

# BENEFIT COST ANALYSIS REPORT

Evaluation of forest losses as per parameters in table -B

New Delhi Letter No. F-No 5-3/ 2011-FC(Vol-1)), Dated 06/01/2022

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter-1 | <p>Ecosystem services losses due to proposed forest diversion.</p> <p>Total forest land to be diverted – 18.94 ha. Net Present value for 1 ha. of forest land to be diverted = @15.96 Lakhs (maximum for eco class value-1) per ha. Hence total net present value for 18.94 ha. of forest land will be Rs. 302.24 lakhs</p> <p>18.94 x 1595790 = 30224263 @ Rs. 302.24 Lakh</p>                                                                                                                                                                                                                 |
| Parameter-2 | <p>Loss of animal husbandry productivity, including loss of fodder</p> <p>Estimate 10% animal husbandry productivity, due to diversion of 18.94 ha. of forest land which will be Rs.30.22 Lakhs</p> <p>10% x 30224263 = 3022426 Rs.</p>                                                                                                                                                                                                                                                                                                                                                         |
| Parameter-3 | <p>Cost of Human resettlement</p> <p>As submergence area is within Nalla banks &amp; on the Agriculture land. Hence there will be no loss involved on account of Human Resettlement</p>                                                                                                                                                                                                                                                                                                                                                                                                         |
| Parameter-4 | <p>Loss of public facilities and administrative infrastructure (Roads, building, school, dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to project. As this project does not involved any loss of public facilities and infrastructure. Hence there will be no loss on account of the public facilities and infrastructure.</p>                                                                                                                                                                             |
| Parameter-5 | <p>Possession value of forest land diverted.</p> <p>At present the possession value of forest land 18.94 ha to be diverted estimated to be 30% of the Net Present Value calculated (maximum for eco class)</p> <p>i) The total maximum Net Present Value of forest land comes to Rs.. 302.24 lakhs. Hence possession value comes out to Rs.90.67 Lakhs.</p> <p>30% x 302.24 = 90.67 Lakhs</p>                                                                                                                                                                                                   |
| Parameter-6 | <p>Cost of suffering to outies</p> <p>As this project does not involved any rehabilitation there will be no loss involved on this account.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Parameter-7 | <p>Habitat fragmentation cost</p> <p>This project involves forest land along nalla bank, which is habitat for various wild animals and birds found in that are National park. Wildlife sanctuary and Eco sensitive zone of existing protected area habitat fragmentation cost calculus Net Present value realized for this project and which comes out to Rs. 59.28 Lakh</p> <p>50% x 302.24 = 151.12 Lakhs</p>                                                                                                                                                                                 |
| Parameter-8 | <p>compensatory afforestation and soil &amp; moisture conservation cost</p> <p>As the project area is 18.94 ha and this being a State Government project the compensatory afforestation will be taken on alternate land provided by Collector Sindhudurg i.e 18.94 ha of land. This compensatory Afforestation will be raised and maintained for periodof 10 years at the cost of User Agency Calculated at prevailing wage rates of forest Department and which comes out Rs. 675370/- per ha. and hence this operation cost will be Rs. 127.92 Lakhs</p> <p>18.94 x 675370 = 127.92 Lakhs</p> |

**Evaluation of benefits from the project as per parameters in table-C New Delhi Letter No F-No 5-3/ 2011-FC(Vol-1)), Dated 06/01/2022**

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter-1 | Increase in productivity attribute to the specific project                                                                                                                                                                                                                                                                                                                                                                                                        |
| a)          | Net increase in agricultural produce for 50 years =12255.28 lakh<br>Rs.- 12255.28 Lakh                                                                                                                                                                                                                                                                                                                                                                            |
| b)          | It is proposed to develop fisheries produced reservoir, Hence overall benefits on this account for 50 years-Rs. 143.01 Lakh<br>Rs.- 143.01 Lakh                                                                                                                                                                                                                                                                                                                   |
| C)          | Animal husbandry produce for 50 years = 238.73 Lakh<br>Rs 238.73 Lakh                                                                                                                                                                                                                                                                                                                                                                                             |
| Parameter-2 | Benefits to economy due to specific project.<br>It is assumed that there will be an overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a). Thus benefit due to project on this account will be RS. 6127.64<br>50 % x 12255.28 = 6127.64                                                                                                                                                                   |
| Parameter-3 | No. of population benefited due to specific project<br>Partially 3 village are to be benefited in the command area due to construction of this project. Total population of these villages is 2771, assuming 6 members per family total no of families benefited will be about 238, assuming on increase income per family Rs 50000/ per to the population on this account for 50 years for 238 families will be Rs 119.00 lakh<br>50000 x 238 x 50 = 119.00 Lakh |
| Parameter-4 | Economic benefit due to of direct and indirect employment due to the project                                                                                                                                                                                                                                                                                                                                                                                      |
| a)          | Employment generated during construction period Generally in construction project, ratio of labour component cost to material component cost is 30-70 Employment generated during construction of the project the total of the project a 5360 lakh. The labour component will be about about 30% ie Rs. 1608 Lakh<br>30% x 5360 = 1608 Lakh                                                                                                                       |
| b)          | Employment generated after construction<br>It has been assessed from the statistics available for the irrigation project in operation that labour potential of 50 mandays /ha/year is generated pererally in the fiels and agro based industries, in case of this project ICA of project is 287 ha assuming wages at Rs 551/ per day the employment potential that will be created during 50 years will be Rs. 3953 Lakh<br>50 x 551 x 287x 50 = 395342500        |

Parameter-5

Economic benefits due to Compensatory afforestation.

