ABSTRACT OF BENEFIT/COST ANALYSIS
(Forest Land – 6.55 ha.)

(A) CALCULATION FOR NET BENEFITS

(Rs. in Lakh)

- Total Benefits from the project (see Table VI-c) = **10,010.47**
- Total loss of forest land of 6.55 ha. (see Table – VI b) = **73.02**
- Net Benefit of Project = 10,010.47 – 73.02
  9,937.45
- Net benefit of project per hectare of forest land = 9,937.45 / 6.55
  1,517.17
- Loss of forest per hectare = 73.02 / 6.55
  11.15

(B) BENEFIT COST RATIO

Benefit cost ratio of the project = 10,010.47 / 73.02

= 137.09

Note: *See details further*

(C) PARAMETERS OF LOSSES OF 6.55 ha. FOREST LAND

{Table – VI (b)}

SUM OF LOSSES

- Parameter No.1 - Rs. 0.98 Lakh
  Loss of timber, poles etc.
- Parameter No. 2 - Nil
- Parameter No. 3 - Nil
- Parameter No. 4 - Nil
- Parameter No. 5 - Rs.72.04 Lakh
- Parameter no. 6 - Nil

Total Loss - Rs. 73.02 Lakh

Parameter - 1:

Loss of value of timber, small timber (poles) and bamboo on an annual basis including loss of man-hours per annum of people who deprived livelihood and wages from the harvest of these commodities.

– It will be opencast mining of limestone over 4.89 ha. ML area out of which safety zone will be 0.75 ha and area sought for diversion is 6.55 ha. Therefore forest losses are assessed for 5.80 ha. (6.55 ha – 0.75 ha). All mining activities will be confined within forest area as such the loss of forest e.g.

(a) Timber - Rs. 92,692/- (Details as below)

Class	G/Class	No. of trees	Volume (m^3)	Rate	Amount (Rs.)
A	45-90 cm	26	6.025	1719	10,357/-
A	90-160 cm	20	6.913	3534	24,431/-
A	160- above	6	2.88	3800	10,944/-
B	45-90 cm	33	8.382	1000	8,382/-
B	90-160 cm	20	5.553	1452	8,063/-
B	160- above	6	3.84	2805	8,006/-
C	45-90 cm	39	14.267	670	9,559/-
C	90-160 cm	19	3.641	679	3,565/-
C	160- above	13	8.32	1128	9,385/-
Total:		**183**	**59.821**	**-**	**92,692/-**

(b) Small Timber (Pole) - Rs. 5646/- (Details as below)

Size	Nos	Rate	Amount (Rs)
Pole of 0-30 cm Girth	196	Rs. 12/- each	2,352/-
Pole of 30-45 cm Girth	183	Rs. 18/- each	3294/-
		Total:	**5,646/-**

(c) Pole size Bamboo- - Nil

Grand Total = Rs. 92,692/- + Rs. 5,646/- = Rs. 98,338/-

Parameter-2:

Loss of animal husbandry productivity, including loss of fodder etc - Nil.

Parameter-3:

Cost of human resettlement

- There is no habitation over the area proposed for diversion, therefore loss on this account will be - **Nil**

Parameter-4

Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc.) on forest land, or which would require forest land if these facilities were diverted due to the project.

- There is no public facilities like road, building, school etc. as such there is no question of their diversion at other alternative place due to project, therefore loss on this account shall be – Nil.

Parameter-5

Environmental losses: (soil erosion, effect on hydrological cycle, a wildlife habitat, microclimate upsetting of ecological balance)

