

Name of Project : Proposal for Div of 68.0884 Ha Protected Forest land for four laning of existing section of Dudhrej-Vana-Malvan Road on SH-19 in Surendranagar district. (43/00 Km to 77/00 Km)

Annexure-5

COST / BENEFIT ANALYSIS

Table : Estimation of cost of forest Diversion

S.No.	Parameters	Description
1	Loss of value of timber fuel wood and minor forest produce on an annual basis, including loss of man hours per annum of people who derived livelihood and wages from the harvest of these commodities.	The area is bears very poor tree growth and there is no felling of trees involved as well as no collection of Minor Forest produce in the area. Therefore, loss of value of timber and fuel wood per hectare negligible. Hence, question of harvesting of forest crop does not arise.
2	Loss of animal husbandry productivity, including loss of fodder.	The project is located in the drought prone area and soil is low fertile category. This condition offers great resistance to any natural vegetation including grass. Hence, the loss of animal husbandry productivity, including loss of fodder is very less almost negligible.
3	Cost of human resettlement	There is no requirement of any human resettlement as road side area of State Highway-19 declared as Protected Forest. So no need of any kind of human resettlement.
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc.) on forest land, or which would require forest land if these facilities were diverted due to the project.	The existing Public facilities and administrative infrastructure like roads, buildings, schools, dispensaries, electric lines, railways etc. are not going to be affected due to the project and therefore the loss on this account will be 'NIL'. On the contrary the road infrastructure will be substantially enriched due to this project.
5	Environmental losses: (soil erosion, effect on hydrological cycle, wildlife habitual, microclimate upsetting of ecological balance).	As a thumb rule the environmental value of one hectare of fully stocked forest (density 1.0) would be taken as Rs. 126 lacs to accrue over a period of 50 years. That means environmental value depends on the density of the forest and the area of the forest. The overall density of the proposed forest land under application is 1.0.


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S.No.	Parameters	Description
		<p>Hence the environmental loss for 68.0884 ha over a period of 50 years works out as under:</p> <p>Environmental Loss for 50 years: $126 \times 1.0 \times 68.0884 = 8580 \text{ Lacs.}$</p> <p>Environmental Loss for 1 year: $\frac{8580}{50} = 171.6 \text{ lacs}$</p> <p>Environmental Loss per year & per ha.: $\frac{171.6}{68.0884} = 2.52 \text{ lacs}$</p> <p>Therefore, environmental loss per year per hect. Will be Rs.2.52 lacs.</p> <p>And Environment Loss for 30 years will be Rs.2.52 x 30 years = 75.6 lacs. This is much less as compared to the benefits due to the project.</p>
6	Suffering to oustees	Since there are no oustees, because of the proposed project, the social cost of rehabilitation of oustees is NIL.

Therefore, the total loss of forest, as per the approved parameters, works out to as under:

Parameters No	Discription	Loss (in Lacs)
5	Environmental losses: (Soil erosion, effect on hydrological cycle, Wildlife habitat, microclimate upsetting of ecological balance	75.6

Evaluation of Benefit from Forests

S.No.	Parameters	Description
1	Increase in productivity attributable to the specific project.	Implementation of entire project will ensure fast and safe road traffic movement, reducing travel time to half by achieving speed of 100km/hour for motor vehicles. Project also aims at creation of commercial nodes for multiple development mainly in industrial, commercial, agricultural, tourism sectors resulting in to employment generation, capacity building as well as connectivity between industrial places like Surendranagar, Patdi, Zainabad and Dasada.
2	Benefits to economy	Due to the proposed project 40% travel time will be saved, Fuel and maintenance of vehicles will be reduced at about 35%. It will provide safe and faster transport link between Important cities like Ahmedabad. entire North Gujarat entry point, Malvan, Patdi, Dasada

