
CHAPTER 7

ADDITIONAL STUDIES: RISK ASSESSMENT, DISASTER MANAGEMENT PLAN AND PUBLIC CONSULTATION

7.1 RISK ANALYSIS AND DISASTER MANAGEMENT PLAN

All types of industries face certain types of hazards which can disrupt normal activities abruptly and lead to disasters like fires, inundation, failure of machinery, explosion, to name a few. Similarly coal mines also have impending dangers or risk which need be identified, addressed and a disaster management plan formulated with an aim of taking precautionary steps to avert disaster and also to take such action after the disaster which limits the damage to the minimum.

Nevertheless, the following natural/ industrial problems may be encountered during the mining operations:

- Inundation of the mine pit due to excessive rains.
- Slope failures at the mine faces or at dump.
- Accident due to blasting.
- Accident due to plying of heavy mining equipment.
- Sabotage in magazine area.

In order to take care of above hazards/ disasters, the following will be strictly followed:

- Working of mines as per approved plans.
- All safety precautions and preventions of CMR, 2017 will be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drain and earthen bunds.
- Entry of unauthorized persons will be prohibited.
- Periodic checking of worthiness of fire fighting and first aid provision in the mining area.
- Training and refresher courses for all the employees.
- Cleaning of mining faces regularly.
- As a part of disaster management plan, a rescue team will be formed by imparting specialized training to the concerned mining staff.

A check list depicting likely disaster events due to the mining activity is presented in **Table 7.1**.

TABLE 7.1
CHECK LIST FOR LIKELY DISASTER IN OPENCAST MINES

Sl. No	Activities	Human Risk		Ecological Risk		
		Severe	Non – severe	Land	Air	Water
1.	Extraction of mineral		✓	✓	✓	✓
2.	Removal of Overburden and Storage		✓	✓	✓	✓
3.	Transportation of mineral on Haul Road	✓		✓	✓	
4.	Use of Machinery		✓	✓	✓	
5.	Drilling and Blasting	✓		✓	✓	

Although, the occurrence of a disaster is rare, still it is necessary to draw an action plan as a contingency measure as explained in subsequent sections.

7.1.1 Inundation

(Source: Approved Revised Mining Plan, April 2011 chapter VIII)

To guard against the danger from inundation in the mine from surface water including in-rush of water in rainy season, adequate number of pumps will be installed. These will be maintained in running order. In Revised Mining Plan (April 2011), the normal pumping has been calculated based on the maximum rainfall as 170 mm in a single day of monsoon period as per meteorology report of Raniganj coal field and seepage through back filled area, strata and surface run-off assumed as 20% of water inflow due to direct rainfall on the day of maximum rainfall at the catchment area. The accumulated mine water on the day of maximum rainfall is to be pumped out in 5 days @20hr/day. Furthermore, ground water seepage to the mine has also been accounted. Therefore, pumping arrangements have been accordingly made.

While working over old underground developed area a borehole is to be made at deepest point of developed zone so that process of pumping out of the water as per requirement can be maintained.

To protect the mine workings from surface water flow during the rains, fresh garland drains shall be made before every monsoon at the periphery of active edges of quarry. Settlement tanks of adequate capacity shall be made on surface. Mine water shall be pumped to it and after settlement and proper treatment, shall be discharged into nearest nala. The sump shall be made at one end of strike on the floor of the quarry and will be periodically cleaned. The working benches shall be graded suitably so that the entire water will flow down to the sump.

In Block-A, 4 pumps (2 are for standby) of 300 cum/hr x 150 m head have been envisaged. Normally one pump will be operated to handle water

seepage. In rainy season, more pumps will be operated as per requirement. While in case of Block-C, 6 pumps of 300 cum/hr x 250 m head have been envisaged. Two pumps will be operated in normal condition and upto five pumps may be operated in peak rainy season. To keep coal/OB face dry, 3 face pumps (1 for Blocks-A & C each and 1 for standby) of 50 cum/hr x 50 m head have been proposed. Besides main pumps and face pumps 3 numbers of slurry pumps has to be provided cleaning sumps.

7.1.2 Slope failure

(a) Bench Failure

The height, width and slopes of all the benches in overburden and coal will be maintained as per scientific study being carried out by NIT Durgapur. A copy of the scientific study report shall be submitted to Directorate General of Mines Safety (DGMS) and all the precautions recommended in scientific study report will strictly be followed. Compliance to these measures will aid in obviating any risk of bench failures and subsequent accident hazard.

(b) Pit slope failure

As per approved Mining Plan, the proposed OC mine is planned for future 27 years period. The ultimate depth at the end of mining operation will be upto 120 m in Block-A and 210 m in Block-C. At the mine closure stage, the areas of both the quarries will be fully reclaimed. The RL of the top at this stage will be 150-160 m above MSL for both the quarries.

