbed wire @ 49.00	:	<u>Rs. 49.00</u>
Total Cost for fixing 1 pillar	:	Rs. 1105.00
Cost for 500 pillars	:	Rs. 5,52,500.00
Cost of barbed wire (1 Qntls.) @ 13,200.00		
Cost barbed wire (5+2) strand		
7500 mtrs or 15 Qntls.	:	<u>Rs. 1,98,000.00</u>
Total cost for 1 Km.	:	Rs. 7,50,500.00
Total cost for fencing over 13.35 Kms	:	Rs. 10019175.00
Maintenance 5% - Rs. 500958.75/- per annum		
For 10 years	:	Rs. 5009587.50
Provision of Gate 5 nos. @ Rs.9,600/- per gate	:	Rs. 9600.00
Total barbed wire fencing over 13.35 Kms.	:	Rs. 15076762.50