

Project Name: Rehabilitation and up-gradation of Mahuva- Savarkundla- Amreli- Bagasara- Jetpur section of NH-351 to two/ four lane with paved shoulder configuration in the State of Gujarat

Cost Benefit Analysis as per MoEFCC guidelines issued in 2017

Table B: Estimation of Cost of forest diversion

| S. No | Parameters | Details | Remarks |
|-------|--|----------------------|--|
| 1. | Ecosystem services loses due to proposed forest diversion | 971.30 lakhs | Considering type of Forest as Eco Class- IV, DF |
| 2. | Loss of animal husbandry productivity, including loss of fodder | 97.13 lakhs | 10% of NPV |
| 3. | Cost of human resettlement | Nil | - |
| 4. | Loss of public facilities and administrative infrastructure (Roads, buildings School, dispensaries, electric lines, railways etc) on forest land, or which would require forest land if these facilities were diverted due to the project. | 1200 lakhs | Public facilities like Electric poles, Hand Pump & Street lights need to be shifted. Estimates from the respective departments have been received. |
| 5. | Possession value of forest land diverted | 291.39 lakhs | 30% of NPV |
| 6. | Cost of suffering to oustees | Nil | - |
| 7. | Habitat fragmentation Cost | 485.65 | 50% of NPV |
| 8. | Compensatory afforestation and soil & moisture conservation cost | 865.57 Lakhs | As per CA scheme formulated by Forest Division. |
| | Total | 3911.04 lakhs | |

Table C: Existing Guidelines for estimating benefits of forest land diversion in CBA

| S. No | Parameters | Details | Remarks |
|-------|---|---|--|
| 1. | Increase in productivity attributable to the specific project | Compensatory afforestation will be raised on 225 hectare of degraded forest land (Double of 112.736 ha forest land to be diverted). | Over the years productivity of the forest will definitely increase. |
| 2. | Benefits of economy due to the specific project | <p>Fuel saving = $17.7 - 11.8 = 5.9$ litre</p> <p>Average fuel cost = Rs. 100 per litre</p> <p>Fuel saving on 10500 PCU = $5.9 \times 10500 = 61950$ Litre per day (approx.)</p> <p>Savings (in monetary terms) = $61950 \times 100 = 6195000$ Rupees per day</p> <p>Total benefits in 5 years ($5 \times 365 = 1827$ days)</p> <p>= $1827 \times 6195000 = 113,182,650$</p> <p>= 1131.82 Lakhs</p> | Saving in vehicular operating and maintenance cost, better connectivity, safer journey to commuter and reduce travel time. |
| 3. | No. of population benefited due to specific project | As the project road will be connecting different cities/ towns/ major villages namely Amreli, Chakkargadh, Gavadka, Gokharvala Mota, Savar Kundla, Badhada, Hadida, Oliya, Simaran and many more in the Amreli district and Bhavnagar district of Gujarat. | As per the detailed project report |
| 4. | Economic benefits due to direct and indirect employment due to the project. | <p>An employment of 1628400 man-days will be generated during construction phase for skilled/ unskilled workers. Average wages inclusive of all costs of living is 474 per day.</p> <p>Total financial implication will come out to be = $1628400 \times 474 = 771,861,600$</p> <p>Rs 7718.61 Lakhs</p> | |
| 5. | Economic benefits due to Compensatory | It is proposed to undertake Compensatory Afforestation on 225 hectare of degraded | |

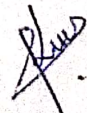
| | | | |
|--|---------------|---|--|
| | Afforestation | forest land (Double of 112.736 ha forest land to be diverted). The ecological value for a 50 years period for the density of 10 is Rs. 957780 Lakhs per hectare. Ecological gain for the project would be 9.58 lakhs X 225 = Rs. 2155.5 lakhs | |
|--|---------------|---|--|

Summary of Cost –Benefit Analysis for the Project

| S.No. | Loss INR (in Lakh) | Benefit INR (in Lakh) |
|--------------------------------|---|--|
| 1. | Ecosystem services losses Rs. 971.30 lakhs | Fuel Saving cost= 1131.82 lakhs |
| 2. | Loss of Animal Husbandry Productivity including loss of Fodder =97.13 lakhs | Benefits of economy due to the specific project will be = 1628400 X 474= 771,861,600 Rs 7718.61 Lakhs |
| 3. | Loss of Public facility Rs 1200 Lakhs | Benefit from CA=2155.5 lakhs |
| 4. | Possession Value of Forest Land diverted= 291.39 lakhs | |
| 5. | Habitat Fragmentation Cost =Rs 485.65 lakhs | |
| 6. | Compensatory Afforestation and Soil and Moisture Conservation= Rs. 865.57 Lakhs | |
| Total Loss = 3911.12 Rs. lakhs | | Total Benefit = Rs. 11005.93 Lakhs |

Benefit Cost Ratio =Total Benefit /Total Loss

Rs. 11005.93 Lakhs / 3911.12 Rs. lakhs = 2.81 which is more than 1 hence, project is viable.


 Signature of user agency
 Executive Engineer,
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 RAJKOT.