

# 8

## COAL CONSERVATION, UTILISATION AND 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 87% of country's coal production. Further, whenever it is feasible, the pillars of developed underground mines are being extracted through opencast operations.

8.1.3 In case of underground (UG) mining, the introduction of mechanised technologies

like the 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 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 Rs.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.

### 8.3 RESEARCH & DEVELOPMENT

8.3.1 The Govt. of India initiated Coal S&T Grant in 1975 under Ministry of Coal (MoC) 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.

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 have been carried out by various research and academic institutes related to coal and allied industries with active participation of coal and lignite mining companies.

8.3.3 8 projects have been completed during 2009-10 (till Dec.'09) and 10 projects are targeted for this year 2010-11.

Status		Production, Productivity & Safety	Coal Beneficiation and Utilisation	Environment & Ecology	Total
i)	Projects on-going as on 1.4.2009	12	7	9	28
ii)	Projects approved during 2009-10 (till Dec.'09)	3	2	2	7
iii)	Projects completed during 2009-10 (till Dec.'09)	5	2	1	8
iv)	Projects terminated during 2009-10 (till Dec.'09)	-	1	-	1
v)	Projects on-going as on 1.1.2010	10	6	10	26

In addition to the projects under SSRC route coal companies (CIL, NLC & SCCL) also conduct R&D on their own.

#### **8.4 CONTROL OF MINE FIRE AND SUBSIDENCE**

8.4.1 The occurrence of fire and subsidence in old mined out areas of Jharia coalfield of Jharkhand and Raniganj coalfield of West Bengal are caused due to 200 years old unscientific mining carried out by the erstwhile mine owners. The problems are being addressed by the government and coal companies continuously. The population of the old mining areas has increased many times over the year though these areas have become unsafe for habitation. The problems of fire and subsidence in these coalfields have received attention from all concerned and from time to time various committees have been formed in the past to suggest measures against fire and subsidence.

8.4.2 Based on the report of the High Level Committee, a Master Plan dealing with fire, subsidence, rehabilitation and diversion of surface infrastructure in Jharia and Raniganj coalfields within the leasehold of Bharat Coking Coal Limited (BCCL) and Eastern Coalfields Limited (ECL) at an estimated investment of Rs.9657.61 crore (Rs.7028.40 crore for Jharia Coalfield and Rs.2629.21 crore for Raniganj Coalfield) excluding Rs.116.23 crore sanctioned earlier for various Environmental Measures & Subsidence Control (EMSC) Schemes has been approved by the Government in August 2009 for implementation in 10 years period and in case of BCCL additional two years for pre-implementation activities. Implementation of the Master Plan is being monitored by a High Powered Central (HPC) Committee under the Chairmanship of Secretary (Coal).