

COST BENEFIT ANALYSIS

[Ref: MoEF guideline No. FNO.5-3/2011-FC(Vol-I)]

PROJECT: Development of Dhalbhum Airport

Total Forest Area:-99.256 ha

Table -A: - Case under which a cost – benefit analysis for forest diversion are required

No.	Nature of Proposal	Applicable/ NOT applicable	Remarks
1	All Categories of proposal involving Forest land up to 20 hectares in plain and up to 5 hectares in hills	Not Applicable	
2	Proposal for 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 then 20 hectare in plains and more then 5 hectares in hills including roads, Transmission line, minor, medium and major irrigation project, hydro project, mining captivity, railway lines, location specific installation like micro wave station, auto repeater centre, TV tower etc.	Applicable	There are cases where a cost benefit analysis is necessary to determined when diverging the forest land to non-forest land user in the overall public interest.

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Table- B:-Estimation of cost of forest diversion

SN	Parameters	Remarks	Monetary Equivalent
1	Ecosystem service losses due to proposal forest diversion	Economic value of loss of ecosystem service due to diversion of forest shall be the net present value (NVP) of the forest being diverted as prescribed by the Central Government (MoEF& CC.) Note: In case of National parks the NVP shall be ten (10) times the normal NVP or otherwise prescribe NVP by the ministry or any other competent authority	Considering the Net present value of forest area to be diverted be 13.57110 Lakh per Ha as per very dense forest in Eco class III Hence losses to Eco system in Rupees: 99.256×13.57110 lakh)=Rs.1347.013 lakh
2	Loss of animal husbandry productivity, including loss of fodder	To be quantified and expressed in monetary terms or 10% of NVP applicable whichever is maximum	Rs. 134.701 Lakh
3	Cost human resettlement	To be quantified and expressed in monetary terms as per approved R& R plan	Nil
4	Loss of public facilities and administrative infrastructure (Road, Building, School, dispensaries, electric lines railways, etc.) on forest land, which would require forest land if these facilities were diverted due to thee project	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion	NIL
5	Possession value of forest land diverted	30% of environmental cost (NVP) due to loss of forests or circle rate of adjoining area in the district should be added area a cost component as possession value of forest land whichever maximum	The possession value of forest land diverted is calculated as Rs. 404.103 lakh (30% of NPV)

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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 application for this project since is no resettlement involved.
7	Habitat Fragmentation cost	While the relationship fragmentation and forest goods and services is complex for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NVP applicable as a thumb rule.	50 % of NPV: 13.57110 lakh X 99.256 ha X 50%= 673.507 lakh
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 value	Cost of CA considered as 4 lakh per ha including soil & moisture conservation work. Total CA Cost = 99.256 ha *4=397.024 Lakh
	Total		(1347.013+134.701 +404.103 +673.507 +397.024) = Rs.2956.348 Lakh

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Table -C-Existing guideline for estimation benefit of forest-diversion in CBA

Sr No.	Parameters	Remarks	Monetary equivalent
1.	Increase productively attribution to the specific project	To be quantified & expressed in monetary terms avoiding double counting	Development of airport can make a big difference in society. It boosts socio economic growth, Business, industry health, education and overall economy of state. The lump sum monetary equivalent of above benefits considered as 200 lakh.
2.	Benefits to economy due to the specific project	The incremental economic benefit in monetary terms due to the specific project	<p>The monetary returns of the specific project is calculate as below:</p> <p>1. Traffic Flow: around 52000 passenger travel in a year</p> <p>Therefore, Rs. 5'000 per passenger $= 52000 \times 5000 = \text{Rs. } 26'00 \text{ lakh}$ Therefore revenue in 99 years $2600 \text{ lakh} \times 99 = 257400 \text{ lakh}$</p> <p>2. AAI gets fee from airlines lump sum Rs. 12 lakh (Appox.)/year. Therefore, for 99 years it will be $99 \times 12 = 1188 \text{ lakh}$.</p>
3.	No. of population benefited due to specific project	As per the Detailed project report	Population of whole East Singhbhum, West Singhbhum, Saraikela part West Bengal, Odisha will benefitted by this project. It helps greatly to improve socio economy development of the area. The Lump Sum Monetary equivalent of the benefit is considered as: Rs.50.0 Lakh
4.	Economic benefits due to direct and indirect employment due to the project	As per the Detail project report	<p>A. Minimum 250 temporary labour engaged during the construction of airport for approx. 300 days. Mendays (approx.) $= 250 \times 300 \times 300 = 225 \text{ Lakh}$</p> <p>B. Indirect employee $= 20 \times 25 \times 12 \times 12000 = \text{Rs. } 720 \text{ lakh}$</p> <p>C. Permanent Employee =50 for entire period. Therefore $50 \times 40000 \times 12 \times 99 \text{ year} = \text{Rs. } 23760.00 \text{ Lakh}$</p>

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5.	Economic 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 benefit of compensatory afforestation *For benefit of CA the guideline of the ministry for NVP estimation may be consulted	Benefit from such compensatory forestation accruing over next 50 year is huge and monetary equivalent is considered as Rs. 100 lakhs.
Total benefits of the project (monetary equivalent)			(200+257400+1188+50+225+720+23760 + 100) = Rs. 283643 Lakh

Total environmental loss = Rs. 2956.348 Lakh

Total benefit to society = Rs.283643/- Lakh

(Value for 99 year =Rs. 283643/- Lakh)

Cost Benefit Ratio(CBA Ratio) = BENEFIT/ COST

CBA RATION = 1:95.94

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