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24/4/23

EASTERN COALFIELDS LIMITED
(A Subsidiary of Coal India Limited)
Office of the General Manager
Bankola Area, Distt. Burdwan
West Bengal – 713 363



Environment Department
CIN – U10101WB1975GOI030295
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(An ISO 9001:2015, ISO 14001:2015 & OHSAS 45001:2018 certified company)

Ref. No.: GM/BA/ENV/23-24/29

Dated: 24.4.23

To,
The Divisional Forest Officer
Durgapur Division, Aranya Pally
Shastri Avenue, Durgapur, West Bengal - 713212

Subject: Proposal for Diversion of 38.38 Ha forest land in Tilaboni UGP Coal Mine Project under Durgapur Forest Division, West Bengal – reg.

Ref: Proposal No. FP/WB/MIN/41301/2019 dated 29.07.2019

Dear Sir,

This has reference to the letter no. IRO/KOL/WB/MIN/41301/2019/57 dated 20.02.2023 of Integrated Regional Office, MoEF&CC, Kolkata on the above captioned subject. In this regard, the point-wise reply to the queries raised by the Integrated Regional Office, MoEF&CC, Kolkata are as under:

(i) *Site Specific CA scheme along with toposheet map, kml file and CA land suitability certificate from concerned DFO.*

Reply:

The Site Specific Scheme is yet to be provided by the Forest Department. However, an estimate for Compensatory Afforestation over 76.80 Ha double degraded land including 10 years maintenance costing Rs. 4,72,22,476.00 (Rupees Four Crore Seventy-Two Lakh Twenty-Two Thousand Four Hundred Seventy-Seven Only) has been prepared by DFO, Durgapur which is enclosed herewith.

It is requested to kindly provide us a double degraded forest land of area 76.80 Ha along with the toposheets for preparation of KML files so that site suitability certificate and Compensatory Afforestation scheme can be made from your end.

(ii) *Cost Benefit Analysis is not complete. Under 'estimation of cost of forest diversion' – the cost of CA is not included and Cost Benefit Ratio is not defined. Also, rate of NPV calculated by taking forest density 0.4 instead of 0.7, as mentioned by concerned DFO in Part-II. Corrected CBA needs to be submitted.*

Reply:

The details of cost of Compensatory Afforestation has been included in the Cost Benefit analysis report and the revised Cost Benefit analysis is enclosed for your reference.

(iii) It may be clarified, whether CA over double degraded forest land as well as plantation of 1,30,000 plants both recommended by State Forest Department or not. Comments/undertaking of User Agency in this regard need to be submitted.

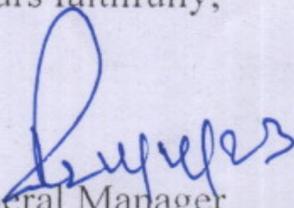
Reply:

Tilaboni UGP is an underground mining project for which the impact of the mining activities on the forest existing on the surface is expected to be insignificant. Further, underground mining itself has less impact on the environment and the surface compared to opencast mining, where the surface land is totally broken. Though this mine is underground, it has been notionally considered as an Opencast Project for the purpose of calculating Compensatory Afforestation over double-degraded forest land for the purpose of diversion. So, for the purpose of diversion of 38.38 Ha Forest Land, ECL is enclosing herewith the commitment to do Compensatory Afforestation over double the area of diversion i.e., CA will be done through State Forest Department on 76.8 Ha of degraded forest land, and necessary payments will be made in the CAMPA in consultation with the State Forest Department.

Further, as far as the plantation of ten times the number of 13,085 trees on diverted forest land, i.e. 1,30,000 trees is concerned, ECL will carry out plantation as a regular environmental protection work within its command areas in consultation with the State Forest Department in successive years.

Enclosed: As above.

With Regards,
Yours faithfully,


General Manager
Bankola Area, ECL

Handwritten signature/initials in blue ink

ANNEXURE-I

Estimate For Advance Work , Creation, Ten Year maintenance of Sal & Its Associates Plantation using 2 years old seedlings for Compensatory Afforestation against proposal for Tilaboni Underground Project, Bankola Area, Eastern Coalfields Limited

Location
Degraded Forest land (DFL) within South East Circle Jurisdiction (Durgapur, Burdwan & Birbhum Division) as per availability

Unit - 1Ha (1600 Plants/ Ha)
Spacing = 2.5 m X 2.5 m

Species:- Sal & its associates like Mohua, Bahera, Neem, Kusum, Piyal, Asan, Sirish, Mango, Tamarind, Jam, Karanj, Arjun, Chhatim etc.