The compensatory afforestation will be raised over the land of 18.94 ha. The economic benefits realized from this project are calculated over the period of 50 years. At NPV rate of Rs 15.96 lakh/ha. Which comes out to Rs. 4043.96 lakh.  
 $18.94 \times 15.96 \times 50 = 15114.12$

CALCULATIONS OF BENEFIT COST RATIO

Total cost (as per table -B Calculation) = Rs. 551.05 Lakh

Total Benefits (as per table -C Calculation) =Rs. 39554.78 Lakh

Hence, Benefit/Cost ratio = Rs. 71.78 Lakh

Cost Benefit Analysis for forest land diversion in accordance with the MoEF & CC's guidelines dated 06.01.2022  
Table-B: Estimation of Benefits for forest diversion for Nirukhe Minor Irrigation Project Tal-Kudal & Dist.- Sindhudurg

| Sr. No | Parameters                                                                                                                                                                                                                          | Remarks                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Ecosystem services losses due to proposed forest diversion                                                                                                                                                                          | Net Present Value for 1.00 ha of forest land=@ Rs. 15.96 Lakh per ha. Net Present value for 18.94 ha of forest land-18.94 x 15.96=Rs. 302.24 Lakh |
| 2      | Loss of animal husbandry, productivity, including loss of fodder                                                                                                                                                                    | 10 % of Rs. 302.24 Lakhs of the Total Net Present value calculated as above comes to Rs.30.22 lakh                                                |
| 3      | Cost of human resettlement                                                                                                                                                                                                          | There will be no loss involved on account of human resettlement                                                                                   |
| 4      | Loss of public facilities and administrative infrastructure (Roads, building, school,dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to project. | Not Applicable                                                                                                                                    |
| 5      | possession value of forest land diverted                                                                                                                                                                                            | 30 % of 302.24 Lakhs Net Present value for possession value of forest land comes to Rs. 90.67 lakh                                                |
| 6      | Cost of suffering to outtees                                                                                                                                                                                                        | Nil                                                                                                                                               |
| 7      | Habitat fragmentation cost                                                                                                                                                                                                          | 50 % of 302.24 Lakhs Net Present value for habitat fragmentation cost Rs.151.12 lakh                                                              |
| 8      | Compensatory afforestation and soil & moisture conservation cost                                                                                                                                                                    | RS. 675370/- per ha x 18.94 ha = 127.92 lakhs                                                                                                     |
|        | Total Estimated Cost of forest diversion                                                                                                                                                                                            | <b>Rs. 551.05 Lakhs</b>                                                                                                                           |

Cost Benefit Analysis for forest land diversion in accordance with the MoEF & CC's guidelines dated 06.01.2022  
Table-B: Estimation of Benefits for forest diversion Nirukhe Minor Irrigation Project Tal-Kudal & Dist.- Sindhudurg

| Sr. No | Parameters                                                                                                | Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Increase in productivity attribute to the specific project<br>Benefits to economy due to specific Project | Net increase in agricultural produce for 50 years =Rs 12255.28 Lakh .b) it proposed to develop fisheries produced reservoir, Hence overall benefits on this account for 50 years 143.01 lakh c)Animai nusbandry produce for 50 years Rs. 238.73 Lakh                                                                                                                                                                                                                                                                                                               |
| 2      | Loss of animal husbandry, productivity, including loss of fodder                                          | it is assumed that there will be an overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a). Thus benefit due to project on this account will be Rs.6127.64 Lakh                                                                                                                                                                                                                                                                                                                                             |
| 3      | No. of population benefited due to specific project                                                       | Partially 3 villages are to be benefited in the command area due to construction of this project Total population of these villages is 2771, assuming 6 members per family total no of families benefited will be about 238, assuming on increase income per family Rs 50000/ per to the populationon this account for 50 years for 238 families will be Rs 119.00 lakh                                                                                                                                                                                            |
| 4      | Economic benefit due to of direct and indirect employment due to the Project.                             | Employment generated during construction period. Employment generated during construction of the project the total of the project a 5360 lakh. The labour component will be about about 30% ie Rs. 1608 Lakh<br>30% x 5360 = 1608 Lakh<br>Employment generated after construction<br>labour potential of 50 mandays /ha/year is generated pererally in the fiels and agro based industries, in case of this project ICA of project is 287 ha assuming wages at Rs 551/ per day the employment potential that will be created during 50 years will be Rs. 3953 Lakh |
| 5      | Economic benefits due to Compensatory afforestation                                                       | The compensatory afforestation will be raised over the land of 18.94 ha. The economic benefits realized from this project are calculated over the period of 50 years At NPV rate of Rs 15.96 lakh/ha. Which comes out to Rs. 15114.12 lakh.                                                                                                                                                                                                                                                                                                                        |
|        | <b>Total Benefits</b>                                                                                     | <b>Rs. 39554.78 Lakh</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Place:- Sawantwadi

Date 07/04/2022

(M. V. Hiregoudar)  
Sub Divisional Engineer  
Irrigation Construction Sub division No.1  
Kankavali

(M.S.Kadam)

Executive Engineer  
Minor Irrigation Division  
Oros-Sindhudurgnagari

(S. D. Naravar)

Deputy Conservator of Forests  
Forest Division Sawantwadi