Cost Benefit Analysis Guidelines for forest land diversion

Nature of Project:-Construction of Kandha To Lot Murahla Road Km.0/00 To 17/260. in the state of Himachal Pradesh.

File No. :- FP/HP/ROAD/37179/2018
Date of Proposal :- 19-12-2018

Purpose:-This cost benefit Analysis is being undertaking for Proposed Diversion of Forest Land Being affected due to Construction of Kandha To Lot Murahla Road Km.0/00 To 17/260. in the state of Himachal Pradesh.

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 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 up to 20 hectares in plains and up to 5 hectare in hills.	Not 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	
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		Remarks
1	Ecosystem services losses due to proposed forest diversion.	10.3574 ha. of forest land to be diverted. NPV cost of the forest area 10.3574x1005210=Rs. 10411400/- for 50 years. NPV obtained from HP Forest Department website given as per Supreme Court order dated 06.01.2022 value used for Class V dense forest.	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).
2	Loss of animal husbandry productivity, including loss of folder.	10,41,140/- (10 % of NPV is more than loss of animal husbandry productivity, including loss of fodder. Further considering 10% of NPV it will be Rs. 104.11 lakh (NPV)x 0.1=10.41 lakh. So considered amount (maximum one) is Rs. 10.41 lakh)	The loss of animal husbandry productivity, including loss of folder has been calculated.
3	Cost of human resettlement	Since there will be no residential village area getting affected, there will be no cost of human resettlement.	Nil as no settlement is required.
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, Dispensaries, Electric Lines, Railways etc.) on forest land being diverted due to the project, there will be no such loss.	No loss of public infrastructures like Roads, hospital etc are investigated.
5	Environment losses erosion effect on hydrological	Possession value of forest land will be (considering 30% of NPV)=0.3x Rs.	30% of environment costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a

	cycle, wildlife, habitation, micro climatic ratting of ecological balances.	10411400/-=3123420/-	cost component as possession value of forest land whichever is maximum.
6	Suffering of austees.	Nil	No, any local public are suffering from the construction of the road.
7	Habitat Fragmentation Cost.	52,05,700/-(50% of environmental Costs (NPV)=1,04,11,400/-	While the relationship between fragmentation and forest goods and services is complex for the sake of simplicity the cost due to Fragmentation has beenpegged at 50% of NPV applicable as a thumb rule.
8	Compensatory afforestation and soil & moisture conservation cost.	87,94,484/- CA Plantation	The actual cost of compensatory afforestation and Penal NPV for its maintenance in future at present discounted value has been calculated as per the norms approved by the Pr. CCF(HoFF) HP Shimla.

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

No.	Parameters		Remarks
1	Increase in productively attribute to the specific project	Directly the project will have the potential for temporary employment generation for local people for 1 year generating 69643 Mandays during construction period almost Rs 261.16 lacs.	To be quantified and expressed in monetary terms
2	Benefits to economy due to the specific project	Salient benefits of the project are minimum Guaranteed amount of Rs 793.87 lacs. Total 1933 nos. of local people to be benefited from the construction of project and 30 percent local people getting employment.	The project will field significant economic benefit to the state. Construction of road will lead to much better connectivity, 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.	The construction of this project will provide fast economical and environment friendly transportation of local fruits, crops and vegetables as such the local habitants will be benefited indirectly (Shopkeepers, hoteliers, taxi, potters etc). Total pilgrims/tourists visit in a year is app 1.5 lakhs. The total population of concerned Panchayat is 1933. On an average each person earns minimum of Rs 500.00 per day. 30% of total population is 580 x 500 x one year (365 days)	As per detailed project Report.

		=1058 lakh annually.	
4	Economic benefits due to of direct and indirect employment due to the Specific project.	Economic Benefit due to direct employment: During construction period of 24 month,, approximate 69,643 mandays of temporary employment will be generated by the construction which in monetary terms calculates at the present wage rate to Rs. 69,643 x 375= Rs. 261.16 Lacs. **Economic Benefit due to indirect employment:** The total quantified indirect benefit to local population will be Rs 261.16 lacs annually. This benefit will also increase @ 8 to 10% each year for 100 years.	As per detailed project Report.
5	Economic benefits due to compensatory afforestation	Economic benefit due to Compensatory Afforestation: As per MoEFCC guidelines these benefits are the benefits are the from such CA accruing over next 50 years monetized and discounted to the present value should be included as benefits of CA. For benefits of CA guidelines of Ministry for NPV estimation have been consulted and these benefits have been calculated on two heads namely benefits to CA and benefits due to carbon storage by the afforestation done on CA	Benefit from such compensatory Afforestation accruing over next 50 years monetized and discounted to the present value should be included as benefits of CA.

		land. The results are as under: 1 Economic benefit due to CA= 21.47 x 176009= =37,78,913/- 2. Economic benefit due to Carbon storage due to CA in Rs. lakhs = 21.47 x 13947=299442/- Total-(1+2)=40,78,355/-	

Total loss=Rs. 10411400/- +1041140+5205700+3123420+8794484=28576144/-	Total gain/benefit from project = Rs. 26116125/-+4078355/-=30194480/-

Cost benefit ratio=Environment loss/benefit from the project= $\frac{28576144}{30194480}$ =0.94 which is <1, so project is ~~not~~ found viable based on given/above described criteria.

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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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