To prevent any wall failure in the mine, adequate bench width will be provided in the mining system such that the overall working slope of the highwall remains within 25°. Overall slope of side batters shall always be within 45°. Coal benches has been planned with 80° from the horizontal and height will be usually 6 m.

As a part of the monitoring mechanism for safety of mine, a strict vigil is and will be kept by reconnaissance surveys, especially in rainy season, to detect any impending danger so that the men and equipment can be accordingly moved out of danger area in time.

7.1.3 Disaster due to failure of waste dump

There are two types of waste dumps, which are discussed below:

i. Overburden

Sliding of surface waste dump poses an equally severe risk compared with quarry slope failure. Hence, it is imperative that the degree of hazard against potential failure of waste dump slope should be identified and that precautionary measures are to be adopted, if required.

In Block A which will be started first, the initial OB will be dumped over the already de-coaled area of Khoirabad Colliery. The height of the OB dump will be about 60 m above the original ground level. Block C will start dumping over the vacant space in the north of the quarry. The OB shall be dumped externally and internally. However, at the mine closure stage, the dumps will be regraded to ground level. The areas of both the quarries will be fully reclaimed.

The dumps will be stabilized by tree plantations and other arrangements as detailed below:-

1. A garland drain will be constructed all around the waste dump area for smooth flow of water.
2. Drains and chutes will be made on the top and sides of waste dump, respectively, to arrest uncontrolled descent of water during rainy season. The water from the chutes will be collected in the garland drain at the bottom of the dump. This precaution is necessary to prevent erosion of waste dump due to erratic flow of rainwater.
3. A stone toe wall will be made all around the waste dump to prevent waste dump material from being carried out of the dump area and mixing with the general drainage system of the area. A clear space of 30 m width along the toe of the dumps will be maintained for safety.
4. The overall slope of dump will not be steeper than 28° to the horizontal.
5. For safety of dumpers, a wedge of sufficient height will be formed 10-15 m away from the dump edges so that dumpers will dump before this wedge. The dumped material will be dozed by the dozer deployed there. This wedge will be maintained in every active dump edge during dumping operation.
6. Sufficient lights will be maintained at night for operation on active dump edges.
7. On the slope of the dump, small pits of 0.3 x 0.3 x 0.3 m will be cut and seedlings will be planted. On top of the benches, 1.5 m wide strip shall be planted along the edges.

ii. Backfill dump

Internal dumping for backfilling will be started from 5th year of mine operation. The height of the internal backfill dump will go upto 60 m above ground level. It will be supported at the sides by quarry batters. However, the main advancing front of the backfill dump towards dip side will be amenable to slope failure especially during rainy season. The dumps will be properly compacted and planted as soon as ultimate height (surface level) is achieved. Water channels will be planned with intermediate, muck arresting pits so as to prevent any accumulation of water and erosion of dumps. The overall gradient of the dump shall not be more than 28°.

A systematic study will be commissioned to study the various slope stability parameters to reach at the optimum slope angle during mine operation period. Appropriate factor of safety will be adopted supported by sensitivity analysis of critical parameters. It is also proposed to monitor the backfill dump with latest geo-technical/ surface/ equipment e.g. Borehole extensometer, tape extensometer, EDM, Piezometers, Theodolites etc.. The monitoring will commence as a part of safety measures.

7.1.4 Haul Roads

Haul roads would be well constructed (having berms where required) so that machine movement is smooth and unobstructed. Norms have been fixed for construction and maintenance of haul roads.

Following measures will be taken to construct and maintain all the haul roads:

1. Haul road for rear dumpers of 60T and ancillary equipment is proposed with double lane.
2. Shoulders on both sides of haul road shall be provided.
3. At corners and bends, there would be clear view for more than 30 m.
4. Gradient will be maintained at 1 in 16.
5. Where the road is above the surrounding level, a parapet wall embankment of at least one meter height would be provided.
6. A separate road for light vehicles will be maintained in the entire mine.
7. Haul roads will have drains on both sides.
8. Road side plantation on permanent haul roads is proposed.

Measures to prevent accidents due to trucks and dumpers

- All transportation within the main working would be carried out directly under the supervision and control of the management.
- The vehicles will be maintained in good repairs and checked thoroughly at least once a week by the competent person authorized for this purpose by the Management.
- Road signs will be provided at each and every turning point especially for the guidance of the drivers at the night.
- Men will not be allowed in areas where reversing of trackless vehicles at the embankment and tipping points is taking place. All areas for reversing of lorries would, as far as, possible be made man free.

- Statutory provision of the fences, constant education, training etc. will lead to reducing accidents.
- Haul trucks would be oriented essentially perpendicular to the bream, while unloading.

