

OFFICE OF THE PCCF (HOFF), RAJASTHAN, JAIPUR

F 14(Road)/2016/FCA/PCCF/ 3819

Date: 27.10.17

To

Additional Principle Chief Conservator of Forests
(Central), Government of India, MOEF & CC
Regional Office, Central Zone, Pancham Tal, Central Bhavan, Sector H
Aliganj, Lucknow

Sub :- **Diversion of 57.778 ha. of forest land in favour of Public Works
Department of Nagaur – Tarnau road section of SH – 19 from Km
1.0 to 39.688km in te state of rajasthan –reg. Online Proposal
No FP/RJ/Road/21182/2016**

Ref : - Your letter no 8B/Raj/06/19/2017/FC/507 Dated 13.10.2017

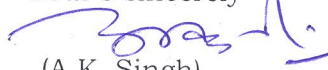
Dear Sir,

With reference to above mention subject compliance of your EDS dated 13.10.2017 is based on information provided by CCF/DCF/UA as follows.

S.N.	Observation raised by MOEF	Compliance by UA/DCF/CCF
1	The proposal was approved subject to condition that revised benefit cost analysis as per F.No./7-69/2011 FC (Pt) dated 1.8.2017 of MoEF & CC shall be submitted before issuance of approval in Principle	Revised benefit cost analysis as per F.No./7-69/2011 FC (Pt) dated 1.8.2017 of MoEF & CC uploaded at point no G of part I of online proposal. Hard copy is enclosed.

Enclosed: As above

Your's sincerely


(A.K. Singh)

APCCF Protection &
Nodal Officer FCA
Rajasthan, Jaipur


Tel: 0141-2713760 M - 9414045146

Date:

F 14()/2017/FCA/PCCF/

Copy forwarded for:

- 1- Secretary (Forest), Government of Rajasthan, Jaipur.
- 2- Chief Conservator of Forest, Ajmer.
- 3- Deputy Conservator of Forest, Nagaur.
- 4- Project Director –II PPP Division, PWD Jaipur.


APCCF Protection &
Nodal Officer FCA
Rajasthan, Jaipur

OFFICE OF PROJECT DIRECTOR II PPP , JAIPUR ,PWD RAJSTHAN

No.F./Nagaur-Tarnau/Forest/D- 48

Date:- 16/10/17

To,

The APCCF Protection &
Nodal Officer FCA
Rajasthan,Jaipur

Subject:- Submission of Cost Benefit Analysis Report as per MOEF &CC Guidelines August 2017 “
For the project “Diversion of 57.778 ha. of forest land in favour of Public Works Department
,Rajasthan of Nagaur- Tarnau road section of SH-19 from Km 0.00 to 39.688 in the state of
Rajasthan- reg. Online Proposal No. FP/RJ/Road/21182/2016

Ref:- Agenda No.21.2, Decision of REC on 12th October 2017

Dear Sir,

With reference to the above-mentioned subject and in compliance to the decision of REC Lucknow,
MOEF & CC dated 12.10.2017 , I as user agency hereby submit the Cost Benefit Analysis as per
new format dated 1.08.2017.

Encl: Cost Benefit Analysis Report

Regards

Sangeeta Sharma
(Sangeeta Sharma
PD II PPP Jaipur
PWD Rajasthan

Tel:- 0141-5110547
M 8696666778

Accepted
C2
12/10/17
(Khemraj Sharma)
VDC
to APCCF (F.CA)
Jus

COST BENEFIT ANALYSIS FOR DIVERSION OF PROTECTED (PF) FOREST LAND

Name of Project- "Development of Nagaur Tarnau Section of SH-19 From CH. 0.000 to 39.668 in the State of Rajasthan.."

Nature of Proposal: Diversion of 57.778 Ha. of protected forest land under FCA, 1980 for widening to Two lane with paved shoulder of existing road.

Total Length of Project road section- 39.668 km

Number of District through which project road traverse – 01 No i.e Nagaur

Total length of the project road along the Protected Forest/ Reserve Forest

(a) Under Notified Protected Forest on PWD Land (existing km 0/000 to Km 39/676, Design Km 0/000 to Km 39/668)= 39.668 km (Design Length)

Total Forest area proposed for diversion

(a) Under Notified Protected Forest on PWD Land Division Nagaur = 57.778 Hect.(PF)

Total Forest Land (Nagaur)= 57.778 hect.

Purpose: The Cost of Benefit Analysis is being undertaken as the required forest land is > 20 hectare for proposed Diversion of Forest land being affected due to widening (Two lane with paved Shoulder) of existing road for above said project.

