

**PHASED RECLAMATION PLAN  
FOR JURURI IRON & MANGANSE MINES  
(OVER 60.887 Ha.) WITHIN THE ALLOTED  
MINING LEASE OVER 66.368 HA**



**SUBMITTED BY  
TARINI MINERALS PRIVATE LIMITED  
AT/PO – BONEIKALA, VIA-JODA,  
DIST.-KEONJHAR, ODISHA, PIN -758034**

**SCHEME FOR RECLAMATION AND AFFORESTATION OF JURURI IRON & MANGANSE MINES OVER 60.887 Ha. WITHIN THE ALLOTED MINING LEASE AREA OVER 66.368 HA OF M/S TARINI MINERALS PRIVATE LIMITED IN VILLAGE JAJANGA, KHANDBANDH UNDER BARBIL TAHASIL OF KEONJHAR DISTRICT, ODISHA.**

**Introduction**

Govt. of Orissa in erstwhile Mining & Geology Dept. vide Proceeding No.III(A):-163/77-2286/ Dt.01.03.1978 (**Annexure-I**) had granted a lease for mining of Iron & Manganese ore over 164.00 Acres or 66.368 ha in villages Jajang (57.628 ha) and Kahndbandh (8.740 ha) in Barbil Tahasil of Champua Sub-Division in Keonjhar Dist. In favour Sri Niranjan Patanaik of Koenjhar for a period of 20 years. The lease deed was executed on 06.02.1990 which was valid upto 05.02.2010 (**Annexure-II**). As per the land schedule annexed to the Lease Deed, the entire land involved within the executed Mining Lease falls under the category of Jungle Kissam. Therefore, the lessee had submitted a proposal for diversion of the forest land for non-forestry purposes i.e. mining. The proposal was duly recommended by the State Govt. in Forest, Fisheries & Animal Husbandry Dept. vide their letter No.10F(Cons.)112/90/192/FF&AH Dt.04.01.1991 to Govt. of India, MoEF for diversion of the total M.L. area for mining and ancillary purposes. Considering the recommendation of the State Govt., MoEF in their letter No.8-22/91-FC Dt.04.10.1991 granted Stage I approval for diversion of 66.368 ha of forest land subject to use of 15.068 ha. copy of the same is enclosed as **Annexure-III**. In the said letter MoEF had put **8** nos (i to viii) of conditions.

In compliance to condition No.i, on receipt of requisition from D.F.O., Keonjhar Division, Collector, Keonjhar in his letter No.3259 Dt.26.12.1991 had allocated non-forest land over 164.40 acres or 66.531 ha in Viallge Pututgaon and Balita in Barbil Tahasil and Phuljhari in Telkai Tahasil of Keonjhar Dist. vide letter No. 2282,

09.10.1998 for Compensatory Afforestation, copy of the same is enclosed as **Annexure - IV**. Subsequent to that Collector, Keonjhar has allotted 1.9698 ha of land in village Tana under Banspal village for Compensatory Afforestation vide letter No. 1446/Rev, dt. 04.07.2011. The plantation has been done in Putugon and Balita village in the year 1992-93 by OFDC over an area 60.96 Ac. The said non-forest land was also taken advance possession by the Divisional Forest Officer, Keonjhar Division from Tahasildar, Barbil and handed over to Orissa Plantation Development Corporation for Comp. Afn. The lessee had also deposited Rs.6, 96,500/- towards cost of Comp. Afn. with the Managing Director, OFDC Ltd, Orissa, Bhubaneswar vide Pay Order No.BN/21-637803 Dt.20.11.1991 being the full cost of comp. affn. over 66.368 ha. On compliance to all the conditions of Stage I approval as intimated by the State Govt. vide letter No.2426 Dt. 01.02.1992 (**Annexure-V**), MoEF in their letter No.8-22/91-FC Dt.07.02.1992 (**Annexure-VI**) had issued Stage II approval with 5 (i to v) nos conditions. Meanwhile Collector, Keonjhar in his letter No.1143 Dt.07.04.1992 has also granted surface right over 15.068 ha for doing mining operation on 22.07.1992 (**Annexure-VII**).