S.No.	Parameters	Description																																																																														
		Serve better connectivity to Industrial growth center. Traffic and Tourism of area will be uplifted approximately 20%. The above benefit in term of rupees is about 600.00 lacs																																																																														
3	No. of population benefited	Entire population of the project corridor and proposed growth center area will be benefited due to construction of this expressway. The above benefit in term of rupees is about 600.00 lacs																																																																														
4	Employment potential	<p>More local people will be benefited during construction as well as operation of this expressway and construction of various 4 node along the corridor</p> <p>employment generations as under:</p> <table><tr><th colspan="2">Maintenance</th><th>During Construction</th><th>During Maintenance</th></tr><tr><td>i)</td><td>Skilled</td><td>1000</td><td>50</td></tr><tr><td>ii)</td><td>Semiskilled</td><td>1400</td><td>70</td></tr><tr><td>iii)</td><td>Unskilled</td><td>1800</td><td>100</td></tr><tr><td colspan="2">-----</td><td>-----</td><td></td></tr><tr><td colspan="2">Total</td><td>4200</td><td>220</td></tr><tr><td colspan="2">-----</td><td>-----</td><td></td></tr></table> <p>This further per hector per year out as under:</p> <p>a) During construction:</p> <table><tr><th>M.D.</th><th></th><th></th><th>Rate/d</th><th>Amount</th></tr><tr><td>i)</td><td>Skilled</td><td>1000</td><td>1000</td><td>10,00,000</td></tr><tr><td>ii)</td><td>Semiskilled</td><td>1400</td><td>600</td><td>8,40,000</td></tr><tr><td>iv)</td><td>Unskilled</td><td>1800</td><td>400</td><td>7,20,000</td></tr><tr><td colspan="2">Total</td><td>4200</td><td></td><td>25,60,000</td></tr></table> <p>b) During maintenance:</p> <table><tr><th>M.D.</th><th></th><th></th><th>Rate/d</th><th>Amount</th></tr><tr><td>i)</td><td>Skilled</td><td>50</td><td>1000</td><td>50,000</td></tr><tr><td>ii)</td><td>Semiskilled</td><td>70</td><td>600</td><td>42,000</td></tr><tr><td>iii)</td><td>Unskilled</td><td>100</td><td>400</td><td>40,000</td></tr><tr><td colspan="2">Total</td><td>220</td><td></td><td>1,32,000</td></tr></table> <p>Total cost of (a+b) works out to Rs. 26,92,000 per day. This cost works out per Year the cost 99 cr.</p>	Maintenance		During Construction	During Maintenance	i)	Skilled	1000	50	ii)	Semiskilled	1400	70	iii)	Unskilled	1800	100	-----		-----		Total		4200	220	-----		-----		M.D.			Rate/d	Amount	i)	Skilled	1000	1000	10,00,000	ii)	Semiskilled	1400	600	8,40,000	iv)	Unskilled	1800	400	7,20,000	Total		4200		25,60,000	M.D.			Rate/d	Amount	i)	Skilled	50	1000	50,000	ii)	Semiskilled	70	600	42,000	iii)	Unskilled	100	400	40,000	Total		220		1,32,000
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5	Cost of acquisition of facility on non-forest land wherever feasible	As against 78.1014 hector of forest land proposed to be diverted twice de-graded forest area is maintained and plantation maid by Forest Department by 10 years by the cost of user agency.																																																																														
6	Loss of	a) Loss of agriculture – NIL																																																																														

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	(a) agriculture and (b) Animal husbandry production due to diversion of forest land.	b) Loss of animal husbandry will be Nil.																				
7	Cost of rehabilitating The displaced persons as different from compensatory amounts given for displacement.	Since there is no displacement of persons due to the proposed Project, the cost of rehabilitation is NIL. Actually demanded area is road side area declared as protected forest on SH-19.																				
8	Cost of supply of free fuel- Wood to workers residing in or near forest area during the period of construction.	No workers will be allowed to live in Forest area and also use forest products for fuel and others																				
A	<div>Total benefits as per above parameters are</div> <table><thead><tr><th>Parameters</th><th>Amount (in lacs)</th></tr></thead><tbody><tr><td>No. s</td><td></td></tr><tr><td>2. Benefit to economy</td><td>600.00</td></tr><tr><td>3. Population benefit</td><td>100.00</td></tr><tr><td>4. Employment potential</td><td>9900</td></tr><tr><td>5. Cost of acquisition of facility on non-forest land wherever feasible</td><td>-</td></tr><tr><td>6. Loss of (a) agriculture and (b) animal husbandry production due to diversion of forest land.</td><td>-</td></tr><tr><td>7. Cost of supply of free fuel-wood to workers residing in or ear forest area during the period of construction.</td><td>-</td></tr><tr><td></td><td>-----</td></tr><tr><td></td><td>10600</td></tr></tbody></table>		Parameters	Amount (in lacs)	No. s		2. Benefit to economy	600.00	3. Population benefit	100.00	4. Employment potential	9900	5. Cost of acquisition of facility on non-forest land wherever feasible	-	6. Loss of (a) agriculture and (b) animal husbandry production due to diversion of forest land.	-	7. Cost of supply of free fuel-wood to workers residing in or ear forest area during the period of construction.	-		-----		10600
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Note: This is as per guidelines of Gol.

1.d Total Population Benefited

i) Employment Numbers during construction and Operation: (DIRECT BENEFITS):

Sl. No	Description	Construction	operation
1	Skilled	1000	50
2	Semiskilled	1400	70
3	Unskilled	1800	100
	Total	4200	220

1.e Employment Generation

Construction Stage:

Sl. No	Description	Numbers
1	Skilled	1000
2	Semiskilled	1400
3	Unskilled	1800
	Total	4200

Maintenance:

Sl. No	Description	Numbers
1	Skilled	50
2	Semiskilled	70
3	Unskilled	100
	Total	220

In addition to this huge number of travelers will be benefited by saving time and cost of travel. Besides, the valuable resource of fuel will be saved substantially.


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