COST BENEFIT ANALYSIS

Project: Diversion of 02.825 Ha. Of forest land for construction of Talcher-Sambalpur railway line doubling project in Athmallik Forest Division by East Coast Railway.

Table B- Estimation of cost of forest diversion (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Ecosystem Services losses due to proposed forest diversion. NPV of the forest land being diverted i.e Revenue Forest 2.825 ha x Rs.7.30lac= Rs. 20.623lac	**Rs.20.623 lac**
2	Loss of animal husbandry productivity including loss of fodder.	10% of NPV Applicable i.e **Rs.2.062 lac**
3	Cost of human resettlement.	No R & R is involved .
4	Loss of public facilities & administration infra-structure(roads, building, school, dispensary, electric lines, railways etc.) on forest land .	Not applicable, Since these facilities are not available inside the forest area for proposed diversion.
5	Possession value of forest land diverted.	30% of Environmental Costs (NPV) i.e **Rs.6.187 lac**
6	Cost of suffering of oustees	Not applicable since there will be no displacement of peoples.
7	Habitat Fragmentation Cost	50% of NPV Applicable as thumb rule i.e **Rs.10.312 lac**
8	Compensatory Afforestation and Soil & Moisture Conservation Cost	**Rs. 94.112 lac**
Total Loss (Against the proposed forest land diversion)		**Rs.133.296 lac**

Divisional Forest Officer
Athmallik Division

Table C- Estimation of Benefit of Forest Diversion in Cost Benefit Analysis (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Increase in Productivity attribute to the specific project	**Rs3911.04 Lac.** (Rs. 32119.0 lac For 23.20ha x 2.825 ha)
2	Benefit to economy due to the specific project	Rs.3911.04 lac
3	No of population benefited due to specific project	5.0 lac/23/20x2.825=60884
4.	Economic benefit due to direct and indirect employment due to the project	Socio economic condition of the persons to be employed will be increased.
5.	Economic benefits due to Compensatory Afforestation	Rs.6.26 lac x 2.825 ha (as per Guideline issued by MoEF vide letter No.F.No.5-3/2007_FC Dt.05.02.2009) = **Rs.17.685 lac**
	T o t a l	**Rs.3928.73 lac**

Dy. Chief Engineer/Con
East Coast Railway, Angul

Divisional Forest Officer
Athmallik Division

COST BENEFIT RATIO OF THE PROJECT=:

Benefit ... ... Rs.3928.73 lac

Loss ... ... Rs.133.296 lac

Ratio ... ... 1 : 30

Divisional Forest Officer
Athmallik Division

Annexure – III

COST BENEFIT ANALYSIS

Project: Diversion of 1.093 Ha. Of forest land for construction of Talcher-Sambalpur railway line doubling project in Angul forest division by East Coast Railway.

Dy. Chief Engineer/Con.
East Coast Railway, Angul

Table B- Estimation of cost of forest diversion (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Ecosystem Services losses due to proposed forest diversion. NPV of the forest land being diverted i.e Revenue Forest 1.093ha x Rs.6.26 lac= Rs. 6.842 lac	**Rs.6.842 lac**
2	Loss of animal husbandry productivity including loss of fodder.	10% of NPV Applicable i.e. **Rs.0.684 lac**
3	Cost of human resettlement.	No R & R is involved .
4	Loss of public facilities & administration infra-structure(roads,building, school, dispensary, electric lines, railways etc.) on forest land .	Not applicable, Since these facilities are not available inside the forest area for proposed diversion.
5	Possession value of forest land diverted.	30% of Environmental Costs (NPV) i.e **Rs.2.053 lac**
6	Cost of suffering of oustees	Not applicable since there will be no displacement of peoples.
7	Habitat Fragmentation Cost	50% of NPV Applicable as thumb rule i.e **Rs. 3.421 lac**
8	Compensatory Afforestation and Soil & Moisture Conservation Cost	**(to be finalized by DFO , Athamallik.)**
Total Loss (Against the proposed forest land diversion)		**Rs.13.0 + C A Cost**

Divisional Forest Officer
Angul Division

Dy. Chief Engineer/Con
East Coast Railway, Angul

Table C- Estimation of Benefit of Forest Diversion in Cost Benefit Analysis (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Increase in Productivity attribute to the specific project	**Rs.1513.20 Lac.** (Rs. 32119.0 lac For 23.20ha x 1.093 ha)
2	Benefit to economy due to the specific project	Rs.1513.20 lac
3	No of population benefited due to specific project	5.0 lac/ 23.20 ha x 1.093 ha = **23556**
4.	Economic benefit due to direct and indirect employment due to the project	Socio economic condition of the persons to be employed will be increased.
5.	Economic benefits due to Compensatory Afforestation	Rs.6.26 lac x 1.093 ha (as per Guideline issued by MoEF vide letter No.F.No.5-3/2007_FC Dt.05.02.2009) = **Rs.6.842 lac**
	T o t a l	**Rs.1520.04 lac**

Divisional Forest Officer
Angul Division

COST BENEFIT RATIO OF THE PROJECT=:

Benefit ... ... Rs.1520.04 lac

Loss ... ... Rs. 13.0 lac + C A Cost

Ratio ... ... 1 :

Divisional Forest Officer
Angul Division

Dy. Chief Engineer/Con
East Coast Railway, Angul

ANNEXURE - III

COST BENEFIT ANALYSIS

Project: Diversion of 02.767 Ha. Of forest land for construction of Talcher-Sambalpur railway line doubling project in Sambalpur forest division by East Coast Railway.

