

## **Minutes of the Conference of Environmental Management in Coal Mining - Sustainable Way Forward**

Coal is one of the major contributors to the development of economy of the country. Coal releases numerous toxic pollutants into air, waters and on land during mining to coal cleaning, from transportation to electricity generation and to disposal. The environmental impact of the coal mining includes land use, waste management, transportation, water and air pollution, etc.. Keeping these issues in view, a Conference on Environmental Management in Coal Mining - Sustainable Way Forward was organized jointly by the Bharat Coking Coal Ltd. Dhanbad; a subsidiary of Coal India Ltd and the MoEFCC on 21-22 March, 2015 in the Hotel Samrat, New Delhi so as to engage all the relevant stakeholders and to arrive at a consensus to address these issues in a holistic manner.

2. The Conference was graced by Sri Anil Swarup, Secretary, Ministry of Coal, GOI; Sri Shashi Shekhar, Spl. Secretary, MoEFCC; Sri Hem Pande, Addl. Secretary, MoEFCC; Shri T K Lahiry, CMD, BCCL; Sri Manoj Kumar Singh, Joint Secretary, MoEFCC; CMDs of other subsidiaries and participants from all coal mining companies, agencies etc.

3. Sri Anil Swarup, Secretary, Ministry of Coal, GOI called upon the participants to carry out the mining with due respect to the nature and insisted that the Public Sectors should take a lead and set an example for other sectors both in terms of mining and environmental management therefrom. They need to demonstrate that the advises of Ministry of Environment, Forests and Climate Change are doable. While congratulating MOEF&CC and BCCL for initiating the stakeholders interaction, he further urged the MOEF&CC and the Coal subsidiaries to organize such interactions at each level including at the project site level.

Sri Shashi Shekhar, Special. Secretary, MoEF&CC while addressing the participants advised that coal miners and conservators/regulators should interact regularly and plan out strategy for environment conservation. He further urged that inviolate areas

should be delineated, demarcated and treated as sacrosanct. Rat hole mining should be done away with and open cast mining can go upto 450 mtrs deep. Use of washed coal is important at present time. Mine should be closed and not abandoned in order to restore the ecology. Extending Regional/ Promotional exploration/ to upgrade the prognosticated resources into the proved category is necessary.

Sri Hem Pande, Addl. Secretary, MoEFCC in his address stated that natural resources, both living and non-living such as coal, be used sustainably and wisely; and requested BCCL should sensitize all other subsidiaries, mining companies about the good work of balancing mining and sustaining environment. Environmental rate of return should be taken into consideration along with economic rate of return. The coal mining companies should go through the Bio-Diversity Act so as to apprise themselves on sustainable use of resources. He further suggested that a new concept of valuation of nature has been conceived by the International Agencies for which 12 sites are to be selected. Coal companies may take advantage to show case the eco-restoration site.

Sri Manoj Kumar Singh, Joint Secretary, MoEFCC, while complementing the MoEFCC and BCCL for organizing this stakeholders' conference, urged the participants that the people of coal mining areas should get the maximum economic benefits, education and health benefits. Coal mining industry should go for vertical mining instead of lateral mining and ground water conservation be made in a sustainable manner. The land after mining should be reclaimed and returned to the forest department. Washeries may be promoted in private and public sectors. Ecological restoration should be done in place of just afforestation. Coal reserve under the forest land should be given to the coal industry in exchange of the ecologically restored area. Coal mining industry should opt for vertical rather than horizontal expansion.

Shri T K Lahiry, CMD, BCCL in his address stated BCCL has complied with all the environmental conditions/processes and has been successful in establishing the ecological restoration of OB dumps. He showcased the achievements of the BCCL. He requested the MoEFCC to consider the ecological restoration initiated by BCCL under the purview of IPR.

3. The conference deliberated the technical and procedural issues over two days with 18 speakers in six technical sessions which are as follows:

