

Cost Benefit Analysis Guidelines for forest land diversion-2017

Guidelines for concluding cost-benefit analysis for projects involving forest diversion

- (i) While considering proposal for diversion of forest land for non-forestry use, it is essential that ecological and environmental losses and eco-economic distress caused to the people who are displaced are weighted against economic and social gains.
- (ii) Whenever the forest land is involved in the development projects, the cost of ecosystem services and fragmentation of habitat of wildlife and economic distress caused to people dependent on forests and the cost of settlement of people dependent on forest should also be added as the cost of forest diversion in addition to the standard project cost which would have been incurred by the user agencies without involvement of forest land while conducting the cost benefit analysis of the project. Similarly the benefits from the project accruing due to diversion of forest land and used in the project should also be accounted for in the benefits component in addition to the standard benefits of the project which would have been accrued without involvement of forest land while conducting the cost benefit analysis and determining the benefit and cost ratio (BC ratio).
- (iii) the cost of compensatory afforestation and its maintenance in future and soil & moisture conservation at present discounted value and future benefits from such compensatory forestation accruing over next 50 years monetised and discounted to the present value should be included as cost- and benefits respectively of compensatory afforestation while conducting the cost benefit analysis and determining the benefit and cost ratio (BC ratio).
- (iv) **Table-A** lists the details the types of projects involving forest land for which cost-benefit analysis will be required **Table-B** lists the parameters according to which the cost aspect of forest land diverted for the development projects will be determined, while **Table-C** lists the parameters for assessing the benefits accruing to the project using of forest land.
- (v) A cost-benefit analysis as above should accompany the proposals sent to the Central Government for forest clearance under the Forest Conservation Act.

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

No.	Nature of Proposal	Applicable/ Not Applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectare in hills	Not applicable	These proposals may be considered on a case to case basis and value judgment
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 forestland 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 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.

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Table-B: Estimation of cost of forest diversion

No.	Parameters	Value expressed to monetary terms	Remarks	Amount of Cost
1	Ecosystem services losses due to proposed forest diversion	64,16820/-	Economic value of loss of eco-system services due to diversion of forests shall be the net present value (NPV) of the forest land being diverted as prescribed by the Central Government (MoEF&CC).	64,16820/-
2	Loss of animal husbandry productivity, including loss of fodder.	641682/- (10% of NPV more than loss of animal husbandry productivity including loss of fodder)	To be qualified and expressed in monetary terms or 10 % of NPV applicable is maximum	64,1682/-
3	Cost of human resettlement	Since there will be no residential village area getting effective, there will be no cost of human resettlement	To be quantified and expressed in monetary terms as per approver R & R Plan	0
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 this project	Since no public facilities and administrative infrastructure (Roads, building, Schools, Dispensers, Electric, Lines, Railway etc.) on forest land being diverted due to the project, there will no such loss.	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion.	0
5	Environment losses erosion effect on hydrological cycle, wildlife, habitation, micro climatic ratting of ecological balances.	Rs. 1925046/-(30%/ of environmental cost (NPV) due to loss of environmental	30 % of environmental cost (NPV) due to loss of the forests of circle rate of adjoining area in the district should be added as a cost component as position value of forest land whichever is maximum.	1925046/-
6	Suffering of austeas	Nil	The social cost of rehabilitation of oustee in addition of 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 year had he not been shifted.	0
7	Habitat Fragmentation Cost	3208410/-	While the relationship between fragmentation and rest good	3208410/-

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			and service is complex for the sake of simplicity the cost due to <u>fragmentation</u> has been pegged at 50 % of NPV applicable at thumb rule.	
8	Compensatory afforestation and soil & moisture conservation cost	3953329/-CA +0.5% soil & moisture conservation cost(16.00Crore) i.e. 800000/-	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value.	4753329/-
Total Cost				16945287/-

Page 3 of 5

Cost Benefit Analysis Guidelines for forest land diversion-2017

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

No.	Parameters	Value expressed to monetary terms	Remarks	Estimated benefit Amount
1	Increase in productively attribute to the specific project	The growth of local business will be almost in Rs. 15,00,000 (Rs. Fifteen Lakhs only)	To be quantified and expressed in monetary terms.	1500000/-
2	Benefits to economy due to the specific project	The local business will be benefited indirectly (Shopkeepers, Hotlires, Tax oprators and potters etc.) benefited to economy due to the project will be almost Rs. 50,00,000 (Rs. Fifty Lakhs only)	The incremental economic benefit in monetary terms due to the activities attributed to the specific project.	5000000/-
3	No. of population benefited due to specific project	Entire 33379 population of Lahaul & Spiti area will be benefited from the Project.	As pr detailed project Report	0
4	Economic benefits due to of direct and indirect employment due to the Specific project.	Economic benefits due to of direct employment: During construction period of 24 Months, approximate 1,60,000 mandays of temporary employment will be generated by the construction which is monetary terms calculated at the calculated at the present wage rate to Rs. 1,60,000 x 400 = 6,40,0000/- (6.40 crore) Economic benefit due to indirect employment: The total quantified indirect benefit to local population will be Rs. 1,80,00,000 (Rs one crore eighty lakhs only. (Rs. 500 per person earning x 30 days per month x 12 months in a year). This benefit will also	As pr detailed project Report	82000000/-

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	increase @ 8 to 10% each year for 100 years.		
Economic benefits due to compensatory afforestation	Economic benefit due to compensatory afforestation: As per MoEF&CC guideline these benefits are the benefits which are from such as CA accruing over next 50 years monetized and discounted to the present value should be included as benefits of CA for benefits of CA the guidelines of Ministry of NPV estimation as been consulted and these benefited have been consulted these benefited have been calculated on two hands namely benefited to CA and benefited to carbon storage by the afforestation done on CA land. The results are as under. 1. Economic benefits due to CA=12 x 176009 = 2112108/- 2. Economic benefits due to carbon storage due to CA in Rs. Lakhs 12 x 13947 = 167364.00/- Total (1 +2) = 2279472 (Rs. Twenty two lakhs seventy nine thousand four hundred seventy two only.)	Benefits from compensatory afforestation accruing over next fifty years monetized and discounted to the present value should be as benefits of CA.	2279472/-
Total Benefit Cost			90779472/-

Total Cost = Sum total of Table B = 16945287/-

Total Benefits = Sum total of Table C= 90779472/-

BENEFIT/COST RATIO = 5.35

Note-1: Net Present value (NPV) of environment and ecosystem services loss:

The concept of Net Present value of the forest land diverted is a scientific method of calculating the environmental cost and other losses caused due to diversion of forest land for non-forestry purposes. The NPV represents the net value of various ecosystem services and other environmental services in monetary terms which the forest would have provided if the forest would not have been diverted.

Note-2: Possession value of forest land diverted:

The forest land diverted for the project such as irrigation, hydropower, railways, roads, wind, and transmission lines and mining etc are unlikely to be returned and remains in possession of the user agencies. Therefore 30% of the net present value (NPV) of forest land diverted or market rate of adjoining area in the district should be added as a cost component as "possession value of forest land" in addition to the environmental costs due to loss of forests.

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