CHAPTER -IX

MINE CLOSURE PLANNING

9.1 Preamble

Mining is a hazardous operation as it offsets the equilibrium of natural depositional environment viz. In-situ stress field, ground water, surface drainage system as well as the socio-economic condition. Although mining activities are usually short term phenomena, they are liable to leave long lasting impacts on landscape, ecology and on the mine set of local inhabitants. Thus, it is imperative that any mining venture should have adequate closure plan addressing issues viz. Reclamation and environmental protection, rehabilitation of disturbed area. Community implementation of mine closure plan will incur some extra cost, neglecting this aspect will lead to future problems of attending compensation or expensive socio-economic problems.

Hence, efforts have been made to identify the likely impacts on geo-environmental and socio-political set-up due to closure of the proposed mine during the planning stage itself, so that it will offer an opportunity to generate resources for mitigative measures during closure of the mine.

9.1.1 Life cycle concepts

Mining projects have a definite life cycle. All the mines have to eventually close their operation. The reasons for the closure may be many including economic conditions, depletion of mine-able resource or any other unforeseen safety reasons.

In the present project proposal the mine life cycle planning is governed by the reserves content in the proposed mining area. Here, it is planned to exploit seams IV, III, II(Top), II(Bottom), II (Merged) and I in the proposed mine area of 4.25 sq. km. The extractable reserves have been estimated as 11.086 M. te. As per the production schedule of the mine, life of the mine is estimated as 26 years. It is suggested that the activities for closure will be initiated at an early stage of project life in a gradual/ planned manner.

9.1.2 Mine Closure Phase

The mine closure phase is supposed to be closed when the mine is decommissioned, facilities at site are removed, the mine entries are sealed/ fenced off, the management of waste dump/ tailing is completed and the site is released in ecologically sustainable state suitable for proposed land use.

The likely impacts due to closure of the mine in so far as the geo-technical/ safety/ environment and socio-political aspects are concerned and the suggested mitigative measures are elaborated as under:-

A) Technical aspects:-

i) Mine Entries:

It is suggested that mine openings & workings will be properly closed & sealed so as to prevent any danger to post-mining uses of area.

ii) Service Buildings:

The service buildings / structures will be removed / demolished or may be used for some offices and the land covered under them restored for productive uses.

iii) Hazardous substances:

Prior to surface demolition/ restoration, a surface audit will be undertaken on all surface structures, spoil heaps, lagoons etc. to assess whether there are any hazardous materials that could cause problem i.e. explosive, asbestos, chemical oil etc.

iv) Disposal of assets:

A list of surface and UG assets (P&M) will be prepared and made available to potential purchasers or transferred to other new/ working mines of the company. This will ensure that the assets perform till its economic life and have better utilisation of assets.

B) Environmental aspects:-

i) Post closure Environmental monitoring:

It is suggested that the air & water quality parameters in the mined out area is monitored by some agency even after closure of the mine.

ii) Land reclamation and rehabilitation:

The project take area is 4.381 sq. km. Major area is forest land and remaining land is tenancy. The method of mining is depillaring by caving under moderate depth of cover. It is expected that degradation of the land will be minimum. If any cracks/ void are created due to underground mining activities it will be restored to original profile by filling up cracks/

voids. It is suggested that the site restoration is progressive so that the restoration is more or less similar to the rate of mining.

The objective of restoration of post mining area will be determined through consultation with local community and the govt. authority, so that the potential/ required end use of the mined out land is determined in advance. Such usage may be agriculture, forestry, amenity development or nature reserve. Necessary capital provision in the revenue account is indicated in the PR.

C) Socio-political aspects

i) Mining Community:

Due to closure of mining operation the persons directly employed in the mine will be surplus. It is suggested that suitable manpower plan may be formulated by the mining company sufficiently before that closure of mine for re-deployment of the work force in the other units of the company.

The community in the region is highly dependent on agriculture, forest and other related activities. The existence of mine is likely to provide employment or other indirect benefits to the community. The mine closure is likely to create negative impact on the socio-economic condition of the region. It is suggested that the mine owner will interact with the local govt. to establish strategy for supporting the project affected community of the region by promoting investment in non mining related enterprises.

ii) **Mining Township and Water supply:**

It is suggested that the civil facilities developed during the mining phase will be transferred to the local government / municipality so that the region transforms smoothly into post mining phase.

The plan of closure shall be implemented in consultation with all stakeholders.

(D) Mine closure cost

Sl. No.	Particulars	Capital			Revenue		
		Quantity	**Rate (Rs)**	**Amount (Rs)**	**Quantity (Sq. m.)**	**Rate (Rs)**	**Amount (Rs)**
1	Shaft closing 5.00 m diameter-1 no.	0.00	0.00	0.00	19.65	1500.00	29,475.00
2	Incline closing-2 nos.-4.80 m x 3.0 m	0.00	0.00	0.00	28.80	2000.00	57,600.00
3	Subsidence Management		Lump Sump	2500000		Lump Sump	2,50,000.00
4	**TOTAL**			**2500000**			**3,37,075.00**

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