Sl. No.	Topic	Speakers
1.	Managing present Coal Blocks vis-à-vis future Coal Blocks	Shri D N Prasad, Advisor, Projects, Ministry of Coal
2.	Aerosol Mass Spectrometer – based Source Apportionment	Prof.SN Tripathi, IIT, Kanpur
3.	Mine Closure – Present Practices in CIL and Global Practices	Shri AK Debnath, CMD,CMPDIL, Ranchi
4.	Biological Engineering on Overburden dumps- An Experience at Singareni Colli. Company Ltd.	Shri Shri M. Vasantha Kumar, GM, SCCL
5.	Integrating Sustainable Environmental Practices in Coal mining- Initiatives of BCCL	Shri D C Jha, Director(Tech.), BCCL
6.	NLC's best practices in Environment management	Shri C. Senthamil Selvan, Director, Neyveli Lignite Corporation, Neyveli
7.	Sustainable Mining initiative- Federation of Mineral Industries	Shri B K Bhatia, Director, Federation of Indian Mineral Industries(FIMI)
8.	CSR Compliances in BCCL	Shri BK Panda, Director (Per.), BCCL
9.	Ecological Restoration of Mined out lands	Prof. CR Babu, CEMDE, Delhi University
10.	Mining and Environment	Dr. Manoranjan Hota, Director, MoEFCC, New Delhi
11.	Air quality monitoring and management	Dr. SD Attri, Dy.DGM, IMD, New Delhi
12.	Mine Drainage – R & D status in India with case study	Prof. A.Jamal, IIT (BHU)
13.	Population Exposure and Health Assessment Protocol around Opencast Coal Mines in India: A Step towards Sustainable Mining	Prof. Mukesh Khare, IIT Delhi
14.	Environment Management Challenges of Large Opencast Mines – Best Environment Practices In Northern Coalfields Limited (NCL)	Shri TK Nag, CMD, Northern Coalfields Ltd.
15.	Ecological Restoration of Ratibati OCP –converting the mined out area to	Shri J N Biswal, GM, ECL

	Gunjan Park	
16.	Evaluating Mining landscape and preserving the landscape dynamics in Mining Industry	Shri R K Jade, NIT Raipur
17.	Best Environmental Management Practices by ACBIL	Shri VB Sahay, Vice President, ACBIL

4. The conference at the end of the deliberations made the following recommendations for further follow-up:

- i. The coal mining industry will have commitment to save the environment.
- ii. Public sector has to take the leadership for sustainable mining with due care to environment.
- iii. Self-regulation should be put in practice and should own the responsibility for any non-compliance.
- iv. Cluster approach for mining be adopted so as to minimize small scale mining.
- v. Small scale mining should be avoided so that improved heavy machinery can be put to use for enhance coal production so also pollution and other environmental issues are kept to minimum.
- vi. Cumulative Impact Assessment for the cluster be carried out for environmental management and mitigation.
- vii. Keeping in view the pristine forest and principles of sustainable development, it would be prudent go for mining vertically down (may be upto 800 meters) rather than horizontally.
- viii. Depth of mine voids should not be more than 40 meters deep as these are biologically active and therefore will not support any pisciculture. These voids be used for recharging of ground water and also for supply of treated water to villagers.
- ix. Sequential mining need to be put in practice so that coal from a coal field is exhausted completely and the Over Burden (OB) and voids are rehandled completely and the land is returned back to its near original status for agriculture purposes.
- x. Native species are planted on the OBs so that the forests produce can be of use.

- xi. Rain water harvesting and water conservation should be a part of the environmental management of the project.
- xii. Transformation from conventional coal transportation by road to conveyor belt and rail transportation.
- xiii. Washeries need to be installed at the pit head so as to prevent long transportation and disposal of rejects.
- xiv. Workshop be held in various Subsidiaries, HQ to spread awareness and evolve road map for each subsidiary for sustaining environment.
- xv. BCCL should sensitize all other subsidiaries, other mining companies about the good work of the sustaining mining and environment.
- xvi. Environmental rate of return should be taken into consideration along with economic rate of return.
- xvii. The concept of valuation of nature has been internationally conceived for which 12 sites are to be selected. The coal companies may compete for eco-restoration site so as to demonstrate the example.
- xviii. Inviolable areas should be delineated, demarcated and treated as sacrosanct.
- xix. Use of washed coal be promoted.
- xx. Underground mining may be opted over opencast mining so as to prevent forest damages.
- xxi. Ecological restoration should be done in place of just afforestation.
- xxii. Land under the forest having coal reserved should be given to the coal industry in exchange of the ecological restored forest.
- xxiii. Mineable reserve in a coal block should be assessed precisely and clearances may be granted for the optimum capacity so that frequent application for the expansion for the production capacity may be avoided.
- xxiv. Source apportionment is most important to curb air pollution,
- xxv. Online measurement of the pollutant is the most efficient method and may be adopted as a strategy to curb pollution at source.
- xxvi. Bio-engineering techniques can be successfully used for management of top soil.
- xxvii. Latest breakthrough technologies and regulations should be used in current mining practices

- xxviii. CSR activities initiated by the coal companies should fulfill the demand of the society. Women empowerment should be the key to CSR activities.
- xxix. Geographical zones may be identified for further industrial development which are less vulnerable and bear more pollution loads.
- xxx. Health assessment protocols should be formulated in coal mining areas to protect the population from exposure to pollution.

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