ANNEXURE - III

Table B- Estimation of cost of forest diversion (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks (For Transmission Line)
1	Ecosystem Services losses due to proposed forest diversion. NPV of the forest land being diverted i.e Revenue Forest 1.906 ha x Rs.6.26lac= Rs. 11.93lac Reserve Forest 0.862 ha x 8.03lac=Rs . 6.93 Lac **Rs.18.86 lac**	**Rs.18.86 lac**
2	Loss of animal husbandry productivity including loss of fodder.	10% of NPV Applicable i.e**Rs1.89 lac**
3	Cost of human resettlement.	No R & R is involved .
4	Loss of public facilities & administration infra-structure(roads,building, school, dispensary, electric lines, railways etc.) on forest land .	Not applicable, Since these facilities are not available inside the forest area for proposed diversion.
5	Possession value of forest land diverted.	30% of Environmental Costs (NPV) i.e **Rs.5.66 lac**
6	Cost of suffering of oustees	Not applicable since there will be no displacement of peoples.
7	Habitat Fragmentation Cost	50% of NPV Applicable as thumb rule i.e **Rs. 9.43 lac**
8	Compensatory Afforestation and Soil & Moisture Conservation Cost	**(to be finalized by DFO , Athamallik.)**
Total Loss (Against the proposed forest land diversion)		**Rs.35.84 + C A Cost**

DFO, Sambalpur Division

Table C- Estimation of Benefit of Forest Diversion in Cost Benefit Analysis (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks (For Transmission Line)
1	Increase in Productivity attribute to the specific project	Rs3830.75 Lac. (Rs. 32119.0 lac For 23.20ha x 2.767 ha)
2	Benefit to economy due to the specific project	Rs.3830.75 lac
3	No of population benefited due to specific project	5.0 lac
4.	Economic benefit due to direct and indirect employment due to the project	Socio economic condition of the persons to be employed will be increased.
5.	Economic benefits due to Compensatory Afforestation	Rs.6.26 lac x 2.767 ha (as per Guideline issued by MoEF vide letter No.F.No.5-3/2007_FC Dt.05.02.2009) = Rs.17.32 lac
	T o t a l	**Rs.3848.07 lac**

19.8.17

Dy. Chief Engineer/Con
East Coast Railway, Ang

DFO, Sambalpur Division

COST BENEFIT RATIO OF THE PROJECT=:

Benefit ... ... Rs.3848.07 lac

Loss ... ... Rs. 35.84 lac + C A Cost

Ratio ... ... 1 :

DFO, Sambalpur Division

ANNEXURE- 13

COST BENEFIT ANALYSIS

Project: Diversion of 16.515 Ha. Of forest land for construction of Talcher-Sambalpur Railway line doubling project in Rairakhol Forest Division by East Coast Railway.

Table B- Estimation of cost of forest diversion (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Ecosystem Services losses due to proposed forest diversion. NPV of the forest land being diverted i.e Reserve Forest 0.0375 ha x Rs.8.03 lac = Rs.0.301 lac Revenue Forest 16.478 ha x Rs.6.26lac= Rs.103.150 lac Rs.103.451 lac	**Rs.103.451 lac**
2	Loss of animal husbandry productivity including loss of fodder.	10% of NPV Applicable i.e**Rs10.345 lac**
3	Cost of human resettlement.	No R & R is involved .
4	Loss of public facilities & administration infra-structure(roads,building, school, dispensary, electric lines, railways etc.) on forest land .	Not applicable, Since these facilities are not available inside the forest area for proposed diversion.
5	Possession value of forest land diverted.	30% of Environmental Costs (NPV) i.e **Rs.31.036 lac**
6	Cost of suffering of oustees	Not applicable since there will be no displacement of peoples.
7	Habitat Fragmentation Cost	50% of NPV Applicable as thumb rule i.e **Rs.51.726 lac**
8	Compensatory Afforestation and Soil & Moisture Conservation Cost	**(to be finalized by DFO , Athamallik.)**
Total Loss (Against the proposed forest land diversion)		**Rs.196.558 + C A Cost**

Divisional Forest Officer
Rairakhol Division

Table C- Estimation of Benefit of Forest Diversion in Cost Benefit Analysis (as per MoEF&CC Guideline dated 1st Aug 2017 related to cost benefit analysis)

SN	Parameters	Remarks
1	Increase in Productivity attribute to the specific project	**Rs.22864.020 Lac.** (Rs. 32119.0 lac For 23.20ha x 16.515 ha)
2	Benefit to economy due to the specific project	Rs.22864.020 lac
3	No of population benefited due to specific project	5.0 lac/23.20x16.515=355927
4.	Economic benefit due to direct and indirect employment due to the project	Socio economic condition of the persons to be employed will be increased.
5.	Economic benefits due to Compensatory Afforestation	Rs.6.26 lac x 16.515 ha (as per Guideline issued by MoEF vide letter No.F.No.5-3/2007_FC Dt.05.02.2009) = **Rs.103.383 lac**
	T o t a l	**Rs.22967.40 lac**

Divisional Forest Officer
Rairakhol Division

Dy. Chief Engineer/Con
East Coast Railway, Angul

COST BENEFIT RATIO OF THE PROJECT=:

Benefit ... ... **Rs.22967.40 lac**

Loss ... ... **Rs.196.558 + C A Cost**

Ratio ... ... **1 :**

Divisional Forest Officer
Rairakhol Division