The User Agency has complied with all the conditions imposed by MoEF in Stage II approval (**Annexure-VIII**).

Thereafter the lease was transferred in favour of M/s Tarini Minerals (P) Ltd vide State Govt. in Steel & Mines Dept.'s letter No.9177/ SM Dt.06.09.1995 after obtaining prior approval of Govt. of India, copy of the transferred order is enclosed as **Annexure-IX**. Subsequently the transfer of Mining Lease Deed was executed on 15.10.1995, copy of the same is enclosed as **Annexure-X**.

The 1<sup>st</sup> tenure of lease was expired on 05.02.2010, for that lessee was applied 1st renewal application on 22.11.2008 and a copy of Form -D is enclosed as **Annexure-XI**. Further as per the section 8(3) of MMDR

Amendment Act, 2015 the lease will be extended further 30 years from 06.02.2010, therefore the validity of the lease is up to 05.02.2040.

The lease area has been earmarked in Toposheet No. F45N5 (73 G/5) allotted lease boundary shown in **Plate No. - I.** The allotted ML area is bounded by latitude  $21^{\circ} 56' 25''$  to  $21^{\circ} 56'56''$ N and longitude  $85^{\circ} 24' 34''$  to  $85^{\circ} 25' 08''$ E. The allotted boundary DGPS co-ordinates are shown in authenticated Lease Map in **Plate No. - III.**

### **Land Use Pattern**

The instant forest diversion proposal is being applied over 51.31 ha of forest land including 2.356 ha. of land abide for safety zone along the lease boundary in addition to 15.068 ha forest land already diverted.

The item wise break up of total land required is furnished below:-

Item wise Break up of Land Use Pattern								
Change in Land use in Already Diverted Area					Virgin Area			
SI. No	Particulars	Forest Area (In Ha.)		Total (In Ha.)	Forest Area (In Ha.)		Total (In Ha.)	Grand Total (In Ha.)
		Revenue	DLC		Revenue	DLC		
	A	B	C	D=(B+C)	E	F	G=(E+F)	H=(D+G)
1	Mining with Mine road	4.1	8.471	12.571	8.956	19.124	28.08	40.651
2	Waste Dump	0	0	0	2.503	5.662	8.165	8.165
3	Sub-Grade Dump	0	0	0	0	3.464	3.464	3.464
4	Weigh Bridge	0	0.024	0.024	0	0	0	0.024
5	Magazine with Safty Barrior	0	0	0	0.251	0	0.251	0.251
6	Railway Acquired Area	0.118	0.729	0.847	1.282	2.379	3.661	4.508
7	Green Belt Area	0	0	0	1.159	0	1.159	1.159
8	Haul Road for in and out in SZ	0	0	0	0	0.156	0.156	0.156
9	50m. Safety Zone along the Railway Acquired Area	0.181	1.445	1.626	2.145	1.863	4.008	5.634
	<b>Sub Total</b>	<b>4.399</b>	<b>10.669</b>	<b>15.068</b>	<b>16.296</b>	<b>32.648</b>	<b>48.944</b>	<b>64.012</b>
10	7.5m. Safety Zone Along ML Boundary	0	0	0	0.685	1.671	2.356	2.356
	<b>Grand Total</b>	<b>4.399</b>	<b>10.669</b>	<b>15.068</b>	<b>16.981</b>	<b>34.319</b>	<b>51.300</b>	<b>66.368</b>

### **Proposed Reclamation & Afforestation**

Total 60.887 ha of forest land will be disturbed the original shape and vegetation for mining and ancillaries activities during the mining operation from the allotted mining lease area. The Safety zone along the Lease Boundary in forest land will be remaining unchanged. The proposed Reclamation and Afforestation will be carried out in phase manner over 60.887 ha in forest land disturbed area for mining and other ancillary activities. The gap plantation in the safety zone area is being carried out since the starting year of the mine operation, which will be maintained and gap plantation program will be carried out in the 7.5m. safety zone area along the mine boundary and 50m. safety zone of Railway acquired area over 8.241ha. of forest land. The reclamation and afforestation in the disturbed area will be start from the year 2022-25. Out of 60.887 ha. 2.503 ha will be proposed to be afforestation will be carried out in stabilized waste dump, 48.984 ha. will be proposed to be bench plantation using surface layer of benches top cover of benches by 6" top soil in the mine pit area and 1.159 ha will be proposed for only plantation in the area for dump, stacking, infrastructure etc. Further, in the mined out area the surface layer will be covered with topsoil stored elsewhere and planting will be done with care to achieve good percentage of survival. The details reclamation and afforestation programme is shown in **Table No.2**.

