

GOVERNMENT OF INDIA  
MINISTRY OF COAL

**LOK SABHA**  
**UNSTARRED QUESTION NO. 2084**  
**ANSWERED ON 02.08.2023**

**Safety and Security of Coal Miners**

**2084. SHRI D.M. KATHIR ANAND:**

Will the Minister of **Coal** be pleased to state:

(a) whether the safety and security of Coal Miners are under jeopardy in some coal mines in the country and if so, the details thereof;

(b) the effective measures taken by the Government to make our coal mines safe and secured for coal workers;

(c) whether the coal mines are affected very badly due to excessive rains, floods and land slides;

(d) if so, the details including the Government's stand thereof; and

(e) whether the Government has any plans to use Artificial Intelligence and advanced robotic technology and unmanned robots for doing dangerous works in coal mines and if so, the details thereof?

**ANSWER**

**MINISTER OF PARLIAMENTARY AFFAIRS, COAL AND MINES**  
**(SHRI PRALHAD JOSHI)**

(a): No, Sir. Coal companies are conscious, responsible and proactive as regards Safety & Security preparedness in its operations. Their prime objective is to ensure that coal mines are operated in a safe manner that protects the employees as well as the people around the mines and also the environment during mining. All the operations of mine are systematically planned, designed and executed in accordance with extant of relevant statute for ensuring safety of workers engaged in coal mines.

(b): The effective measure being taken by the coal companies to make coal mines safe and secure for coal workers, are as under:

1. Compliance of the statutory provisions under the Mines Act, 1952, the Mines Rules 1955, the Coal Mine Regulations 2017 and Bye-laws & Standing Order framed thereunder to ensure safety in coal miners.
2. Preparation and implementation of Site Specific Risk Assessment based Safety Management Plans (SMPs).
3. Preparation and implementation of Principal Hazards Management Plans (PHMPs).
4. Formulation and compliance of Site-specific Risk Assessment based Standard Operating Procedures (SOPs).
5. Conducting Safety Audit of mines through multi-disciplinary Safety Audit teams.
6. Adoption of the state-of-the art mechanism for Strata Management such as
  - Scientifically determined Rock Mass Rating (RMR) based Support System.
  - Strata Control Cell for monitoring efficacy of strata support system.
  - Roof bolting by using mechanized Drilling for Roof Bolting with Resin and Cement capsules and use modern Strata Monitoring Instruments.
7. Mechanism for monitoring of mine environment:
  - Detection of mine gases by Methanometer, CO-detector, Multi-gas detector etc.
  - Continuous monitoring of mine environment by installing Environmental Tele-Monitoring System (ETMS) & Local Methane Detectors (LMD) etc.
  - Application of Gas Chromatograph for mine air sample analysis with better accuracy.
  - Use of Personal Dust Sampler (PDS).
  - Use of Continuous Ambient Air Quality Monitoring System (CAAQMS) in large OCPs to assess the ambient dust concentration.
8. Specific Safety measures for OC mines:
  - Use of eco-friendly Surface Miners for blast free safe mining.
  - Formulation and implementation of Mine-specific Traffic Rules.
  - Training on Simulators to HEMM operators.
  - Dumpers fitted with Proximity Warning Devices, Rear view mirrors and camera, Audio-Visual Alarm (AVA), Automatic Fire Detection & Suppression system etc.
  - Ergonomically designed seats & AC Cabins for operators' comfort.
  - GPS based Operator Independent Truck Dispatch System (OITDS) and Geo-fencing in some large OCPs for tracking movement of HEMMs inside OC mine.
  - Lighting arrangement using high mast towers for increasing level of illumination.
9. Training on Mine Safety:

- Initial and Refresher training & On-the-Job Training as per statute.
- Training on Simulators to HEMM operators.
- Skill up-gradation of frontline mine officials on continual basis on various topics.
- Sensitization of all employees including Members of Safety Committees and contractual workmen on regular basis.
- Various training programme for enhancement of knowledge of mine executives.
- Training on Risk Management by SIMTARS accredited executives of CIL.

10. Mine Safety Inspection:

- Round-the-clock Supervision of all mining operations by adequate number of competent & statutory Supervisors and mine Officials.
- Regular Inspection by Workmen Inspectors appointed in each mine.
- Surprise back shift mine Inspections by mine and area level officials.
- Regular mine Inspection by officials of Internal Safety Organization of respective subsidiary and CIL.
- Periodic mine Inspections by senior officials of CIL & Subsidiaries.

11. Regular safety awareness programs are conducted in every mine to increase safety awareness amongst grass root level workmen for ensuring compliance of safety norms. It is implemented through:

- Safety talks & oaths at the beginning of the shift,
- Safety Posters,
- Pictorial hoardings,
- Propaganda through local cable TV channels,
- Circulation of code of safe practices for every operation and activity,
- Animation films and VTC module films in VTC during special and refresher trainings,
- Monthly PSC meetings in all the mines,
- Informal WhatsApp group is created in each mine for circulation of safety videos and safety guidelines among all workers and officials.

12. Online Centralized Safety Monitoring System “CIL Safety Information System (CSIS)” for monitoring different safety parameters.

13. Deployment of security personnel like CISF (Central Industrial Security Force).

14. Coal mines start working after obtaining necessary permissions from DGMS and Ministry of Environment, Forest and Climate Change. The implementation of the conditions imposed in the permission letter are verified through inspections by DGMS officials.

(c) to (d): At times, operations of coal mines get affected due to excessive rains. This year also coal production of few mines got affected to some extent due to heavy rains which impedes the operation of HEMMs and access to dumping area. Following precautionary measures are taken by mines of CIL and its subsidiaries to deal with excessive rains:

1. Monsoon Action Plan for all mines is prepared in advance and implemented so that, production in mines is continued smoothly during monsoon season. During preparation of Annual Production Plan, the II quarter i.e. monsoon period is planned taking into consideration effect of rains and the geographical location of the mines, particularly for opencast mines.
2. Regular monitoring of Monsoon Preparedness plan to implement all the activities as per timeline to minimize the effect of monsoon on coal production,
3. Maintenance of transport and haul roads during the dry spell,
4. Strengthening of pumping arrangements.
5. Strengthening of embankments.

(e): CIL has launched Project Digicoal, a pioneering digital transformation initiative aimed at revolutionizing our mining operations. This project involves the implementation of advanced digital solutions in seven coal mines on a pilot basis. Project Digicoal includes the use of drones for accurate surveying and planning, AI/ML based drill and blast designs to improve coal fragmentation, IoT based fleet monitoring systems for optimal equipment utilization, Project Digicoal also places emphasis on preventive asset maintenance, using digital solutions to proactively monitor critical mining equipment and minimize process downtime.

A State of Art Integrated Command & Control Centre (ICCC) for e-Surveillance has been established at WCL HQs Nagpur for 24x7 operation for live monitoring and recording of video footage of different CCTV cameras installed & working at Weighbridges, Check Posts, Mine View Points, Coal Stocks & Railway Sidings and other vulnerable locations etc. with Artificial Intelligence (AI) based video analytics across its command area.

Other coal companies are exploring possibilities of using Artificial Intelligence in near future.

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