

NARAINA S. QUIRTONIM

MINE OWNER

COST BENEFIT ANALYSIS

Project Title:

Zamblidadga Dongor Iron and Manganesc Ore Mine (M.L. No. 3/FeMn/79)

Cost-Benefit Analysis (CBA) in respect of the proposal of diversion of 70.20ha of forest land for mining of Iron and Manganese Ore from Zamblidadga Dongor Iron and Manganese ore Mine bearing M.L. No. 3/FeMn/79, and approach road (existing) to Mining Lease area admeasuring 1.88 Ha. is required for the project. Total forest land proposed for diversion for the project is 72.08 Ha., located in Caurem Village of Quepem Taluka, South Goa District, Goa, belonging to Late Shri. Naraina Sinai Quirtonim, represented by Mrs. Pradnya Zoivant Poi Cano alias Pradnya Zoivant Pai Cano for self and on behalf of all other heirs as their duly Constituted Attorney.

CBA is made as per guidelines in the Handbook of FCA, 1980 and Forest Conservation Rules, 2003, Government of India, 2019.

Table B: Estimation of cost of forest diversion

S. No.	Parameters	Remarks	
1	Ecosystem services losses due to proposed forest diversion.	NPV of the forest land within the mining lease and approach road is calculated as under:	
		Particulars	Estimated Cost
		Forest land area in ML (in Ha.)	70.2
		Forest land area for approach road (existing) (in Ha.)	1.88
Total Forest land area (in Ha.)	72.08		



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		Average NPV rate/Ha. (in ₹ Lakhs)	14.37
		NPV for the Forest land in ML (in ₹ Lakhs) (72.08 Ha. x 14.37 Lakhs)	1035.78
		Total Estimated Cost (A) (in ₹ Lakhs)	<u>1035.78</u>
2	Loss of animal husbandry productivity, including loss of fodder.	Particulars	Estimated Cost
		Forest land area in ML (in Ha.)	70.2
		Existing approach road (in Ha.)	1.88
		Total Forest land area (in Ha.)	72.08
		Average NPV rate/Ha. (in ₹ Lakhs)	14.37
		NPV Rate (in ₹ Lakhs)	1035.78
		10% of NPV (1035.78 x 10)/100 (in ₹ Lakhs)	103.57
		Total Estimated Cost (B) (in ₹ Lakhs)	<u>103.57</u>
3	Cost of human resettlement.	Nil	
		There is no human settlement within the mining lease area	
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.	Nil	
		There are no public facilities within the mining lease area	



5	Possession value of forest land diverted <i>(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 forest land whichever is maximum)</i>	Particulars	Estimated Cost
		30% of environmental costs (NPV) 1035.78 x 30% (in ₹ Lakhs) (a)	310.73
		Cost as per Circle rate (720800 x ₹ 240/- per sq.m.) (in ₹ Lakhs) (b)	1729.9
		Total Estimated Cost (C) (in ₹ Lakhs)	<u>1729.9</u>
6	Cost of suffering to oustees.	Nil	
		There are no oustees from the mining lease area	
7	Habitat Fragmentation Cost.	Particulars	Estimated Cost
		Forest land area in ML (in Ha.)	70.2
		Existing approach road (in Ha.)	1.88
		Total Forest land area (in Ha.)	72.08
		Average NPV rate / Ha. (in ₹ Lakhs)	14.37
		NPV Rate (in ₹ Lakhs)	1035.78
		50% of NPV (1035.78 x 50) / 100 (in ₹ Lakhs)	517.5
		Total Estimated Cost (D) (in ₹ Lakhs)	<u>517.5</u>
8	Compensatory Afforestation and soil & moisture conservation cost.	Particulars	Estimated Cost
		Forest land area in ML (in Ha.)	70.2
		Existing approach road (in Ha.)	1.88
		Total Forest land area (in Ha.)	72.08



		Forest Land for CA (72.08 Ha x 2) (in Ha.)	144.16
		Estimated CA rate / ha (in ₹ Lakhs)	5
		CA for Forest land in ML (in ₹ Lakhs)	720.8
		Total Estimated Cost (E) (in ₹ Lakhs)	<u>720.8</u>
	Total Estimated Cost (A+B+C+D+E) (in ₹ Lakhs & Crores)		4107.55
			Rs.41.07 Cr

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

S. No.	Parameters	Remarks	
		Particulars	Estimated Amount (in ₹)
1	Increase in productivity attribute to the specific project.	Iron Ore Production (in Million tonnes)	3.5
		Average Grade (% Fe)	<55
		IBM Average Sale Price per tonne of Iron Ore (<55%) (in ₹)	1263
		Total Estimated Price of the Iron Ore (in ₹ Crores) (A)	<u>442</u>
2	Benefits to economy due to the specific project.	Particulars	Estimated
		Revenue generation to local trucks (in ₹ Crores)	131.25
		Statutory Payments	
		Royalty (15% of ASP) (in ₹ Crores)	66.31



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		DMF (30% of Royalty) (in ₹ Crore)	19.89
		NMET (2% of Royalty) (in ₹ Crores)	1.33
		GIOPF (10% ASP) (in ₹ Crores)	44.21
		Estimated Total (in ₹ Crores) (B)	<u>262.98</u>
3	No. of population benefited due to specific project.	About 1000 (From Mine to Jetty)	
4	Economic benefits due to of direct and indirect employment due to the project.	(i) Estimated Economic benefit through Direct Employment of 52 people (in ₹ Crores)	10.92
		(ii) Estimated Economic benefit through Indirect Employment of 200 people (in ₹ Crores)	33.60
		Estimated Total (i+ii) (in ₹ Crores) (C)	<u>44.52</u>
		Total no. of beneficiaries will be about 1000 people.	
5	Economic benefits due to Compensatory afforestation.	Particulars	Estimated Amount
		Forest land area in ML (in Ha.)	70.2
		Existing approach road (in Ha.)	1.88
		Total Forest land area (in Ha.)	72.08
		Forest Land for CA (72.08 Ha x 2) (in Ha.)	144.16



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	Economic Benefit of CA Rs.0.88 Lakh / Ha (in Crore)	1.27
	Estimated Total (D)	<u>1.27</u>
	Total Estimated Benefits (A+B+C+D) (in ₹ Crores)	<u>750.77</u>
	Cost Benefit Ratio	1:19

Date: 04/03/2022

Place: Margao, Goa

P. Cano

**Pradnya Zoivant Poi Cano alias
Pradnya Zoivant Pai Cano**

For Self and on behalf of all other
heirs of Late Shri. Naraina Sinai
Quirtonim as their duly
Constituted Attorney

