Cost Benefit Analysis Guidelines for forest land diversion-2017

प्रारुप–29

(5.00 हे0 से अधिक के प्रकरणों में लागू)

Cost Benefit Ratio calculation Performa

परियोजना का नामः–राष्ट्रीय राजमार्ग संख्या एन.एच 119/534 कि.मी. 139.000 से 196.000 कोटद्वार –सतपुली के तक दो लेन सड़क चौड़ीकरण बावत्।

Total Forest area:- 42.076 Ha.

Purpose :- The cost benefits analysis is being undertaken for proposed diversion of forest land for widening of existing road for above said project.

Guidelines for concluding cost-benefit analysis for projects Involving forestdiversion

(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 monetized 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 5hectare in hills	Applicable	These proposals may be considered on a case to case basis and value judgment
2	Proposal for defense installation purposes and oil prospecting (prospecting only)	Not applicable	In view of national priority accorded to these sectors the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non- forest use.
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	These activities being detrimental to protection and conservation of proposals would be rarely entertained.
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.

Table-B: Estimation of cost of forest diversion

No.	Parameters	Remarks
1	Ecosystem services losses due to proposedforest diversion	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). 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 five (5) times the normal NPV or otherwise prescribed by the ministry or any other competent authority.
2	Loss of animal husbandry productivity, including loss of folder.	Nil
3	Cost of human resettlement	Nil
4	Loss of public facilities and administrative infrastructure (Roads, Building, Schools, Dispensaries, Electric lines, Railways etc.) on forest land, which would require forest landif these facilities were diverted due to this Project	No loss of public facilities is taking place and no administrative infrastructure (Roads, Building, Schools, Dispensaries, Electric lines, Railways etc.) willbe destroyed.
5	Possession value of forest land diverted.	42.076*10,05,210= 42,295,216 **(422.95 Lac.)**
6	Cost of suffering to oustees.	Nil
7	Habitat Fragmentation Cost	Nil
8	Compensatory afforestation and soil &moisture conservation cost	The actual cost of compensatory afforestation and soil& moisture conservation and its maintenance in future at present discounted value.

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

No.	Parameters	Remarks
1	Increase in productively attribute to thespecific project	Mobility is difficult and time taking in mountainous region. The productivity of the commercial and industrial activities for which transportation shall take place. Besides it will increase the tourism.
2	Benefits to economy due to the specific project	The project will yield significant economic benefit to the state. Construction of road will lead to much betterconnectivity, which will play significant role in improving the socio-economic condition of the people of the state in any folds.
3	No. of population benefited due to specific Project	Entire population i.e. **2,17,288** (Kotdwar) , **1,68,290** (Pauri) & **39,053** (Satpuli) souls shall be benefited from the project
4	Economic benefits due to of direct and indirect employment due to the Specific project.	Approximate 4500 man temporary employment will be generated for the construction Period of 24 months.
5	Economic benefits due to compensatory afforestation	The compensatory afforestation amount will be deposited to forest department. There will be various employment generated for execution as well as Maintenance of the CA work.

Summary of Cost Benefit Analysis for the Project.

Si No .	Total cost / Loss (in Lakhs)	Benefit (in Lakhs)
1	Ecosystem services losses Rs. 422.95 Lakhs	Ecological gain from compensatory afforestation on 87.00 Ha. (at least) hectare on degraded land would be Rs. 11,026.38 lakh
2	Loss of animal hundandry productivity including loss of fodder= 42.29	Approx. 4500 Man days will be generated for unskilled/semi skilled worker in terms of Salary and wages @ Rs. 500/day (average)= Rs. 22.5 lakh (# Minimum wages in Uttarakhand is Rs. 10520/month (or Rs. 350/day, but for considering actual practical wages including lodging the average cost per day for semiskilled/labourer is approx .. Rs. 500 per day. Basic living amenities including alternative fuel (LPG, Solar Cooker etc) will be supplied to labours/workers. Construction period - 2 years Number of labours at peak time - 300 Approx. 20 % labour assume to be local per head cost of fuel 20/- per day for rest 240 labours Total cost = Rs. 20*240 labour*730 days= 35,04,000/- or 35.04
3	Loss of public facilities= 42.29	
4	Possession value of forest land diverted=7573.68	
5	Habitat fragmentation cost= 211.46	
6	Compensatory afforestation and soil & oisture conservation cost 354.9	
	Total Cost/Loss= 422.92 Lakhs + 42.29 Lakhs + 3.74 lakhs + 7573.68 lakhs + 211.46 Lakhs + 354.9 lakhs = **8,608.99 Lakhs**	Total gain/benefits from project= 11,026.38 + 35.04 lakhs = **11,061.42 Lakhs**

Cost Benefit Ratio = Total benefit /Total cost = 8608.99/11,061.42 = 1.2 which is >1, so project is found viable based on given/above described criteria.

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 theenvironmental 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 wouldnot 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 e.t.c 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.

A.A.E

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