### **Choice of species**

The choice of species for a specific site always depends on the existing vegetation, if any. Accordingly the following species will suit to the site.

<b>S1.No</b>	<b>Local Name</b>	<b>Botanical Name</b>
01	Siris	Albizziz lebbek
02	Kurum	Adina cordifolia
03	Jack-fruit	Artocarpus heterophyllus
04	Mahanim	Ailanthus execelsa

05	Babul	Acacia nilotica
06	Sunari	Cassia fistula
07	Sissoo	Dalbergia latifolia
08	Gamahr	Gmelina arborea
09	Mango	Mangifera indica
10	Karanj	Pongamia pinnata
11	Bija	Pterocarpus marsupium
12	Asan	Terminalia alata
13	Tamarind	Tamarindus indicus
14	Jammu	Syzygium cuminii
15	Kusum	Schlitzera oleosa

### **Nursery Practice**

During January-February decentralized nursery will be made at the planting site considering the availability of water and less of biotic interference. The nursery site will be properly fenced with a gate for approach. Polythene bags of size 5" x 9" x 100 gauges filled with cow-dung manure, sand and soil with a proportion of 1:1:3 will be set in half-sunken beds in 1000 Nos. per bed. In between each bed, adequate space should be left for a man to move for after-care of the seedlings like watering, weeding, manuring, application of insecticides etc. Treated seeds will be dibbled in pre-soaked polythene bags during March. Daily watering shall be continued along with weeding till onset of monsoon i.e. by 3<sup>rd</sup> week of June. Over-head platform may be provided during daytime and removed during night time. The objective should be that, the seedling should grow to the height of at least 60cm by 15 July. However, from fag end of May till the seedlings are transported to field for planting, shifting and grading should be practiced to acclimatize the seedlings to grow in the natural condition.



### **Preparation of site and planting.**

Pits of 30cm x 30cm x 30cm should be dug at 2.5mt x2.5mt spacing over the area intended for planting. On the onset of monsoon, the seedlings be transported to site and arranged near each pit according to planting design. Applying 100 Gms of chemical manure preferably grow – more, seedlings with ball of earth should be planted in the pit and compacted from all sides. The polythene bags removed from the ball of earth should be collected and dumped in nearby pit.

### **Post-planting operation**

Circular weeding at a radius of 30cm around each plant should be done during August and October. Fire tracing should be done in March. Digging of half-moon trench around each plant and checking soil-erosion with gully plugging operation should be carried out concurrently.

### **2<sup>nd</sup> Year operation after plantation**

Casualties, if any, should be replaced with taller seedlings to match with the growth of side by seedlings. Circular weeding and application of manure should be done in august and October. Fire tracing should be done in March.

### **3rd Year operation after plantation**

It is expected that, by this time the plants must have grown to be height of 120 cm to 150 cm which is beyond the height of damage. So, prevention from any biotic interference may be necessary.

### **COST ESTIMATION FOR AFFORESTATION OF RECLAIMED AREA**

The detail estimation of the above item of work per hectare in the year wise statement is furnished below

1.	Name of the Plantation.	Block Plantation.
2.	No. of seedlings to be planted.	<b>1600</b> Nos. per hectare
3.	Spacing to be adopted.	2.5m x 2.5m
4.	Size of pits.	30cm x 30cm x 30cm
5.	Wage rate.	Rs. <b>350.00</b> per man days.

