



File No. IMC/ENV-06/2021-22/  
OFFICE OF THE COMMISSIONER  
ITANAGAR MUNICIPAL CORPORATION  
ITANAGAR

Dated Itanagar the 22<sup>nd</sup> Dec. 2022

**COST BENEFIT ANALYSIS FOR FOREST LAND DIVERSION**

(Ref. MoEF guidelines No. 7-69/2011-FC (Pt.) dtd. 01<sup>st</sup> Aug, 2017)

**Project-** Diversion of 10.00 Hectares of forest land for the Construction of the SWM (Solid Waste Management) Plant at Dapo Yarlo, Itanagar.

**Table A:** Cases under which a cost-benefit analysis for forest diversion is required

| S NO. | Nature of Proposal  | Applicable/ Not applicable | Remarks  |
|-------|---|----------------------------|--|
| 1     | All the categories of proposal involving forest land up to 20 hectares in plains and upto 5 hectares in hills   | Not applicable             |  |
| 2     | Proposal of defence installation purpose and oil prospecting (prospecting only)   | Not applicable             |  |
| 3     | Habitation, establishment of industrial units, tourist lodge 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-wave stations, auto repeater centers, TV Towers etc. | Applicable                 | These are cases where a cost benefit analysis is necessary to determine when diverting the forest land to non-forest use in the overall public interest. |



**Table B:** Estimation of cost of forest diversion

| S NO. | Parameter   | Remarks   | Monetary equivalent  |
|-------|---|---|--|
| 1     | Ecosystem services loses due to proposed forest diversion.  | Economic value of loss of ecosystem services due to diversion of forest shall be the net present value (NPV) of the forest land being diverted as prescribed by the Central Government (MoEF&CC)                                  | NPV for the diverted forest area is considered as Rs. 14.3 lakhs/Ha.   |
|       |   | Note: In case of National parks the NPV shall be ten (10) times the normal NPV and in case of Wildlife Sanctuary the NPV shall be 5 times the normal NPV or otherwise prescribed by the ministry or any other competent authority | Total value of NPV in Rs.  |
|       |   |   | = 14.3 lakhs x 10 ha<br><b>= 143 Lakhs</b>   |
| 2     | Loss of animal husbandry productivity, including loss of fodder   | To be qualified and expressed in monetary terms or 10% of NPV applicable whichever is maximum   | 10% of the total NPV i.e. <b>14.3 lakhs</b>  |
| 3     | Cost of human resettlement  | To be qualified and expressed in monetary terms as per approved R&R plan  | NIL  |
|       |   |   | There is no human resettlement issue in this project. Hence no cost involved for any R&R scheme  |
| 4     | Loss of public facilities and administrative infrastructure (roads, building, 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  | NIL  |
|       |   |   | There is no requirement of any diversion of public facilities and administrative infrastructure (roads, building, schools, dispensaries, electric lines, railways, etc.) under the said project. |



|                                    |  |  |   |
|------------------------------------|--|--|---|
| 5                                  | Possession value of forest land diverted                           | 30% of environmental costs (NPV) due to loss of forests 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.  | The possession value of cost land diverted is calculated as <b>Rs. 42.9 lakhs. (30% of NPV)</b> |
| 6                                  | Cost of suffering to outsees                                       | The social cost of rehabilitation of outsees (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 outsees should have earned in 2 years had he not been shifted. | Not applicable for this project since there is no resettlement involved.                        |
| 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 a thumb rule   | Considered as 50% of NPV i.e. <b>Rs. 71.5 lakhs</b>   |
| 8                                  | Compensatory afforestation and soil and moisture conservation cost | The actual cost of compensatory afforestation and soil and moisture conservation and its maintenance in future at present discounted value.  | Cost of CA is considered as 3.5 lakhs per ha  |
|                                    |  |  | Total CA cost   |
|                                    |  |  | = (3.5x 10 ha )   |
|                                    |  |  | = <b>35 lakhs</b>   |
| The total cost of forest diversion |  |  | (143+ 14.3+ 42.9+ 71.5+ 35) lakhs   |
|                                    |  |  | = <b>306.7 lakhs</b>  |



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

| S NO. | Parameters   | Remarks   | Monetary equivalent  |
|-------|--|---|--|
| 1     | Increase in productivity attribute to the specific project                 | To be quantified & expressed in monetary terms avoiding double counting   | Sustainable development and proper waste management<br><br>The lump sum monetary equivalent of the above benefit is considered as <b>Rs. 100 lakhs</b>   |
| 2     | Benefits to economy due to the specific project                            | The incremental economic benefits in monetary terms due to the activities attributed to the specific project  | The waste will be processed and segregated into bio-degradable and non-degradable components. The bio-degradable waste will be composted and converted into organic manure. The inorganic material will process into recyclable and RDF.<br><br>The lump sum monetary equivalent of the above benefit is calculated<br>= Rs. 50 lakh per year<br>Monetary return of the project for 25 years<br>= 50.00 X 25.00 = <b>1250.00 Lakhs</b> |
| 3     | No. of population benefited due to specific project                        | As per the detailed project report  | About 2.50 lakhs population of Itanagar Capital Region   |
| 4     | Economic benefits due to direct and indirect employment due to the project | As per the detailed project report  | Temporary labours engagement (appx 60 nos. per day) during execution of the project along with various firms/suppliers/manufacturers will be engaged. Permanent employment 10 (Ten) nos. will also be generated. The lump sum monetary equivalent of the direct and indirect employment generation is calculated as <b>350 lakhs per year.</b>   |
| 5     | Economics benefits due to Compensatory afforestation                       | Benefits from such compensatory forestation accruing over next 50 years monetized and discounted to the present value should be included as benefits of | Benefits from compensatory forestation accruing over next 50 years is huge and monetary equivalent is considered as <b>Rs. 50 lakhs</b>  |





|                       |  |   |  |
|-----------------------|--|---|--|
|                       |  | compensatory afforestation.<br>*For benefits of CA guideline<br>of the Ministry of NPV<br>estimation may be consulted |  |
| <b>Total benefits</b> |  |   | = (100 +1250+350+50)<br>= <b>1750.00 Lakhs</b> |

Cost Benefit Ratio (CBA Ratio) = Benefit/Cost

Cost Benefit Ratio (CBA Ratio) = **1750/306.70**

CBA Ratio= **5.7:1**

Place: Itanagar

Date:

  
**Assistant Engineer, ISD-I**  
Itanagar Municipal Corporation  
Itanagar  
Assistant Engineer  
Itanagar Sub-Division-I  
Itanagar Municipal Corporation  
Itanagar