Advance Work

Sl. No.	A. Nursery	M.D	Rate	Amount
1	Cleaning levelling & dressing site	1.00		
2	Preparation of mother bed & pricking out bed	1.00		
3	Sowing seed in mother bed	1.00		
4	Filling up polythene tube with sand & Cowdung mannure 1:1	10.00		
5	Making nursery shed with bamboo & thatch etc. complete	1.00		
6	Making fencing around the nursery	2.00		
7	Making nursery hut with bamboo & thatch	2.00		
8	Watering the seedlings for 3 months	8.00		
		26.00	271.00	7046.00
9	Price of nursery materials			
	a) Polypot (8"x 6")	2 kg	200	400.00
	b) Bamboo thatch etc.		L.S	200.00
	c) Insecticides		L.S	200.00
	d) Seeds		L.S	500.00
	e) Cowdung	4 m3	500.00	2000.00
	f) Sand	4 m3	300.00	1200.00
	g) Fencing materials			2000.00
				6500.00
	B. Contingency			
1	Fertilizer			2000.00
2	Hormone			272.00
	C. Nursery maintenance (2nd year)			
1	Weeding and cleaning	10		
2	Sorting and shifting	10		
3	watering of the seedlings	25		
4	Application of fertilizer & insecticides.	5		
		50	298.00	14900.00
5	Supply of materials (fertilizer, insecticides etc.)			4000.00
	D. Soil Work			
1	Survey demarcation & preparation of map	2		
2	Alignment staking of planting pit	2		
3	Digging planting pit of size 60 + 45/2 X 60 X 45 over 1600 Nos.	40		
4	Making inspection path	2		
		46	298.00	13708.00
	Total			48426.00

Creation Work				
Sl.No.	Particulars	Qty/MD	Rate	Amount
CREATION WORKS (PLANTATION)				
1	Hoeing surrounding the boundary line including sowing of Akashmoni & Babla Seed	10		
2	Cleaning the plantation area before planting	15		
3	Pricking of seedlings	4		
4	Dibblings of seeds	3		
5	Weeding and cleaning	6		
6	Sorting, shifting & watering	12		
7	Filling up planting pits including application of fertilizer	20		
8	Planting seedlings including carriage	20		
9	Vacancy filling including application of insecticides	4		
		94	328.00	30832.00
	Total			30832.00
FENCING WORKS				
10	Erection of barbed wire fencing 4 strands including cost of fencing materials and fixing all complete including RCC post			25000.00
	Total			25000.00
TENDING & OTHER WORKS				
11	1st time weeding cleaning & mulching with fertilizer	20		
12	2nd time weeding cleaning & mulching	18		
13	3rd time weeding cleaning & mulching	16		
14	Watch & Ward	24		
15	Fire protection	8		
16	Fire line cutting	16		
17	Irrigation facility	15		
		117	328.00	38376.00
18	Making Signboard etc.			1844.00
	Total			40220.00
Materials				
19	Supply of fertilizer, Vermicompost, Hormone			6632.00
	GRAND TOTAL			102684.00

1st YEAR MAINT WORKS				
Sl.No.	Particulars	Wage Rate - 308.00 Qty/MD	361.00 Rate	Amount
TENDING WORKS				
1	Infilling by taller seedlings	4		
2	1st time weeding cleaning & mulching with fertilizer	16		
3	2nd time weeding cleaning & mulching with fertilizer	14		
4	3rd time weeding cleaning & mulching with fertilizer	10		
5	Fire protection	4		
6	Fire line maintenance	10		
7	Repair of fencing	8		
8	Watch & Ward	24		
9	Irrigation facility	10		
		100	361.00	36100.00
10	Fencing repair materials etc.			5000.00
Materials				
11	Supply of fertilizer, Vermicompose, Hormone, bamboos			7534.00
12	Price of seedlings including carriage	100 Nos.	40	4000.00
	TOTAL			52634.00

2nd YEAR MAINT WORKS		Wage Rate - 354.00	397.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Infilling by taller seedlings	4		
2	1st time weeding cleaning & mulching with fertilizer	16		
3	2nd time weeding cleaning & mulching with fertilizer	14		
4	3rd time weeding cleaning & mulching with fertilizer	10		
5	Fire protection	4		
6	Fire line maintenance	10		
7	Repair of fencing	6		
8	Watch & Ward	24		
		88	397.00	34936.00
10	Fencing repair materials etc.			5000.00
Materials				
11	Supply of fertilizer,Vermicompose,Hormone			5148.00
12	Price of seedlings including carriage	50 Nos	60	3000.00
	TOTAL			48084.00

