

COST BENEFIT ANALYSIS FOR FOREST DIVERSION PROPOSAL OVER AN AREA OF 303.066 Ha. (INCLUDING NON-FOREST LAND RECORDED AS FOREST AS ON 25.10.1980 OVER AN AREA OF 66.126 Ha) WITHIN BAMEBARI IRON & MANGANESE MINES OF M/S TATA STEEL LTD UNDER THE JURISDICTION OF KEONJHAR FOREST DIVISION.

Table-A: Cases under which a cost-benefit analysis for forest diversion are required

Sl. 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	This is applicable for diversion proposal of balance forest land of 303.066 ha i.e. Forest land over an area of 236.940 and Non-forest Land recorded as Forest in Government Records as on 25.10.1980 (Sabik Forest) over an area of 66.126 ha within Bamebari Iron & Manganese Mines of Tata Steel ltd.

Table-B: Estimation of cost of forest diversion

Sl. No.	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion	NPV paid @ Rs. 7,30,000/-per hectare X 303.066 ha. = Rs. 22,12,38,180.00
2	Loss of animal husbandry productivity, including loss of fodder	Rs. 2,21,23,818.00 (10% of NPV Value)
3	Cost of human resettlement	Not Applicable, since no human resettlement has been done in the said project.
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	No infrastructure involved within the applied diversion area.
5	Possession value of forest land diverted	Rs. 6,63,71,454.00 (30% of NPV Value)
6	Cost of suffering to oustees	Not Applicable
7	Habitat Fragmentation Cost	Rs. 11,06,19,090.00 (50% of NPV Value)
8	Compensatory afforestation and soil & moisture conservation cost	Rs. (As per Compensatory Afforestation Scheme)

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

Sl. No.	Parameters	Remarks
1	Increase in productivity attribute to the specific project	<p>a) Rs. 14,656.06 per Tonne X 83200.00 = Rs. 121,94,29,120.00 (Benefit to the economy due to the production of 83,200 MT Manganese Ore of marketable grade ore attributable from this project)</p> <p>b) Rs. 5900.00 per Tonne X 10,000 MT = Rs. 5,90,08,000.00 (Benefit to the economy due to the production 10,000 Tonnes of Iron Ore attributable from this project)</p>
2	Benefits to economy due to the specific project	<p>a) Rs. 14,656.06 per Tonne X 83200.00 = Rs. 121,94,29,120.00 (Benefit to the economy due to the production of 83,200 MT Manganese Ore of marketable grade ore attributable from this project)</p> <p>b) Rs. 5900.00 per Tonne X 10,000 MT = Rs. 5,90,08,000.00 (Benefit to the economy due to the production 10,000 Tonnes of Iron Ore attributable from this project)</p>
3	No. of population benefited due to specific project	Direct-2031 Indirect-1318

4	Economic benefits due to direct and indirect employment due to the project	Rs. 99,07,38,000.00
5	Economic benefits due to Compensatory afforestation	<p>To be calculated by DFO, Keonjhar as in the remarks column it is mentioned that Benefits from such compensatory afforestation accruing over next 50 years mentioned and discounted to the present value should be included as benefits of compensatory afforestation.</p> <p>*For benefits of CA the guideline of the Ministry for NPV estimation may be counted.</p>

FOR TATA STEEL LTD.
By their Constituted Attorney

Sabyasachi Mishra
(SABYASACHI MISHRA)

Head Mine Planning
TATA STEEL LTD.

Extract from Monthly Statistics of Mineral Production May 2021 issue.**6 (a). State wise Average Sale Price of minerals by Grades**

[see rules under MCDR, 2017 / Mineral (Auction) Rules, 2015 /

Minerals(Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016]