Cost Benefit Analysis as per Guideline for Forest Land Diversion- 2017

Table -A: Cases Under Which a Cost- benefit analysis for forest diversion are required

SL	Nature of Proposal	Applicable / not applicable	Remarks
1	All categories of proposal involving forest land upto 20 hectares in plains and upto 5 hectare in hills	Not applicable	These proposals may be considered on a case to case basis and value judgement.
2	Proposal for defense installation purpose and oil prospecting (prospecting only)	Not applicable	In view of national priority accorded to these sectors, the proposals would be critically assessed to help

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Sangeeta Sharma
12.10.17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Sangeeta Sharma
12.10.17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

(Ved Prakash Gaur)
उप वन संरक्षक
नागौर

			ascertain that the utmost minimum forest land is diverted for non-forest use
3	Habitation, establishment of industrial units, tourist lodge complex and other building construction	Not applicable	These activities being detrimental to protection and conservation of proposals would be rarely entertained.
4	All other proposal involving forestland more than 20 hectare in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway line, location specific installations like micro-wave stations, auto repeater centres, TV towers etc.	<u>Applicable</u>	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.

Since the proposal is for diversion of forest land measuring more than 20 hectare in plane area for road project, cost benefit analysis report is applicable.

Table -B : Estimation of cost of forest diversion

SL	Parameters	Given Guideline	Evaluation
1	Ecosystem services losses due to proposed forest 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 Central Government (MoEF & CC). Note- In case of National Parks the NPV shall be ten .	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 Nagaur Rs 2,53,06,764 or 253.067 lakh for 57.778 hectare of Eco Vaule Class-IV open forest land.

Sangeeta Sharma
12/10/17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Sangeeta Sharma
12/10/2017
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

वेद प्रकाश गुर्जर
(वेद प्रकाश गुर्जर)
उप वन संरक्षक
नागौर

		<p>(10) times the normal NPV and in case Wildlife sanctuary the NPV shall be five (5) times the normal NPV or otherwise prescribed by the ministry or any other competent authority.</p> <p>Note-1: Net Present Value (NPV) of environment and ecosystem services loss;-</p> <p>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.</p>	
2	Loss of animal husbandry productivity, including loss of fodder.	To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum.	<p>Loss of animal husbandry due to proposed diversion is very moderate and calculated below;</p> <p>Gross loss @ 5 ton/Ha./ year. @ Rs. 100/- per tonne. Therefore, loss of fodder as estimated for about 57.778 hect. will be $57.778 \times 5 \times 100 = \text{Rs } 28889 \text{ /yr.}$ X 50 years = Rs.1444450/- or 14.45 lakh</p> <p>Further considering 10% of NPV will be</p>

Sangeeta
12/10/17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Sangeeta
12/10/2017
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Prakash
(वेद प्रकाश गुर्जर)
उप वन संरक्षक
नार्थ

			<p>= Rs 253.06764 lakh (NPV) x 0.1= 25.30 lakh</p> <p><u>So Considered amount (maximum one) is Rs 25.30 lakh.</u></p>																																								
3	Cost of human resettlement	To be quantified and expressed in monetary terms on actual terms as per approved R&R plan.	NIL human resettlement is required since no family residing in forest land .																																								
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railway, etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion	<p>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.</p> <p>The likely cost of these utility shifting is estimated Rs 96 lakhs.</p>																																								
5	Possession value of forest land diverted	<p>30% of environmental cost (NPV) due to loss of forest or circle rate of adjoining area in the district should be added as a cost component as possession value of forestland whichever is maximum.</p> <p>Note2:- Possession value of forest land diverted:- The forest land diverted for the project such as irrigation, hydropower, railways, roads, wind and transmission lines</p>	<p>Possession Value of forest land will be (considering 30% of NPV) = $0.3 \times 253.06764 = 75.9$ lakh</p> <p>Per hectare land rate along the highway in district Nagaur is as under:-</p> <table border="1"> <thead> <tr> <th>Village Name</th><th>Area in Ha</th><th>DLC Rate per Ha</th><th>Amount</th></tr> </thead> <tbody> <tr><td>Nagaur</td><td>0.975</td><td>1957335</td><td>1908402</td></tr> <tr><td>Chenar</td><td>3.645</td><td>1186240</td><td>4323845</td></tr> <tr><td>Fagli</td><td>4.155</td><td>657374</td><td>2731389</td></tr> <tr><td>Athiyasan</td><td>0.57</td><td>1186240</td><td>676157</td></tr> <tr><td>Basda</td><td>3.105</td><td>543693</td><td>1688167</td></tr> <tr><td>Innana</td><td>2.475</td><td>543693</td><td>1345640</td></tr> <tr><td>Ashpura</td><td>3.015</td><td>543693</td><td>1639234</td></tr> <tr><td>Gagwana</td><td>6.285</td><td>128509</td><td>807679</td></tr> <tr><td>Roll</td><td>9.75</td><td>511586</td><td>4987964</td></tr> </tbody> </table>	Village Name	Area in Ha	DLC Rate per Ha	Amount	Nagaur	0.975	1957335	1908402	Chenar	3.645	1186240	4323845	Fagli	4.155	657374	2731389	Athiyasan	0.57	1186240	676157	Basda	3.105	543693	1688167	Innana	2.475	543693	1345640	Ashpura	3.015	543693	1639234	Gagwana	6.285	128509	807679	Roll	9.75	511586	4987964
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Sangeeta
12/10/17
(Sangeeta Sharma)
 Project Director - II
 PPP Division, P.W.D., Jaipur