3rd YEAR MAINT WORKS		Wage Rate - 407.00	437.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	1st time weeding cleaning & mulching with fertilizer	16		
2	2nd time weeding cleaning & mulching with fertilizer	14		
3	3rd time weeding cleaning & mulching	10		
4	Fire protection	4		
5	Fire line maintenance	10		
6	Repair of fencing	6		
7	Watch & Ward	24		
		84	437.00	36708.00
8	Fencing repair materials etc.			5000.00
Materials				
9	Supply of fertilizer,Vermicompose,Hormone			2772.00
	TOTAL			44480.00

4th YEAR MAINT WORKS		Wage Rate - 468.00	481.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	1st time weeding cleaning & mulching	16		
2	2nd time weeding cleaning & mulching	14		
3	Fire protection	4		
4	Fire line maintenance	10		
5	Repair of fencing	6		
6	Watch & Ward	24		
		74	481.00	35594.00
7	Fencing repair materials etc.			5000.00
	TOTAL			40594.00

5th YEAR MAINT WORKS		Wage Rate - 538.00	529.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	1st time weeding cleaning & mulching with fertilizer	12		
2	2nd time weeding cleaning & mulching with fertilizer	10		
3	Fire protection	4		
4	Fire line maintenance	10		
5	Repair of fencing	6		
6	Watch & Ward	24		
		66	529.00	34914.00
7	Fencing repair materials etc.			5000.00
	TOTAL			39914.00

6th YEAR MAINT WORKS		Wage Rate - 619.00	582.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Ist time weeding cleaning & mulching with fertilizer	16		
2	Fire protection	4		
3	Fire line maintenance	10		
4	Repair of fencing	6		
5	Watch & Ward	24		
		60	582.00	34920.00
6	Fencing repair materials etc.			5000.00
TOTAL				39920.00

7th YEAR MAINT WORKS		Wage Rate - 712.00	640.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Ist time weeding cleaning & mulching with fertilizer	16		
2	Fire protection	4		
3	Fire line maintenance	10		
4	Repair of fencing	6		
5	Watch & Ward	24		
		60	640.00	38400.00
6	Fencing repair materials etc.			5000.00
TOTAL				43400.00

8th YEAR MAINT WORKS		Wage Rate - 819.00	704.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Ist time weeding cleaning & mulching with fertilizer	16		
2	Fire protection	4		
3	Fire line maintenance	10		
4	Repair of fencing	6		
5	Watch & Ward	24		
		60	704.00	42240.00
6	Fencing repair materials etc.			5000.00
TOTAL				47240.00

9th YEAR MAINT WORKS		Wage Rate - 942.00	774.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Ist time weeding cleaning & mulching with fertilizer	16		
2	Fire protection	4		
3	Fire line maintenance	10		
4	Repair of fencing	6		
5	Watch & Ward	24		
		60	774.00	46440.00
6	Fencing repair materials etc.			5000.00
TOTAL				51440.00

10th YEAR MAINT WORKS		Wage Rate - 1083.00	851.00	
Sl.No.	Particulars	Qty/MD	Rate	Amount
TENDING WORKS				
1	Ist time weeding cleaning & mulching with fertilizer	16		
2	Fire protection	4		
3	Fire line maintenance	10		
4	Repair of fencing	6		
5	Watch & Ward	24		
		60	851.00	51060.00
6	Fencing repair materials etc.			5000.00
TOTAL				56060.00
Grand Total Per Ha				614876.00
Grand Total for 76.8 Ha				47222476.80
Or Say				47222477.00

(Rupees Four Crore Seventy Two Lakh Twenty Two Thousand Four Hundred Seventy Seven Only)

Divisional Forest Officer
Durgapur Division

Cost Benefit Analysis of Tilaboni UG - Diversion of 38.38 Ha as per MOEF&CC
Circular Dated 01-08-2017

