Chapter-V

ANALYSIS OF ALTERNATIVES

5.1 Introduction

The Tirap and Tikak opencast mines are at present the only coal producing opencast mines in NEC. The projectised balance mineable reserves at Tirap OC mine would last for another 3-4 years at the current rate of production. Thus the Tirap OC mine is nearing its closure.

Tikak OC mine would be the only OC mine producing coal at the rate of 1.20-1.25 lakh tonne per annum for another 12-15 years.

By closing one OC mine producing coal at the rate of 3.40-3.50 lakh tonne per annum would bring down NEC further into red. The demand of coal as well as overall economics of the northeastern coalfields has therefore necessitated for looking at alternatives. Thus, the alternative lies in increasing opencast production in current economic situation.

The proposed project will be able to compensate partly for the loss of production due to closure of Tirap opencast mine.

It is proposed to exploit the coal reserves in the proposed project by opencast method. The conventional shovel-dumper system of mining is proposed to be followed for O.B removal and coal extraction.

5.2 Justification for Selection of Site & Mining Technology

Considering the geo-mining conditions, no alternative site is envisaged

Following are the reason behind for selecting this project.

1. The cost of production per tonne of coal in NEC from underground mines are very high and suffers a loss of nearly Rs. 6800 per tonne of coal from underground mines. Whereas, coal from opencast mines contributes a profit of nearly Rs. 350 per tonne As a result, NEC has decided to close some of its

underground mines and more stress on coal production from opencast mines for its revival.

2. Its formation support for opencast project. Presence of faults make under ground working more difficult.
3. Almost 90% of coal reserves can be mined. Only 40% of coal can be mined and 60% of the resource will be lost forever if we go for Under ground mine.
4. This is in close vicinity of all others existing projects.
5. It consist good power grade coal.
6. Its economics are favorable for opening of mine.
7. All-important infrastructures exist.
8. It will partly fulfill the revised target from NEC. Area.
9. Land qualities is either barren land or of poor qualities.
10. No important structures or places are present in the either core zone and close vicinity.
11. This is scattered and thin populated area.
12 Highly inclined seams in the proposed mining area attain a depth of nearly 70 m within a length of 200 m and surface level varies from 225 m to 425 m within a distance of 1.50 km. Presence of faults and underground workings make the mining conditions more difficult. The area experiences very high rainfall during rainy season, during which the mining operations have to be stopped.

Coal of these seams is soft and powdery in nature and overburden contains weathered rock as well as hard sandstone, shale etc. which require blasting. 0.20 Mt. Of coal will be produced per annum from three coal seams and quantity of OBR is 2.44 Mcum per annum from numerous benches. Limited strike length of benches and narrow working space have been considered in the proposed mining system. Technology options are guided by these factors mainly.

Limited extent of the deposit, variable thickness of coal and floor structure makes shovel-dumper combination more suitable under the prevailing geo-mining conditions. Shovel-dumper application has been considered for coal,

interburden and lower horizons of OB which largely comprise of sandstone and shale.

3.7-4.0 cum diesel hydraulic shovels along with 35T RD and 2.7-2.8 cum diesel backhoes along with 35T RD have been considered for OB removal and Coal production.