Sangeeta
12/10/2017
(Sangeeta Sharma)
 Project Director - II
 PPP Division, P.W.D., Jaipur

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(वेद प्रकाश गुर्जर)
(वेद प्रकाश गुर्जर)
 उप वन संरक्षक
 नागौर

		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 cost due to loss of forests.	<table border="1"> <tr><td>Bugrda</td><td>1.065</td><td>511586</td><td>544839</td></tr> <tr><td>Tangla</td><td>1.725</td><td>511586</td><td>882486</td></tr> <tr><td>Runiya</td><td>5.115</td><td>244682</td><td>1251548</td></tr> <tr><td>Fardod</td><td>10.02</td><td>785884</td><td>7874558</td></tr> <tr><td>Tarnau</td><td>5.878</td><td>341044</td><td>2004657</td></tr> <tr><td>Total</td><td>57.778</td><td></td><td>32666565</td></tr> </table> <p>So Possession value of forest land (as per circle rate) = Rs.32666565 , Say 326.67 lakh</p> <p><u>So Considered amount (maximum one) is Rs 326.67 lakh.</u></p>	Bugrda	1.065	511586	544839	Tangla	1.725	511586	882486	Runiya	5.115	244682	1251548	Fardod	10.02	785884	7874558	Tarnau	5.878	341044	2004657	Total	57.778		32666565
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6	Cost of suffering to oustees	The social cost of rehabilitation of oustees (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R plan) be worked out as 1.5 times of what oustees should have earned in two years had he not been shifted.	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.																								
8	Habitat fragmentation Cost	While the relationship between fragmentation and forest goods and services is complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50 % of NPV applicable as a thumb rule.	Habitat fragmentation cost is 50% of NPV that is Rs 253.06 lakh x 0.5= 126.5 lakh																								
9	Compensatory afforestation and soil & moisture conservation cost	The actual cost of compensatory afforestation and soil & moisture conservation and its	As per DFO office , Nagaur CA cost estimated Rs 14964000 for 57.778 hect. forest land to be diverted.																								

Sangeeta
12/10/17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Sangeeta
12/10/2017
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Ved Prakash Gaur
(वेद प्रकाश गुर्जर)
उप वन संरक्षक
नागौर

		maintenance in future at present discounted value.	So total CA cost for 57.778 hect. Forest land to be diverted is Rs 14964000 Rs 149.64 lakh
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Table – C- Existing guideline for estimating benefit of forest diversion in CBA

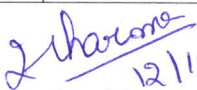
SL	Parameter	Given Guideline	Evaluation
1	Increase in productively attribute to the specific project	To be quantified & expressed in monetary terms avoiding double counting	<p>The proposed project for which diversion of forest land is sought is for widening of Existing road. The project road will improve accessibility to the region. This will help in both economic & social development in the region.</p> <p>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.</p> <p>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.</p> <p>As the project road also connect Jaipur, Bikaner, Jodhpur & Sikar, it has coneectivity with world famous Makrana Marble Mines on commercial aspects.</p>
2	Benefits to	The incremental	Economic benefit in terms of increase in trade,

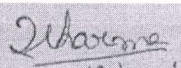
Sangeeta
12/10/17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur


Sangeeta
12/10/2017
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Prakash
(वेद प्रकाश गुर्जर)
उप वन संरक्षक
नागौर

	economy due to specific project	economic benefit in monetary terms due to the activities attributed to the specific project	<p>saving in vehicular operation and maintenance cost, better connectivity, safer journey to commuter and saving of travel time.</p> <p>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.</p> <p>"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."</p> <p>Exact quantification of the value is not possible as it is time and policy dependent.</p>
3	No of population benefited due to specific project	As per Detailed project report	<p>The proposed road section which is part of SH-19, traverses through Nagaur District which further connect Jodhpur, Sikar, Bikaner & Jaipur.</p> <p>The population of these districts are; Jodhpur – 36,87,165, Sikar- 26,77,333, Bikaner – 23,63,937 and Jaipur – 66,26,178 total 132,54,613 persons which are directly benefited in addition to lakhs of neighbour district commuters as well as long distance travellers and freight.</p>
4	Economic benefits due to of direct and indirect employment due to the project.	As per detailed project report.	<p>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</p>


 12/10/17
 (Sangeeta Sharma)
 Project Director - II
 PPP Division, P.W.D., Jaipur


 12/10/2017
 (Sangeeta Sharma)
 Project Director - II
 PPP Division, P.W.D., Jaipur

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 (वेद प्रकाश गुर्जर)
 उप वन संरक्षक
 नागौर

			provide direct benefit to small scale industrial units in the area.
5	Economic benefit due to Compensatory afforestation	Benefit from such compensatory forestation accruing over next 50 years monetised and discounted to the present value should be included as benefits of Compensatory afforestation. *for benefit of CA the guideline of the Ministry for NPV estimation may be consulted.	<p>In lieu of total trees to be removed from Proposed PRow 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.</p> <p>Apart from compensatory plantation/road side plantation. The compensatory afforestation will be taken up in about 57.778 hect x 2= 115.6 hect. of Degraded Forest land which is atleast two times of the area proposed to be diverted.</p> <p>The compensatory afforestation will be done in 115.6 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 115.6 = INR 10255.8 lakh.</p>

Summary of Cost-Benefit Analysis for the Project.

Sl. No	Loss (in Lakhs)	Benefit (in Lakhs)
1	Ecosystem services losses Rs 253.06 lakhs	Ecological gain from compensatory afforestation on 115.6 (atleast) hectare of land would be Rs = 10255.8 lakh
2	Loss of animal husbandry productivity, including loss of fodder= Rs 25.30 lakh	182500 -man days will be generated for unskilled/semi-skilled worker in terms of Salary and Wages @ Rs 500/day# (average) = Rs 500 x 182500= 912.5 lakhs {# considering actual practical wages including lodging the average

Sangeeta Sharma
12/10/17
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

Sangeeta Sharma
12/10/2017
(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

(वेद प्रकाश गुर्जर)
उप वन संरक्षक
नागौर

Sl. No	Loss (in Lakhs)	Benefit (in Lakhs)
		<p>cost per day for semiskilled / labourer is approx. Rs 500 per day.}</p> <p>Basic living amenities including alternative fuel (LPG, Solar Cooker etc) will be supplied to labours/workers.</p> <p>Construction period- 2 years</p> <p>Number of labours at peak time – 250</p> <p>Approx 50% labour assume to be local</p> <p>Per head cost of fuel –Rs.20/ per day for rest 125 labours</p> <p>Total cost= Rs 20x125 labours x 730 days= Rs 1825000/- or Rs 18.25 lakhs</p>
3	Loss of public facilities = 96.00 lakh	
4	Possession Value of Forest land diverted= 326.67 lakh	
5	Habitat fragmentation cost = 126.50 lakh	
6	Compensatory afforestation and soil & moisture conservation cost= 149.64 lakh	
	<p>Total cost/Loss = 253.06 lakhs + Rs 25.30 lakh + 96.00 lakh + 326.67 lakh + 126.5 lakh + 149.64 lakh</p> <p>= 977.20 lakh</p>	<p>Total gain/ benefit from project= Rs 10255.8 lakh + Rs 912.5 lakhs + Rs 18.25 lakhs</p> <p>= 11186.6 lakh</p>

Cost Benefit Ratio = Total Benefit/ Total Loss = 11186.6 : 977.20 = 11.4 which is > 1, so project is found viable based on given/above described criteria.

Date

12.10.17

(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

PWD Rajasthan, Jaipur

Place

(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

(Sangeeta Sharma)
Project Director - II
PPP Division, P.W.D., Jaipur

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(वेद प्रकाश गुजर)
उप वन संरक्षक
नागौर