Table B: Estimation of cost of forest diversion

<u>Sl No</u>	<u>Parameters</u>	<u>Remarks</u>	<u>Value in INR</u>
1.	Ecosystem services loss due to proposed forest diversion	Economic value of loss of ecosystem service should be the net present value of the forest being diverted as prescribed by the MoEF&CC. Note: in case of National parks the NPV shall be 10 times the normal NPV and incase of Wildlife sanctuaries the NPV shall be five times the normal NPV as prescribed by the Ministry or any other competent authority	i) Since the forest is typically Tropical dry deciduous Forest it falls under the category–Eco Class III ii) Average forest Density is 0.7 and is thus classified as dense forest iii) As such Rate of NPV per Ha = ₹ 13,57,110.00 Thus, NPV for 38.38 Ha of forest land = 8,03,000.00X38.38 = ₹ 5,20,85,881.80. Ref: Guidelines for Calculation of NPV vide MoEF&CC, GoI, Fno. 5-3/2011-FC (Vol-I) dated 06.01.2022
2.	Loss of animal husbandry or fodder	To be quantified and expressed in Monetary terms or 10% NPV whichever is maximum	There is no significant animal husbandry or fodder in the area. As such the maximum value can be quantified as 10% NPV (10% of ₹ 5,20,85,881.80) = ₹ 52,08,588.18 (Refer Sl no.1 for value of NPV)
3.	Cost of human Settlement	To be quantified and expressed in Monetary terms as per approved R&R Plan	Total Cost of Human settlement is ₹ 10,01,00,000.00 as per R&R plan. Actual cost may be calculated at the time of execution and as per requirement from your end.
4.	Loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines, railways) on Forest land which would require forest land if these facilities were	To be quantified and expressed in Monetary terms on actual cost basis at the time of diversion	There will be no loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines, railways) on Forest land which would require forest land if these facilities. As such the Monetary Value on actual cost basis at the time of diversion is NIL.

M. K. Singh
11/3/2023

S. K. Singh
11/3
महा प्रबंधक, चंकोला क्षेत्र, ई.सी.एल.
General Manager, Bankola Area, E.C.L.

SI No	Parameters	Remarks	Value in INR
	diverted due to the project.		
5.	Possession value of the forest land	30% of the environmental costs (NPV) due to NPV or loss of forest or circle rate of adjoining areas of the district should be added as cost component of possession value of the forest land; whichever is maximum.	<p>i) 30% of NPV = 30 % of ₹ 5,20,85,881.80 = ₹ 1,56,25,764.54 (Refer SI no.1 for value of NPV)</p> <p>ii) Circle Rate of Govt. land as per approved PR = Rs. 2,22,30,000/Ha.</p> <p>Thus, the rate of 38.38 Ha forest land = Rs. 2,22,30,000/Ha. x 38.38 ha = ₹. 85,31,87,400.</p> <p>Maximum of (i) and (ii) is ₹ 85,31,87,400.</p> <p>Reference Annexure – I.</p>
6.	Cost of suffering to oustees	The social cost of rehabilitation of the oustees (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R plan) be worked out as 1.5 times of what oustees should have earned in two years had he not been shifted.	<p>Majhi Bustee, which is to be rehabilitated for the project, is situated at a distance of 600 m from the forest and may be depending on the forest for firewood, leaves, etc. Assuming the entire population is dependent on the forest for these purposes, the cost of suffering can be calculated as under:</p> <p>1. Cost of firewood The maximum cost of firewood as declared by the West Bengal Govt. is ₹ 900.00 per m³ (Source: http://www.westbengalforest.gov.in/notice/n08-02-2021-01.pdf). Taking the specific gravity of dry wood to be 0.6, weight of 1 m³ of dry firewood would be 600 kg. Thus, cost of dry firewood works out to ₹ 900.00 / 600 kg = ₹ 1.50 per kg. Taking consumption of 20 kg per household per day, the total cost of firewood for 164 households works out to 20 kg x 164 HH x 730 days x ₹ 1.5 per kg = ₹ 35,91,600.00</p> <p>2. Cost of Mahua Mahua trees constitute 90% of the forest i.e. 90% of 38.38 Ha = 34.542 Ha. Taking a tree count of 1000 trees/ ha for 0.7 canopy density,</p> <p>a) Cost of Mahua Flowers Annual Yield of Mahua Flowers = 80-320 kg/tree (Source: www.foodandnutritionjournal.org) Taking the yield to be average as 200 kg/tree, total yield of Mahua from the forest land for 2 years = 200 kg x 1000 trees/ha x 34.542 Ha x 2 years= 1,38,16,800.00 kg Cost of Mahua Flowers per kg as per Schedule of Rates of Govt. of WB = ₹ 13.20 (Source: http://www.westbengalforest.gov.in/notice/n08-02-2021-01.pdf) Cost of Mahua Flowers per kg as per MSP of non-forest produce by Govt. of India = ₹ 17.00 (Source:</p>

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General Manager, Bankola Area, E.C.L.

