Ripping

Ore bodies having rippable characteristics are being identified in some non-coal mines. India will be looking to introduce this technology in such identified mines.

Spare Part Management

While adopting a technology with imported equipment, a major problem is faced with regard to the spare part management. It is, therefore, necessary that adequate provisioning of spares for the entire life of the equipment should be considered at the initial stage.

Infrastructural Set-up

Adequacy of the infrastructural set up in terms of outbye transport, ventilation, coal handling and repair and maintenance capabilities is necessary for the success of any mining technology. In fact, the instances of failure are attributable to a very large extent to the inadequacy.

Technology Issues - Non-Coal Sector

Most mines only adopt conventional mining methods and the shift for large capacity units at Kudremukh (Met-Chem, Canada) has made the system capable of meeting the very high excavation level. This experience has been utilised in other large mines. In the recent years, NALCO's 2.4 MTY bauxite mine was established by incorporating a number of state-of-the art features. Some of the new features are:

(a) Vacuum suction exploratory drill for high speed drilling, sampling and analyses to assist in geo-statistical mine planning.
(b) Articulated dumpers.
(c) All excavation by hydraulic excavators & wheeled loaders.
(d) Ripping of ore/waste amenable to ripping using D-10 dozer of 700 HP class.
(e) Mechanised mixing and charging of ANFO.
(f) Computer assisted mine planning, production planning, etc.
(g) Hydraulic impactors for ground stability and haul road maintenance.
(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.