# North Karanpura Transco Limited

**(Program Under Government of India)**
Sunita Sadan, 1st Floor, Ashram Marg Bariatu, Near Military Firing Range,
Dist –Ranchi, Pin 834009 Jharkhand, Fax: 91-(79)-2555 7177
Email id: northkaranpuratransco@gmail.com

**Full Title of the Project** : Construction 400 kV D/C North Karanpura to Chandwa transmission line

**File No.** : FP/JH/TRANS/40694/2019

**Date of Proposal** : 15/06/2019

## COST BENEFIT ANALYSIS

Cost Benefit analysis for 400 KV D/C North Karanpur to Chandwa Transmission Line of North Karanpur Transco Limited in Jharkhand State is estimated as per the Guidelines of Govt. of India, issues with letter no. 7-69/2011-FC(Pt.) dated 1st August, 2017, and given below:

**Table-A: Estimation of cost of forest diversion:**

| Sl. | Parameters | Cost (Rs. Lakhs) |
|---|---|---|
| 1. | Ecosystem services losses due to proposed forest diversion (Economic value of loss of eco-system services due to proposed forest diversion has been taken as the "net present value (NPV)" of the forest land being diverted as prescribed by the Central Government (MoEF&CC)<br>NPV rates taken as Rs. 9.39 Lacs per Ha under Class II of<br>Medium Density Forest born by the Project, works out to be Rs. 522.31 Lakhs for 56.3254 Ha Forest Land | 528.90 |
| 2. | Loss of animal husbandry productivity<br>(Taken at 10% of NPV) | 52.89 |
| 3. | Cost of human resettlement<br>(There is no human resettlement due to proposed forest diversion) | Nil |
| 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 the project<br>(No public facilities and administrative infrastructure are involved) | Nil |
| 5. | Possession value of forest land diverted<br>(Taken at 30% ofNPV) | 158.67 |
| 6. | Cost of suffering tooustees<br>(There are no oustees due to proposed forest diversion) | Nil |
| 7. | Habitat Fragmentation Cost<br>(Taken at 50% ofNPV) | 264.45 |
| 8. | Compensatory afforestation and soil & moisture conservation cost<br>(CA arrived at Rs. 2,50,000/- per Ha for 56.3254 Ha) .(Cost for double the area is Rs. 278.12 lakhs) | 281.63 |

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| Sl. | Parameters | Cost (Rs. Lakhs) |
|---|---|---|
| 9. | Project Cost:<br>Fixed assets, inclusive of investments, Current assets, Loans & Advances: Rs. 10400Lakhs<br>Other Expenditures like preoperative expenses, interests during construction, etc. Rs. 1,000 Lakhs | 11400 |
| | **TOTAL** | **12686.53** |

**Table-B: Estimation of benefits of forest diversion:**

| Sl. | Parameters | Benefits (Rs. Lakhs) |
|---|---|---|
| 1. | Increase in productively attributed to the project<br>(The project is part of Immediate Evacuation for North Karanpura (3X660MW) generation project of NTPC. Hence productively attributed cannot be quantified) | NA |
| 2. | Benefits to the economy to the specific project<br>(The project is part of Immediate Evacuation from North Karanpura generation project of NTPC to the load centre. There will be benefits to the economy in terms of developing robust grid infrastructure and associated economic benefits,<br>which will be qualitative in nature) | NA |
| 3. | No. of population benefitted due to specific project<br>(The evacuation of power will help the power generation and<br>distribution companies and which in turn will benefit large population, which again is in qualitative in nature) | NA |
| 4. | Economic benefits due to of direct and indirect employment due to the project<br>During Project Stage, the project will provide employment to 42 Permanent and 1100 Temporary Employment for a period of 14 months. The Economic Benefit is estimated at Rs. 5355 Lakhs (For Permanent Employment, Average Benefit of Rs. 15 Lakhs/Year per person and for Temporary Employment, Rs. 3.6 Lakhs /year perperson)<br>During Operation Stage (calculated for 35 Years), the project will provide employment to 26 Direct and 50 Indirect Employment for a period of 35 Years. The Economic Benefit is estimated at Rs. 19950 Lakhs (For Direct Employment, Average Benefit of Rs. 15 Lakhs/Year per person and for Indirect Employment, 3.6 Lakhs /year perperson) | 25305 |

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| Sl. | Parameters | Benefits (Rs. Lakhs) |
|---|---|---|
| 5. | Economic benefits due to Compensatory afforestation (The NPV of the CA Land considered as prescribed by the Guidelines, 7-69/2011-FC(Pt.) dated 01.08.2017) NPV rates taken as Class III Medium Density Forest Rs. 8.03Lakhs/Ha for 56.3254 Ha. | 452.29 |
| 6. | Revenue from the Project (Revenue from Transmission Line for 35 Years) | 123535.52 |
| | **TOTAL** | **149292.81** |

**Benefit and Cost Ratio (BC Ratio)**

I Cost of Project (including loss of Forest) = Rs. 12670.51Lakhs
II Financial Benefits of the Project: Rs. 149287.18Lakhs

Benefit and Cost Ratio = Rs. 149292.81 Lakhs / Rs. 12686.53Lakhs = 11.77 : 1

**The Benefit and Cost Ratio (BC Ratio) of the Project is estimated at 11.77 : 1.**

Place: Ranchi
Date : 24.11.2019

Name: Chandra Shekhar Singh


Office Seal & Signature:
Designation: Assistant Manager
Mob. No.: +91-7808958161

No. 7-69/2011-FC(Pt.)
Government of India
Ministry of Environment, Forest & Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi-110003.
Dated: 01st August, 2017.