Month : May 2021

State / Mineral / Grades	Unit	ASP (₹)	State / Mineral / Grades	Unit	ASP (₹)
62% to below 65% Fe		5287	Maharashtra		
65% Fe and above		6372	Bauxite	t	
Manganese Ore	t		Non-Metallurgical		
Below 25% Mn		1740	Cement		442
25% to below 35% Mn		8592	Iron Ore (lumps)	t	
35% to below 46% Mn		11519	Below 55% Fe		2465
46% Mn and above		NA	55% to below 58% Fe		2604
Kyanite	t		58% to below 60% Fe		3448
Below 40% Al ₂ O ₃		1790	60% to below 62% Fe		NA
Limestone	t		62% to below 65% Fe		NA
LD		NA	Iron Ore (fines)	t	
SMS		NA	Below 55% Fe		921
BF		413	55% to below 58% Fe		NA
Cement		441	58% to below 60% Fe		3315
Magnesite	t	5785	Manganese Ore	t	
Marl	t	NA	Dioxide ore		19893
Kerala			Below 25% Mn		3911
Sillimanite*	t	NA	25% to below 35% Mn		7486
Limestone	t		35% to below 46% Mn		13935
Cement		1052	46% Mn and above		18488
Marl	t	NA	Fluorite (graded)	t	
Madhya Pradesh			30% to below 70% CaF ₂		8208
Bauxite	t		70% to below 85% CaF ₂		NA
Non-Metallurgical			85% CaF ₂ and above		NA
Cement		595	Kyanite	t	
Refractory		3879	Below 40% Al ₂ O ₃		2331
Chemical		847	40% Al ₂ O ₃ and above		NA
Iron Ore (lumps)	t		Sillimanite*	t	3575
Below 55% Fe		635	Limestone	t	
55% to below 58% Fe		NA	Chemical		NA
58% to below 60% Fe		NA	BF		NA
60% to below 62% Fe		NA	Cement		441
Iron Ore (fines)	t		Marl	t	NA
Below 55% Fe		718	Meghalaya		
55% to below 58% Fe		718	Sillimanite*	t	NA
58% to below 60% Fe		NA	Limestone	t	
60% to below 62% Fe		NA	Chemical		NA
Iron Ore Conc.	t	NA	Cement		441
Manganese Ore	t		Marl	t	NA
Below 25% Mn		3628 (P)	Odisha		
25% to below 35% Mn		5270	Chromite	t	
35% to below 46% Mn		12758	Lumps		
46% Mn and above		19927	Below 40% Cr ₂ O ₃		NA
Phosphorite	t		40% to below 52% Cr ₂ O ₃		NA
Upto 25% P ₂ O ₅		940	52% Cr ₂ O ₃ and above		NA
Above 25% to 30% P ₂ O ₅		NA	Fines		
Above 30% P ₂ O ₅		NA	Below 40% Cr ₂ O ₃		3638
Diamond	crt		40% to below 52% Cr ₂ O ₃		15176
Gem Variety			52% Cr ₂ O ₃ and above		16835
Rough and Uncut stones		20261	Concentrates		12564
Cut and Polished stones		NA	Iron Ore (lumps)	t	
Industrial		29351	Below 55% Fe		3852
Others		NA	55% to below 58% Fe		4648
Limestone	t		58% to below 60% Fe		5237
LD		NA	60% to below 62% Fe		7283
SMS		317	62% to below 65% Fe		8484
Chemical		399	65% Fe and above		8484
BF		669	Iron Ore (fines)	t	
Cement		441	Below 55% Fe		1972
Marl	t	NA	55% to below 58% Fe		3837

NA : Not Available

t : Tonne

* : Other than BSM.

ASP : Average Sale Price

Extract from Monthly Statistics of Mineral Production May 2021 issue.**6 (a). State wise Average Sale Price of minerals by Grades**

[see rules under MCDR, 2017 / Mineral (Auction) Rules, 2015 /

Minerals(Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016]

Month : May 2021

State / Mineral / Grades	Unit	ASP (₹)	State / Mineral / Grades	Unit	ASP (₹)
58% to below 60% Fe		3837	Chemical		NA
60% to below 62% Fe		5584	BF		518
62% to below 65% Fe		7663	Cement		441
65% Fe and above		7663	Magnesite	t	4826
Iron Ore Conc.	t	5816	Marl	t	389
Manganese Ore	t		Vermiculite	t	3310
Dioxide ore		NA	Telangana		
Below 25% Mn		2909	Iron Ore (lumps)	t	
25% to below 35% Mn		9703	55% to below 58% Fe		NA
35% to below 46% Mn		22072	Manganese Ore	t	
46% Mn and above		NA	Dioxide ore		NA
Garnet (abrasive)*	t	NA	Below 25% Mn		3684
Graphite	t		25% to below 35% Mn		6176
With less than 40% fixed carbon		975	Limestone	t	
With 40% or more fixed carbon but less than 80% fixed carbon		3200	Cement		441
With 80% or more fixed carbon		35810	Marl	t	NA
Sillimanite*	t	NA	Uttar Pradesh		
Limestone	t		Limestone	t	
BF		NA	Cement		441
Cement		441	Marl	t	NA
Marl	t	NA	Uttarakhand		
Rajasthan			Magnesite	t	NA
Iron Ore (lumps)	t		West Bengal		
Below 55% Fe		331	Apatite	t	NA
55% to below 58% Fe		4073	Moulding Sand	t	NA
65% Fe and above		NA			
Iron Ore Conc.	t	NA			
Manganese Ore	t				
25% to below 35% Mn		3200			
Phosphorite	t				
Upto 25% P2O5		2175			
Above 25% to 30% P2O5		6641			
Above 30% P2O5		7223			
Fluorite (graded)	t				
Below 30% CaF2		NA			
30% to below 70% CaF2		NA			
70% to below 85% CaF2		NA			
Garnet (abrasive)*	t	NA			
Garnet (gem)*	kg	NA			
Limestone	t				
LD		641			
Chemical		399			
Cement		441			
Marl	t	NA			
Selenite	t	NA			
Siliceous Earth	t	752			
Vermiculite	t	NA			
Wollastonite	t	927			
Tamil Nadu					
Garnet (abrasive)*	t	NA			
Graphite	t				
With less than 40% fixed carbon		NA			
With 40% or more fixed carbon but less than 80% fixed carbon		NA			
With 80% or more fixed carbon		NA			
Sillimanite*	t	NA			
Limestone	t				
LD		NA			

NA : Not Available

t : Tonne

* : Other than BSM.

ASP : Average Sale Price