

## COAL CONSERVATION, RESEARCH & DEVELOPMENT

### 8.1 COAL CONSERVATION

**8.1.1** Conservation of Coal is an important area particularly when our coal reserves are finite. The aspect of conservation of coal is taken into account right from the planning stage and maximum recovery is ensured during the implementation stage. Mines are designed to work the coal seams either through opencast or through underground methods depending on the technical feasibility and economic viability.

**8.1.2** Mechanised opencast (OC) mining is presently the commonly adapted technology for extraction of thick seams at shallow depth. This is also important from the conservation point of view since the percentage recovery by this technology is around 80% to 90%. Presently, this technology dominates the coal industry contributing more than 88% of country's coal production. Further, whenever it is feasible, the developed pillars of underground mines are being extracted through opencast operations.

**8.1.3** In view of underground (UG) mining, introduction of new technologies like longwall method, shortwall method, blasting gallery technology and continuous miner technology have resulted in increased percentage of extraction.

**8.1.4** With the improvement in roof support technology with mechanized bolting with resin capsules it has been possible to maintain wider gallery span and extract seams under bad roof conditions more efficiently resulting in improved conservation of coal.

**8.1.5** The Ministry of Coal (MoC) governs the Coal Mines (Conservation & Development) Act 1974 for conservation of coal and development of mine areas

through Coal Controller Organisation. A stowing excise duty of ₹ 10/- per tonne is collected on coal production/despatch and coal companies are extended assistance for undertaking conservation measures.

### 8.2 SAND STOWING

Sand stowing in underground mines is yet another effective means of coal conservation, which is widely in use for extraction of coal pillars from underground coal seams lying below built-up areas, such as important surface structures, railway lines, rivers, nallahs, jores, etc. which otherwise would have resulted in locking of coal in pillars. Stowing also helps in the extraction of thick seams in several lifts increasing the percentage of extraction. Due to scarcity of sand, various experimental trials are being conducted to use other materials like fly ash, boiler ash, crushed overburden material etc. for stowing in underground mines as a substitute for sand. Currently, crushed overburden material is being used commercially for stowing purposes in the underground coal mines where sand is not available in the near vicinity of the mine or it is costlier to transport sand from the distant river sources.

### 8.3 RESEARCH & DEVELOPMENT

**8.3.1** The Govt. of India initiated Coal S&T Grant in 1975 under Ministry of Coal to enable research and development activities over a wide spectrum of areas viz. (i) Production, Productivity and Safety (ii) Coal Beneficiation and Utilisation and (iii) Environment and Ecology in coal & lignite sector. The grant is administered by Standing Scientific Research Committee (SSRC) with Secretary (Coal) as its Chairman.



Reclaimed opencast mine turned into a water body with surrounding afforestation

**8.3.2** Central Mine Planning and Design Institute Ltd. (CMPDI) is the nodal agency for coordination and monitoring of coal S&T projects funded by the Ministry of Coal. These projects are being implemented by various research and academic institutes related to coal and allied industries with

active participation of coal and lignite mining companies.

**8.3.3** A total of 4 [four] projects were completed during 2011-12 (till December 2011) and it is expected that 3 [three] more projects will be completed during January 2012 to March 2012.

Status		Production, Productivity & Safety	Coal Beneficiation and Utilisation	Environment & Ecology	Total
i)	Projects on-going as on 1.4.2011	7	4	5	16
ii)	Projects approved during 2011-12 (till Dec.'11)	2	3	1	6
iii)	Projects completed during 2011-12 (till Dec.'11)	2	1	1	4
iv)	Projects on-going as on 31.12.2011	7	6	5	18