

- (h) Cable belt conveyors to transfer crushed bauxite to alumina plant located at 14.6 km distance, over rugged terrain having a fall of 336.5 m. The system is designed to transport bauxite at 900 t/hr at a belt speed of 2.35 m/sec and will carry 1800 t/hr by doubling the speed.
- (i) Introduction of reclamation by backfilling and plantation right from the beginning of the project, etc.

The underground mines of copper, gold and lead-zinc continue to use technologies introduced in the '70s. Blasting techniques, as in coal mines, continues with ammonium nitrate explosives, while the bulk of the production comes from small dia. holes (below 60 m) drilled with pneumatic skid mounted drills.

A significant quantity of production is raised through 2m³ LHD and small size pneumatic loaders. This could, perhaps, be attributed to the more easily available spares for the equipments. The transport equipments - dumpers - are also of smaller size (13 tons operated by diesel oil).

The ground control system techniques, although relatively better, also need modernisation. The use of rock bolt/cable bolt supports is quite wide; at the same time, the risk of accidents increases as mine dressing is done manually with miners standing under the rock.

Opencast mines, on the other hand, use relatively modern technology, though this has not kept pace with the advancements. The shovels/excavators and dumpers, the main equipments, are of smaller size. The exception is the bauxite mines of NALCO which, as noted, introduced modern technology.

Operations with Problems

Gold: Kolar is currently undergoing operational problems because of exhausting reserves, poor grades and workings at ultra depth. The production cost is almost twice the prevailing market price. **The operations at Kolar are in need of funding and technological support, lest it might get closed.** Intensive probing of the deposit in the area is also required.

An enormous size of placer gold deposit has been located in Kerala bearing only 0.18 gm per ton. **As the deposit is of lean grade, the experience of its working abroad will be of immense use to India particularly because a placer gold deposit has not been worked in the country so far.**

Copper: Operational problems at Mosaboni (Bihar) are also primarily on account of depth. The copper deposit here is known to exist at deeper levels and therefore it is now imperative to invest in further exploration. Underground operations at Ambaji (Bihar) could not be started though an open pit mine operates by the side. The presence of weak walls and highly variable shape, size and grade of the deposit are factors which are likely to make underground mining a difficult proposition. The multimetal ore will also pose recovery problems. **Therefore, in case of such a project, support is required not only in equity participation and mine design, but R & D is .**