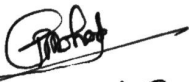


COST BENEFIT ANALYSIS

Cost benefit analysis in respect of diversion of 14.0 Ha. Forest land of Reserved Forest (RF 454) (Including Cost of earlier diverted 19.50 ha for Bharat Phase-I) for Open-cast coal mining in Bharat OC Patch Phase-II, WCL.

Table- A : Cases under which a cost- benefit analysis for forest diversion are required.

| S.NO. | Nature of proposal | Applicable/ not applicable | Remarks |
|-------|--|----------------------------|--|
| 1 | All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectares in hills. | Not applicable | |
| 2 | Proposal for defence installation purposes and oil prospecting (prospecting only). | Not applicable | |
| 3 | Habitation, establishment of industrial units, tourist lodges complex and other building construction. | Not applicable | |
| 4 | All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-waves stations, auto repeater centers, TV towers etc. | Applicable | The proposed project is for diversion of 14.0 Ha. Forest Land (Reserved forest) for Open Cast coal mining at Bharat OC Patch Phase-II, Kanhan Area , Western Coalfields Limited, Tehsil Junnardeo , Dist. Chhindwara , Madhyapradesh. |


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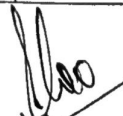

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Table- B : Estimation of cost of forest diversion.

| S.NO. | Parameters | Remarks. | Cost in Rs. |
|-------|--|--|---|
| 1 | Ecosystems services losses due to proposed forest diversion. | Economic value of loss of ecosystem services due to proposed diversion of Forest NPV amount of forest land being diverted as prescribed by Central Government (MOEF&CC) | Economic Value of loss of ecosystem Services due to proposed diversion of Forest shall be Rs. 12,28,590/- Ha. (NPV rate as per ECO value of Class III(c) forest as per Handbook Guideline of MOEF & CC , Gol dated 06/01/2022) As prescribed by Central Government (MOEF & CC) Since the project is for Open Cast Mining hence NPV value is considered at 100% Total forest area = 14.00 Ha.+ 19.50 ha. Environment loss = 14.00 x Rs. 12,28,590/- = Rs. 1,72,00,260/- + Rs. 2,39,57,505 = Rs. 4,11,57,765/- (Approx) The cost will be decided by Forest Dept., User agency is committed to deposit the same amount as per direction of Forest Dept. |
| 2 | Loss of animal husbandry productivity, including loss of fodder. | To be quantified and expressed in monetary term or 10% of NPV applicable whichever is maximum | Rs. 41,15,776/- |
| 3 | Cost of human resettlement. | To be quantified and expressed in monetary terms as per approved R&R plan | Not applicable (Resettlement & Rehabilitations is not required) |
| 4 | Loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project. | To be quantified and expressed in monetary terms on actual cost basis at the time of diversion | There is no public facilities and administrative infrastructure on the forest land to be diverted. Hence there is no loss of public facilities. |


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| 5 | Possession value of forest land diverted. | 30% of environmental cost (NPV) due to loss of forest or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum | Rs. 1,23,47,329.50/- |
| 6 | Cost of suffering to oustees. | The social cost of rehabilitation of 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. | Not applicable as there is no oustees exists in proposed diversion of forest land. |
| 7 | Habitat Fragmentation Cost. | While the relation 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 a thumb rule. | Rs. 2,05,78,882.50/- |
| 8 | Compensatory Afforestation and soil & moisture conservation cost. | The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value | The cost of compensatory afforestation of diverted 19.50 ha. forest land is Rs. 1,17,00,405/- The cost of compensatory Afforestation of proposed diversion of 14.0 ha land will be decided by Forest Dept., User agency is committed to deposit the same amount as per direction of Forest Dept. |

Total Cost to the Society (S. No. 1 to 8) = Rs. 8,99,00,158/-


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

| S.NO. | Parameters | Remarks | Benefits (in Rs.) |
|-------|--|---|--|
| 1 | Increase in productively attribute to the specific project. | To be quantified & expressed in monetary terms avoiding double counting. | 4,52,000 Tes @ Rs 1210.40/Te. (G12, 80% power sector, 20% Non-power sector) = Rs. 55,34,29,000/- |
| 2 | Benefits to economy due to the specific project. | The incremental economic benefit in monetary terms due to the activities attributed to the specific project. | * Royalty, DMF, NMET, MP infrastructure tax, Forest transit cess amounts to Rs. 592.56/ Te = Rs. 26,78,37,120/- |
| 3 | No. of population benefited due to specific project. | | * Direct = 42 Nos. Indirect = 100 Nos. Employment generated on non forest land in Afforestation programme. Local people will have income opportunity in various ancillary work & other activities. |
| 4 | Economic benefits due to of direct and indirect employment due to the project. | | Direct = 42x Rs. 75000 x 13 (month) = Rs. 4,09,50,000/- Indirect = 100 x Rs. 10000 x (13 month) = Rs. 1,30,00,000/- Total = Rs. 5,39,50,000/- |
| 5 | Economic benefits due to Compensatory Afforestation. | Benefits from such compensatory Afforestation accruing over next 50years monetized and discounted to the present value should be included as benefits of compensator Afforestation. | Compensatory Afforestation of 1.500 Ha. Of land @ 1000 no of sapling = survival rate @ 80% Sapling 1.500/Ha = 1500 Trees Survival trees @ 80% = 1200 trees Economic benefits of one tree accruing over next 50 years monetized in terms of |


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| | | | providing oxygen, water , soil, moisture conservation, etc, timber & firewood Future benefits of 1200 nos of trees @ Rs. 200000 = Rs. 24,00,00,000/- |
|--|--|--|---|

Total benefits due to diversion of forest land for non forest activity = 111,52,16,120/-

COST BENEFIT ANALYSIS

| | |
|-----------------------------------|--|
| 1- Total benefit to the society : | Rs. 111,52,16,120/- |
| 2- Total cost to the society : | Rs. 8,99,00,158/- |
| 3- Cost Benefit Ratio : | Rs. 116,20,16,120/- / Rs. 7,81,99,753.00/- |
| = | 12.40 |


 Sub Area Manager
 Ghorawari Sub Area
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 घोरावारी उपक्षेत्र


 Area General Manager
 Kanhan Area
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 दे. को. लि. कन्हान क्षेत्र