- ***** *Though technical judgment would be primarily applied in determining the losses, as a thumb rule the environmental value of one hectare of fully stocked forest (density 1.0) would be taken as Rs. 126.74 lakhs to accrue over a period of 50 years. The value will reduce with density, for example, if density is 0.4, the value will work out at Rs. 50.696 lakhs. So if a project which requires deforestation of 1 hectare of forest of density 0.4 gives monetary returns worth over Rs. 50.696 lakhs over a period of 50 years, may be considered to give a positive cost benefit ratio. The figure of assumed environmental value will change if there is an increase in bank rate; the change will be proportional to percentage increase in the bank rate.*
- Hence, Environmental losses assuming forest density of 0.7 being Eco-Class-I forest land of 5.80 ha. over 50 years = 5.80 x 126.74 x 0.7 = Rs 514.56 Lakh
  Therefore Environmental losses over 7 years (life of the mine) =
  = 514.56/50 x 7 = Rs 72.04 Lakh

Parameter – 6:

Suffering to oustees :

- There is no habitation on the forest land, thus the question of oustees does not arise. The cost on this account - Nil

*Standard as per Forest (Conservation) Act, 1980 and MoEF Guidelines/Clarification

(D) PARAMETERS OF EVALUATION OF BENEFIT NOT WITHSTANDING LOSS OF FOREST

Table – VI (c)

S.No.	Parameters	Benefits of Forests (Rs. in Lakh)
1.	Increase in productivity attributed to the specific project	7200.00
2.	Benefit to economy	830.67
3.	No. of population benefitted	14.00
4.	Employment potential	1960.00
5.	Cost of acquisition of facilities	5.80
6.	Loss of (a) agriculture (b) animal husbandry production due to diversion of forest land	Nil
7.	Cost of rehabilitating the displaced persons as different from compensatory amount given for displacement	Nil
8.	Cost of supply of free fuel wood to workers residing in or near forest area during the period of construction	Nil
	Total Benefits of Project	**10,010.47**

Parameter – 1:

Increase in productivity attributed to the project:

(a) Quantity of mineable reserves of Limestone in the area : 1.20 million tonnes or 12 Lakh tonnes

(b) Value of mineral @Rs.600/Tonnes : Rs. 600 x 12 Lakh
: Rs. 7200 Lakh

Parameter – 2:

Benefit to economy

Social benefits arising from the project constitute royalty of limestone, taxes and duty which form the considerable component. It is calculated as under:

(a) Royalty of limestone @Rs. 63/T	:	Rs. 63 x 12 Lakh
	:	Rs.756 Lakh
(b) Cess on limestone payable to Welfare	:	Rs. 1 x 12Lakh
Commissioner @ Rs. 1.0/Tonnes	:	Rs. 12 Lakh
(c) NPV of the forest land of 5.8 ha.	:	Rs. 9.39 Lakh x 5.8
(Eco-Value Class I, Dense Forest	:	Rs. 54.46 Lakh
@ Rs. 9,39,000.00 per ha...)		
(d) Compensatory afforestation charges	:	Rs. 4,78,256/-
Over 5.8 ha. area	(As per Annexure III of Part II of Form A)	
		i.e. Rs 4.78 Lakh
(e) Safety zone area – 0.75 ha.	:	Rs. 92,765/-
Afforestation on 1½ times of	(As per Annexure III of Part II of Form A)	
Safety zone area (1.125 ha.)		i.e. Rs. 0.93 Lakh
(f) Cutting and felling of trees	:	Rs. 2.5 Lakh
Thus Total (756+12+54.46+4.78+0.93+2.5)	:	Rs 830.67 Lakh

Parameter-3

No. of population benefitted

- There are about 500 persons near about the area. Considering 5 members in a family, there will be about 100 families benefited from the project. Assuming an amount of Rs. 2000 per year being benefit to each family, the total benefit for 7 year will be -

  = Rs. 2000 x 100 x 7

  = Rs. 14.00 Lakh

Parameter-4

Employment potential

- The total employment including management and work force will be nearly 70 and taking average annual emoluments for 7 years @ Rs. 4.00 Lakh/annum will be = Rs. 4.0 Lakh x 70 x 7
  = Rs. 1960 Lakh

Parameter-5

Cost of acquisition of facilities on non-forest land wherever feasible

- Cost of acquiring private land of : Rs. 1 Lakh x 5.80
  5.80 ha. @ Rs. 1.00 Lakh/ha. : Rs. 5.80 Lakh