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CHAPTER

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INTERNATIONAL COOPERATION

International Cooperation

International Co-operation has been encouraged with a view to:-

- Bring in proven and advanced technologies and management skills for exploiting UG and OC mines and coal preparation.
- Exploration and exploitation of Methane from Coal bed, Abandoned mine, Ventilation air, Shale gas, Coal gasification, etc.
- Locating overseas countries interested in Joint Venture in the field of coal mining with special thrust on coking coal mining.

The priority areas include acquisition of modern and high productive underground mining technology, introduction of high productive opencast mining technology, working underground in difficult geological conditions, fire control and mine safety, coal preparation, application of 3D seismic survey for exploration, extraction of Coal Bed Methane, Coal Gasification, application of Geographical Information System, Satellite Surveillance, environmental control, overseas ventures in coal mining.

Following are the details of activities that took place with various countries during 2013-14 and 2014-15.

Indo-EU Collaboration

The 9th meeting of Indo-EU Working Group on Coal and Clean-Coal technologies meeting was held on 10th to 11th September, 2014 at Potsdam, Germany. One of the key areas for cooperation is the development and deployment of advanced coal mining. The aim of advanced coal technologies is to increase the efficiency and safety in coal production and to mitigate environmental & social impacts. Co-operation of EU was sought for various aspects related to coal mining like steeply dipping seated coal seams as under:

- Innovative mining technologies and environment friendly solutions.
- Development of technology for deep coal mines and possible solutions for Indian conditions.
- Technological improvements to manage these risks, especially on the prevention, and include rock stress monitoring system, mine atmosphere control, and methane drainage technique,

personnel tracking system and staff training for emergency situations.

- The need to modernize, develop and adopt technologies for high capacity and productive underground coal mining from deep and thick coal seams.
- Underground coal mining technologies for mass production for steep and gassy coal seams.
- Results of feasibility study to design a mining methodology for NEC coalfields.

A proposal titled 'Introduction of a new underground mining technology at North-East Coalfields in Assam, India' was placed before the Indo-EU Working Group on clean coal technology for consideration in 2012. The feasibility study to design a suitable mining technology and operation was awarded to a Spanish Consortium led by AITEMIN. The members from the Spanish Consortium visited from 10-14 Feb. 2014 for preliminary discussions and data collection. The feasibility study was submitted to the European Commission on Oct.10'14.

Indo-US Collaboration

The 10th Indo-US Coal Working Group meeting was held on 10th March, 2014 in New Delhi. The status of ongoing projects under Indo-US CWG was reviewed. Presentations were made by CMPDI/ CIL on new areas of collaboration.

The status on ongoing projects under Indo-US CWG is as follows:-

- Development of Coal Preparation Plant Simulator:

The identified US consultant M/s Sharpe International LLC, USA (SI) was awarded the work in October 2009 for development of a Coal Preparation Plant Simulator. Total work was split into 18 activities out of which 11 activities were completed. Later, SI expressed in October 2013 their inability to complete the work. US representatives were requested to take up the matter with the M/s Sharpe for a meaningful conclusion of the project. This issue will be deliberated in the R&D Board of CIL for the future roadmap.

- Cost effective technology for Beneficiation and Recovery of fine coal:

US DOE had identified Virginia Tech University (VTU) for establishing an efficient technique for beneficiation and dewatering of Indian coking coal fines through a demonstration plant based on the technologies identified after pilot scale tests of India coking coal samples on different state-of-the-art equipment at VTU. A joint project proposal was drawn and approved by CIL R&D Board in Dec.2010. The VTU, however, expressed its inability to sign an international agreement and as such the project could not be started. US representatives were requested to apprise different available technologies for fine coal beneficiation and recovery so that different projects can be taken up based on merit.

- Underground Coal Gasification (UCG):

UCG, which may offer solution to untapped isolated coal deposits lying at depths, is one of the key areas under Indo-US collaboration. In order to promote R&D efforts for potential application of technological advances and to establish these in the Indian geo-mining condition, a brief proposal for capacity building has been sent to MoC for consideration under the Indo-US Coal Working Group, USA.

- Planning large-capacity opencast mines:

The National Energy Technology Laboratory (NETL), USA has been entrusted with the responsibility for identifying suitable US agencies for cooperation in this area. CMPDIL is in the process of preparing a proposal with Art Sullivan Mine Services for a joint project on the subject of 'Mine Safety, Occupational Health and Risk Management' in large opencast coal-mines.

Indo – African Collaboration

The Working Group on Coal with South Africa was constituted in 2003. At present the Secretary, MoC is the Co-Chair with four members including Chairman, CIL and Director General Mines Safety. The specific areas for cooperation identified by the Indian side includes mechanization of Board and Pillar System of underground mining; beneficiation of Coal; Conservation of Coal to Liquid (CTL); Hard Roof Management techniques; development of Coal Bed Methane; and underground Coal Gasification.

- Coal India Africana Limitada (CIAL), a wholly owned subsidiary of CIL has been granted prospecting licenses, covering a total area of 224 Square kilometers by the Ministry of Mineral Resources, Government of Mozambique. Various activities

related to exploration of the allotted coal were undertaken in 2014-15.

- Dispatch of the coal core samples to laboratories in India for analysis.
- Floating of tender for 3rd phase of drilling for 10,000 m in April 2014.
- Extension of prospecting license for license areas 2450L & 3451L for 5 years from 6th August 2014 – 6th August 2019.
- Award of contract for 3rd phase of drilling in August 2014 and commencement of drilling in August 2014.
- Completion of survey work of drilling boreholes of 3rd phase of drilling in November 2014.

Indo – Japan Collaboration

An India-Japan Energy Dialogue co-chaired by Deputy Chairman, Planning Commission [now, the Niti Ayog] and the Minister of Economy, Trade and Industry of Japan to promote cooperation in the energy sector in a comprehensive manner has been initiated in Dec.'2006. Following this, a joint working group on Coal was set up in 2007 with an agenda to work on the following issues of core concern.

- Continuation of Capacity Building in Clean Coal Technology for the Officers of Coal companies
- Development of integrated underground communication system;
- Instrumentation for monitoring of mine gases and fires;
- Detection of partings between adjoining waterlogged unapproachable workings;
- Rescue equipment and operations;
- Demoisturising of lignite.

In addition of the above, MoC has renewed the MoU between Department of Economic Affairs, NEDO, Japan and M/s. Monnet Ispat Limited for a Clean Coal Technology Washery Project ("Vari-Wave" jig system and Auto Reject Control System) at Angul, Talcher, Odisha.

In 2015-16, CIL and NLC are looking at partnerships in new areas of cutting edge technology with countries like Malaysia, Australia and Germany.