6.	Species to be planted.	<i>Bamboo, Mahul, Teak, karanj, Harida, Bahada, Amla etc. and other miscellaneous species</i>
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<b>Sl.No</b>	<b>Type of operation</b>	<b>Amount(Rs)</b>
01	Nursery-1600 plant + 10% 160=1760 @10/-	17,600.00
02	Survey, demarcation & pillar posting- 8 Labours	2,800.00
03	Site preparation-6 Labours	2,100.00
04	Alignment and staking-4 Labours	1,400.00
05	Pitting 30cm cube pits-1600 pits @ 40 Labours	14,000.00
06	Contingencies @20% of total cost of Sl. No. 01 to 05	7,580.00
	<b><i>Total of 0<sup>th</sup> year</i></b>	<b><i>45,480.00</i></b>
	<b><i>1st year</i></b>	
07	Carriage of seedlings 1600 Nos 10 Labours	3,500.00
08	Planting with application of manure and insecticide 11 Labours	3,850.00
09	Cost of manure 100 gms per plant=160 Kg @Rs.10.00	1,600.00
10	First weeding 10 Labours	3,500.00
11	Manuring 10 Labours	3,500.00
12	Second Weeding Labours	2,000.00
13	Soil working Labours	2,000.00
14	Fire tracing &Inspection path-10 Labours	3,500.00
15	Soil conservation measures-10 Labours	3,500.00
16	Watch & ward	3,000.00
17	Contingencies-20%	5,990.00
	<b><i>Total 1<sup>st</sup> Year</i></b>	<b><i>35,940.00</i></b>

	<b>2<sup>nd</sup> Year</b>	
18	Casualty replacement including seedlings cost – 20 Labours	7,000.00
19	Application of fertilizer-16 Labours	5,600.00
20	Cost of fertilizer-100gms per plant 160 kg @ Rs.10.00	1,600.00
21	Weeding-10 Labours	3,500.00
22	Soil working-10 Labours (50cms. Radius around plant)	3,500.00
23	Fire tracing-10 Labours	3,500.00
24	Contingencies -20%	4,240.00
25	Watch & ward	3,000.00
	<b>Total 2<sup>nd</sup> year</b>	<b>32,640.00</b>
	<b>3<sup>rd</sup> Year</b>	
26	Prunning-10 Labours	3500.00
27	Contingencies	700.00
28	Watch & ward	800.00
	<b>Total 3<sup>rd</sup> Year</b>	<b>5,000.00</b>

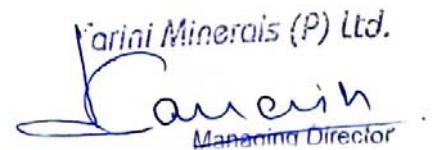
**ABSTRACT OF EXPENDITURE OF COST OF AFFORESTATION IN  
PHASED RECLAMATION PLAN**

<b>Sl. No.</b>	<b>Year of Operation</b>	<b>Cost in Rs.</b>
1	0 <sup>th</sup> year	<b>45,480.00</b>
2	1 <sup>st</sup> year	<b>35,940.00</b>
3	2 <sup>nd</sup> year	<b>32,640.00</b>
4	3 <sup>rd</sup> year	<b>5,000.00</b>
	<b>Total</b>	<b>1,19,060/-</b> <b>Say Rs. 1,19,500/-</b>

The total expenditure for the proposed reclamation and afforested area of 60.887 ha. @ 1, 19,500/- per ha. the cost will be **Rs.72,75,997.00/-**.

#### **YEAR WISE RECLAMATION & PLANTATION PROGRAMME**

Phase	Year	Safety Zone area Plantation	Ancillaries area only plantation (ha)	Mined out area to be reclamation and afforestation (ha)	Mined Out Bench Plantation in (ha)	No of seedlings to be planted	Remarks
I	<b>2022-2025</b>	8.241	Nil	Nil	Nil	3297	Gap Plantation @ 400 seedling per ha.
II	<b>2025-2030</b>	Nil	1.159	Nil	Nil	1855	Afforestation @ 1600 seedling per ha
III	<b>2030-2035</b>	Nil	2.503	Nil	Nil	4005	
IV	<b>2035-2040</b>	Nil	Nil	Nil	48.984	78375	
	<b>Total</b>	<b>8.241</b>	<b>3.662</b>	<b>Nil</b>	<b>48.984</b>	<b>87532</b>	


  
*Varini Minerals (P) Ltd.*  
*Varini*  
Managing Director