

## COST BENEFIT ANALYSIS FOR FOREST LAND DIVERSION - 2017

**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 up to 5 hectare in hills.	Not Applicable	These proposals may be considered on a case to case basis and value judgement
2	Proposal for defence 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 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 centres, 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.N.	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion.	NPV value (as per of forest Conservation act 1980 is in between Rs 5.8 and 9.2 lakh per hectare. However, NPV value for proposed diverted land is calculated by DFO office Firozabad <b>Rs. 20992956.00 OR Rs. 209.92956 Lakh.</b>
2	Loss of animal husbandry productivity, including loss of fodder.	Loss of animal husbandry due to proposed diversion is very moderate and calculated below; Gross loss @ 5 ton/Ha./ year. @ Rs. 100/- per ton. Therefore, loss of fodder as estimated for about 26.143158 hect. will be $26.143158 \times 5 \times 100 = \text{Rs } 13071.579/\text{yr.} \times 50 \text{ years} = \text{Rs. } 653578.95/-$ or 6.54 Lakh Further considering 10 % of NPV will be Rs. 2099295.60 OR 20.99295 Lakh So Considered amount (maximum one) is <b>Rs 20.99295 Lakh</b>

3	Cost of human resettlement.	NIL human resettlement is required since no family residing in forest land .
4	Loss of public facilities and administrative infrastructure (road, building, schools, dispensaries, electric lines, railways etc.) on forest and, which would require forest land if these facilities were diverted due to the project.	No loss of public infrastructure like Roads, hospital etc are investigated. However, there will be some utility shifting like, electricity pole, telephone line , OFC cable etc, from Proposed RoW located in forest land. The likely cost of these utility shifting is estimated <b>Rs 252.56 Lakhs.</b>
5	Possession value of forest land diverted.	30% of NPV = 6297886.80 OR <b>Rs.62.978868 Lakh.</b>
6	Cost of suffering to oustees.	NIL, no resettlement & Rehabilitation is identified or required in forest land which is proposed to be diverted. Also the community residing along the project road is not dependent on forest or forest produce. There will not be any losses on this account as diversion of the forest land to this project will not affect any house or structure in protected forest area which is basically a linear plantation
7	Habitat fragmentation cost.	Habitat fragmentation cost is 50% of NPV that is 50% of NPV = <b>Rs.104.96478 Lakh</b>
8	Compensatory afforestation and soil & moisture conservation cost.	Rs. 12987962.84 or <b>Rs.129.8 Lakh</b>

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

S.N.	Parameters	Remarks
1	Increase in productively attribute to the specific project	The proposed project for which diversion of forest land is sought is for widening of Existing road. The project road will improve accessibility to the region. This will help in both economic & social developments in the region. The project will enable smooth accessibility in the region by which people of the region will be directly benefited. This will accelerate industrialization/ commercialization in region and the same will directly generate maximum employment opportunities in these areas and boosting up the economy of the region and state. Again directly the project will have the potential for temporary employment generation for local people 250 for 2 years generating 182500 mandays during construction period. Due to up gradation of the existing highway, there will be overall development of the project area in terms of transportation of agriculture produces, easy access to education, health marked etc. As the project Road also connect Agra Rd., Kanpur Aligarh RD. It has connectivity with world famous Tourist place Agra Taj Mahal, Red fort Fatehpur Sikri etc.

	Benefits to economy due to the specific project.	Economic benefit in terms of increase in trade, saving in vehicular operation and maintenance cost, better connectivity, safer journey to commuter and saving of travel time. Improved road connectivity helps in better implementation and management of government schemes. It will provide fast and economical transport of goods. After completion, the local people and industries situated in the area will be greatly benefited. The widening of project road will provide safe, fast, economical and environment friendly transportation to the State which in term will accelerate the rate of growth in this area. "In addition to that there are several other benefits that may accrue due to saving in fuel, reduction in time to commute, vehicle maintenance, reduction in carbon emission etc. however they have not been quantified as it will be a function of various govt. policy variables." Exact quantification of the value is not possible as it is time and policy dependent.
3	No. of Population benefited due to specific project.	The population of 4355194 people from Districts Mainpuri & Firozabad will be benefited directly from the proposed development
4	Economic benefits due to of direct and indirect employment due to the project.	Direct employment to 250 for 2-year during construction period (accordingly 250- persons x 365 day x 2 years= 182500 Man days) people and substantial indirect employment as a result of development of infrastructure and will also provide direct benefit to small scale industrial units in the area.
5	Economic benefits due to compensatory a forestation.	In lieu of total trees to be removed from Proposed ROW in protected forest land along the project road, it is proposed to undertake at least twice of the affected trees as compensatory afforestation and as per Forest (Conservation) Act 1980). So, the net productivity will increase. Apart from compensatory plantation/road side plantation. The compensatory afforestation will be taken up in about 26.143158 hect x 2= 52.29 hect. of Degraded Forest land which is atleast two times of the area proposed to be diverted. The compensatory afforestation will be done in 52.29 hect. of degraded forest land, which is down the line would be having a density of minimum 0.7. The ecological value for a 50 years period for the density of 1.0 is INR 126.74 lacs per hectare (As per Forest Conservation Act 1980). By considering minimum 0.7 density the ecological gain for this project would be 126.74 lakh x .7 x 52.29 = <b>INR 4639.06 Lakh</b>

## Summary of Cost-Benefit Analysis for the Project.

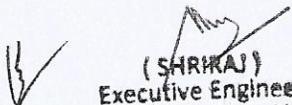
Sl. no	Loss (in Lakhs)	Benefit (in Lakhs)
1.	Ecosystem services losses Rs.209.92956 Lakh	Ecological gain from compensatory afforestation on 52.29 (at least) hectare of land would be <b>Rs. 4639.06 Lakh</b>
2.	Loss of animal husbandry productivity, including loss of fodder = Rs 20.99295 Lakh	182500 -man days will be generated for unskilled/semiskilled worker in terms of Salary and Wages @ Rs 500/day# (average) = Rs 500 x 182500= <b>912.5 lakhs</b> {# 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 – 250 Approx 50% labour assume to be local Per head cost of fuel –Rs.20/ per day for rest 125 labours Total cost= Rs 20x125 labours x 730 days= Rs 1825000/- or <b>Rs 18.25 lakhs</b>
3.	Loss of public facilities = Rs 252.56 Lakh	
4.	Possession Value of Forest land diverted = Rs. 62.978868 Lakh.	
5.	Habitat fragmentation cost = Rs. 104.96478 Lakh	
6.	Compensatory afforestation and soil & moisture conservation cost=Rs.129.8 Lakh	
7.	Total cost/Loss =781.21729 Lakh	<b>Total gain/ benefit from project =4639.06+912.5+18.25= 5569.81422 Lakh</b>

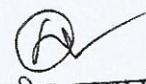
**COST BENEFIT RATIO:-** Total benefit / Total Loss=5569.81422/781.21729

=7.13 which is > 1, so project is found viable based on given/above described criteria.

Date :-

Place:- Firozabad

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