Sl No	Parameters	Remarks	Value in INR
			<p>https://pib.gov.in/Pressreleaseshare.aspx?PRID=1557528) Taking the highest value of the two i.e., ₹ 17.00 per kg, the total cost of Mahua Flowers = ₹ 17.00 x 1,38,16,800 = ₹ 23,48,85,600.00</p> <p>b) Mahua Seeds Annual Yield of Mahua Seeds = 20-40 kg/tree (Source: www.ijddr.in). Taking the yield to be average as 30 kg/tree, total yield of Mahua Seeds from the forest land for 2 years = 30.00 kg x 1000 trees/Ha x 34.542 Ha x 2 = 20,72,520 kg. Cost of Mahua Seeds per kg as per MSP of non-forest produce by Govt. of India = ₹ 25.00 (Source: https://pib.gov.in/Pressreleaseshare.aspx?PRID=1557528) Thus, the total cost of Mahua Seeds = ₹ 25.00 x 20,72,520 = ₹ 5,18,13,000.00 Total cost of Mahua = A+B = ₹ 28,66,98,600.00</p> <p>3. Cost of Sal seeds Sal trees constitute 10% of the forest i.e. 10% of 38.38 Ha = 3.838 Ha. Seed production from 3.838 Ha sal plantation @ 500 kg / Ha would be 1919 kg / year. Cost of sal seed produce = 1919 kg x ₹ 22.00 per kg (Source: http://www.westbengalforest.gov.in/notice/n08-02-2021-01.pdf) = ₹ 42218.00 per year. Produce over 2 years = ₹ 84436.00 Total cost of social rehabilitation = 1.5 x (1+2+3) = ₹ 43,55,61,954.00</p>
7.	Habitat Fragmentation Cost	While the relationship between fragmentation and forest goods and services is complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NPV applicable as thumb rule	Habitat Fragmentation Cost = 50% of NPV = ₹ 2,60,42,940.90
8	Compensatory afforestation and soil and moisture conservation cost	The actual cost of Compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted rate	The project is an underground project. However, an estimate for Compensatory Afforestation over 76.80 Ha double degraded land including 10 years maintenance has been prepared by DFO, Durgapur for an amount of = ₹ 4,72,22,476.00

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 General Manager, Bankola Area, E.C.L.

Table-C: Existing guidelines for estimating benefits of forest diversion in CBA

Sl. no.	Parameters	Remarks	Value in INR
1.	Increase in productivity attributed to specific project	To be quantified and expressed in Monetary term	The increase in productivity will be the increase in electricity generated from coal extracted from Tilaboni UG which amounts to ₹ 30,85,088.6789165 lacs. For calculations, refer Annexure – II.
2.	Benefits to the economy due to specific project	The incremental economic benefit in monetary term due to the activities attributed to the specific project	₹ 94185.3 lacs which is the cost of the project that is infused directly into the economy to provide benefits by virtue of coal production and consequent generation of power, adding to energy security of the nation.
3.	No. of population benefited due to specific project	As per Detailed project report	The no. of population benefited due to employment in the project year-wise is tabulated in Annexure – III. However, 880 employment will also be generated as per CIL R&R Policy where there is provision of 1 employment/2 acres of land.
4.	Economic benefits due to direct and indirect employment due to the project	As per the Detailed project report	The economic benefits due to the generation of employment in the project in terms of wages are tabulated in Annexure – IV.
5.	Economic benefit due to Compensatory afforestation	Benefits from such compensatory afforestation acquiring over next 50 years and discounted to present value should be included as benefits of compensatory afforestation. * For benefits of CA guideline of the Ministry for NPV estimation may be consulted	Considering the Guidelines for Calculation of NPV vide MoEF&CC, Gol, Fno. 5-3/2011-FC (Vol-I) dated 06.01.2022 and considering the fact the CA will result in Eco-class III forest the minimum economic benefit acquiring out of Compensatory afforestation is NPV. We may consider minimum value of Eco class III forest land (density 0.7) is ₹ 1,041.7176360 lacs

Estimated Cost = ₹ 1,51,94,09,240.88 = ₹ 15,194.0924088 lacs

Estimated Benefit = ₹ 31,80,315.6965525 lacs

Cost to Benefit Ratio = 0.0048

M. Lakshmi
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[Signature]
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General Manager, Bankola Area, E.C.L.

**Undertaking for payment of Amount for Compensatory
Afforestation in lieu of diversion of 38.38 Ha of Forest Land for
Tilaboni Underground Project in Stage-I Forest Clearance**

I, on behalf of Bankola Area, Eastern Coalfields Limited, P.O. Ukhra, Dist. - Paschim Bardhaman, West Bengal, do hereby undertake for the payment of amount for Compensatory Afforestation for the grant of in-principal approval for Diversion of 38.38 Ha forest land for Tilaboni Underground Project as per demand note from the State Forest Department, Govt. of West Bengal.

Mouyam
11/3/2023
Area Manager (PCD)
Bankola Area

11/3/23
महा प्रबंधक, बंकोला क्षेत्र, ई.सी.एल.
General Manager
Bankola Area