

Cost Benefit Analysis as Guidelines 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 upto 5 hectare in hills.	Not applicable	-
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 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 for Irrigation Project	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: Parameters for Evaluation of Loss of Forests:-

Sl. No.	Parameters	Description	Remaks
1-	Ecosystem services losses due to proposed forest diversion.	Area of total forest land to be diverted is 127.1637Ha. Net Present Value for forest density 0.8 and eco-class-III is Rs-887000.00/Ha. Therefore, Ecosystem service loss= $127.1637 \times 887000 = 112794202.00$	As per guide line of central goverment (MoEF & CC) Economic value of loss fo eco- system services due to diversion of forest shall be net present value (NPV) of forest land
2-	Loss of animal husbandry productivity, including loss of fodder.	NIL	No animal husbandry productivity loss due to this project.
3-	Cost of human resettlement	NIL	No human settlement affected due to this forest diversion.
4-	Loss of public facilities and administrative infrastructure (Roads, buildings, school, dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	NIL	No public facilities and administrative infrastructure losses due to this forest diversion.
5-	Possession value of forest land diverted.	NA	There is provision of Non-Forest land equivalent to forest land diverted for Compensatory Afforestation.
6-	Cost of Suffering to outees.	NIL	
7-	Habitat Fragmentation Cost	NIL	
8-	Compensatory Afforestation and soil & moisture conservation cost.	384.92lacs	1 year Advance soil work 1 year plantetion work. Maintenance work for 10 year.

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

Sl. No.	Parameters	Description
1-	Increase in productivity attributable to the specific project	Kanhar Irrigation project irrigated area 35467.00 Ha. in uttar Pradesh satate and 17000.00Ha. in Jharkhand state per year.
2-	Benefits to economy due to specific project	<p>District Sonebhadra is amongst the drought prone distrct of Uttar Pradesh.Kanhar Irrigation project shall provide assured irrigation in the proposed commond area which will optimize agricultural production and improve the socio-economic conditions of the inhabitants of the backword region of U.P</p> <p>Economic benefit due to the project will be:-</p> <ul style="list-style-type: none"> • Total economical benefit from Kanhar Irrigation project is Rs.37946.78Lac. • Total culturable commond area of Kanhar Project is 26075Ha. After completion of project annual irrigation will be 35467Ha. • Annual increase in food grain production of 2917119.00 quintal. • Benefits in fisheries sector. • Transport development through canal service road. • Benefit to trade in movement of perishable goods. • Saving in vehicle operating cost. • Increase in forest density due to compensatory afforestation.
3-	No. of Population benefited due to specific project	2.0lac
4-	Economic benefits due to of dircet and indrcet emplyoment due to the project.	About 20.0Lac man-days direct employment and 180.0Lac man-day indirect employment throught this project
5-	Economic benefits due to Compensatory afforestation.	No cost of Acquisition of facilities on non forest land is possible.

Cost benefit Analysis for diversion of forest land -


Total Saving of Project = 37946.78 Lacs

Total Project cost = (Cost of construction + Maintenance cost) + Possession value of forest land diverted + Compensatory Afforestation cost (as CAT plan) + NPV
= 26650.93 + 0.00 + 1021.79 + 1127.94
= 29093.96 Lacs

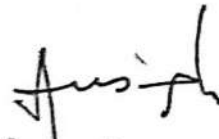
Benefit cost Ratio = Total benefit/Total cost
= 37946.78/29093.96
= 1.30

Note- There is provision of Non-forest land equivalent to forest land to be diverted for compensatory afforestation. Therefore the possession value is taken as zero. Only environmental cost is taken as cost component.

Hence Project is found viable.


प्रभागीय वनधिकारी
ओबरा वन प्रभाग
ओबरा सोनमद


Executive Engineer
Kanhra Construction Division-3
Pipri, Sonabhadra


प्रभागीय वनधिकारी
रतुवट वन प्रभाग
रतुवट, चतुसगढ़

Kanhar Irrigation Project Data
(sanctioned project by CWC, New delhi)

1	Total proposed saving	37946.78
A	COST	
1	Capital cost of project	223935.00
2	Cost of land development @ Rs. 2000/ha. For 26075 Ha.	5215.00
	TOTAL COST OF THE PROJECT	229150.00
B	ANNUAL COST	
1	Interest on capital @ 10% of capital cost	22915.00
2	Depreciation of the project @ 1% of the Capital cost (less cost of land development)	2239.35
3	Depreciation of the pumping system @ 8.33% of the estimated cost of the pumping system (Rs. 270.45 lac) Assuming life of the system 100 year.	22.39
4	Depreciation of the rising main @ 3.33% of estimated cost Rs 14.83 lacs assuming lift 30 year	0.49
5	Charge for power for lift irrigation @ Rs. 1900/Ha for 1100	5.50
6	Annual operation and maintenance charges @ Rs. 600/ha for 40161 ha. Area irrigated.	416.74
7	Maintenance of the head works @ 1% (less A ,B ,P Q, X, Y)	1051.46
8	EnvirnomentaI cost	0.00
9	NPV(for forest density 0.8 and zone-3)	0.00
	TOTAL ANNUAL COST	26650.93
	Benefit cost ratio-	1.42

Hence Benefit cost ratio is greater than one.