To

The Principal Secretary (Forests)
All States / Union Territories Governments.

Sub: **Guidelines for conducting Cost Benefit Analysis for projects involving diversion of forest land under the provisions of the Forest (Conservation) Act, 1980.**

Sir,

I am directed to inform that in supersession of all earlier orders / guidelines including that referred to at 2.6 of the Handbook of Forest (Conservation) Act, 1980 for conducting Cost Benefit Analysis of projects involving forest diversion, a revised set of guidelines has been prepared by the Ministry and shall be applicable for all projects involving diversion of forest land under the provisions of the Forest (Conservation) Act, 1980, which are required to be undertaken as per Table A of the new guidelines, from the date of issue of this letter. These guidelines will be applicable for all such projects which are yet to be recommended by the State Government on the date of issue of this guideline.

The guidelines for conducting Cost Benefit Analysis for projects involving forest diversion areas is enclosed herewith for further action.

This issues with the approval of competent authority.

Yours faithfully,

Encl: As above.

(Nisheeth Saxena)
Sr. Assistant Inspector General of Forests

Copy to:-
1. Prime Minister's Office (PMO)
2. Secretary, Ministry of Mines, Government of India
3. Secretary, Ministry of Coal, Government of India.
4. Secretary, Ministry of Steel, Government of India
5. Principal Chief Conservator of Forests, all States/UTs.

6. Nodal Officer, the Forest (Conservation) Act, 1980, all States/UTs.
7. All Regional Offices, Ministry of Environment, Forest and Climate Change (MoEF&/C)
8. Joint Secretary, In-charge, Impact Assessment Division, MoEF&CC.
9. PS to the Hon'ble Minister of State (Independent Charge) for Environment, Forest and Climate Change.
10. Chairman, State Environment Impact Assessment Authority, all States/UTs.
11. Member-Secretary, State Environment Impact Assessment Authority, all States/UTs.
12. All Directors/Assistant Inspector General of Forests in Forest Conservation Division, MoEF&CC.
13. All Advisors/Directors/Dy. Directors in the Impact Assessment Division, MoEF&CC.
14. Director, Regional Office (Headquarters), MoEF&CC.
15. Sr. Director (Technical), NIC, MoEF&CC with a request to place a copy of this letter on website of this Ministry.
16. Sr. PPS to the Secretary, Ministry of Environment, Forest and Climate Change.
17. Sr. PPS to Director General of Forests and Special Secretary, Ministry of Environment, Forest and Climate Change.
18. Sr. PPS to Addl. Director General of Forests (Forest Conservation), Ministry of Environment, Forest and Climate Change.
19. PPS to IGF(FC), MoEF&CC.
20. Guard File.

(Nisheeth Saxena)
Sr. Assistant Inspector General of Forests

**Guidelines for conducting 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 monetised 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.

**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 | 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 forest, as a matter of policy, such proposals would be rarely entertained. |
| 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 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**

| SN | Parameters | Remarks |
|---|---|---|
| 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 the Central Government (MoEF& CC).<br>***Note:*** *In case of National Parks the NPV shall be ten (10) times the normal NPV and in case of Wildlife Sanctuary the NPV shall be five (5) times the normal NPV or otherwise prescribed by the ministry or any other competent authority* |
| 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 |
| 3 | Cost of human resettlement | To be quantified and expressed in monetary terms as per approved R&R plan |
| 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 the project | To be quantified and expressed in monetary terms on actual cost basis at the time of diversion |

| | | |
|---|---|---|
| 5 | possession value of forest land diverted | 30% of environmental costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component as possession value of forestland whichever is maximum |
| 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. |
| 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 bas been pegged at 50% of NPV applicable as a thumb rule. |
| | Compensatory afforestation and soil & moisture conservation cost | The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value |

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

| Sr. No. | Parameters | Remarks |
|---|---|---|
| 1 | Increase in productively attribute to the specific project | To be quantified & expressed in monetary terms avoiding double counting |
| 2 | Benefits to economy due to the specific project | The incremental economic benefit in monetary terms due to the activities attributed to the specific project |
| 3 | No. of population benefited due to specific project | As per the Detailed project report |
| 4 | Economic benefits due to of direct and indirect employment due to the project | As per the Detailed project report. |
| 5 | Economic benefits due to Compensatory afforestation | Benefits 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 benefits of CA the guideline of the Ministry for NPV estimation may be consulted. |

**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.