7.1.5 Accidents due to machineries / equipments

Most of the accidents occur during transportation by dumpers and trucks. The accidents due to other heavy vehicles are often attributable to mechanical failures, in which the human error factor cannot be ruled out. Mining machineries would be kept well maintained and in good running order. Regular monitoring of condition of equipment and its timely maintenance as per condition will be done. Wrong or careless operation of machines can also cause accidents, thus, only trained personnel shall be allowed to operate the machines. Unauthorised riding on moving vehicles should be prohibited and effectively enforced.

7.1.6 Disaster due to surface fire/ stack fires

Sufficient fire extinguishers will be installed during operation at selected locations on surface like Electrical Sub-stations, workshop, Garage, Diesel Depot, Stores etc. Besides, sufficient number of water hydrants with sufficient hose pipes will be made available on the surface for fire protection.

In order to prevent fire hazards in stockpiles, the following precautions will be taken.

- i) Prevent the occurrence or presence of any external source of fire in the vicinity of coal stockpiles i.e. naked fire, electric fire and fuel oil fire.
- ii) In case there is need to operate electric equipment or store or use fuel oil in the vicinity of the coal stock piles, appropriate types of fire extinguishers will be provided on or near such equipment in order to extinguish the fire at the very start.
- iii) Restrict the stacking height of the coal to below two meters. Higher height may only be attempted for shorter interval of stacking. The time and height shall be established with respect to spontaneous combustion which will help in restricting to safe parameters.
- iv) Appropriate arrangement will be made by inserting pipes in the stack to monitor the internal temperature of coal. In case, temperature is found to shoot above safe limits, the coal from that part of stack shall be immediately dug out and disposed safely.
- v) In case, the insitu coal exposed in coal bench catches fire due to spontaneous heating, it will have to be kept under vigil. Under such

circumstances the affected area of coal shall be separately dug up and disposed off safely.

7.1.7 Accidents due to poor visibility

Where machines move, area would be well lighted either by general lighting or by lights provided in the machines. Through circular no. DGMS (Legis.) Circular No. 02 of 2017 Dhanbad dated 06.11.2017, DGMS have prescribed norms for standards of illumination in opencast coal mines. The notification has been prescribed for guidance as well as for strict compliance of the same in all opencast coal mines. A lighting plan for the entire mine will be made and strictly implemented. In addition to this, mobile lighting arrangement will also be made to handle the situation during power failure.

In spite of providing good lighting, the visibility can be poor if dust is not suppressed. Movement of dumpers is a major cause of making dust air borne and sprinkling of water on haul roads by mobile or permanent water sprinklers will be done to control dust.

7.1.8 Blasting

Fly rocks are a major source of accidents due to blasting. Ground vibrations and air over pressure (air blast) are also at times dangerous for structures and building. They are also annoying for the neighbouring communities. The best practices available would be adopted and blasting will be conducted only as per DGMS circular No. 7 of 1997, which gives stipulations in this regard titled "Damage of structures due to blast induced ground vibrations in the mining area" to avoid any danger during operation of the mine.

In this project, controlled blasting techniques including muffled blasting will have to be adopted within 500 m zone but beyond 100 m from the villages, dwelling, surface structures, roads etc.. Total quantity of explosive to be detonated at a time will be so regulated that ground vibration which may affect the nearby surface structures, are kept within the stipulated limit. The stipulated limits have been given in terms of permissible peak particle velocity (ppv) at the foundation level of structures in mining areas in mm/sec, and have been reproduced in Table 4.18 in chapter 4 earlier.

7.1.9 Explosion/ Storage of explosives in the magazine

SMS explosives will be used for blasting. It is recommended to provide 2 numbers of magazines of 3 T capacity each for storage of high explosives, cast booster and explosive accessories.

The explosive magazine will be designed in such a manner that normal chances of fire inside the magazine are ruled out. Still following precautions will be taken:

- i. Clearance of dried vegetation within 15 m of Magazine House.

- ii. Installation of lightening arresters on the Magazine will help safeguard against lightening damage and prevent subsequent explosion.
- iii. Provision of fire extinguishers, water and sand filled buckets.
- iv. Arrangement of mounds around the magazine to mitigate damage in the event of an explosion.

Keeping a safety zone around the Magazine as per the guidelines given in Schedule VIII of The Explosives Rules, 1983. For a 3 T magazine of Category “ZZ”, the distance to process buildings should be minimum 106 m, to railway, road, etc. it should be minimum 142 m and to dwelling houses, offices, factories etc. should be minimum 283 m.

7.1.10 Drowning

Risk of drowning can be there where water bodies exist. Water bodies such as mine sump and surface reservoirs will exist during operation while water in mine void will get collected at end of life of mine. Hence, surface water bodies at any stage of operation would be fenced off all around except at specially created ghats for public use or supervision with display boards/ warning signs. In this mine, after the end of mine i.e. during mine closure it is planned to rehandled the external OB and the crown dump of internal OB into the mine void, thus, levelling the quarry back to ground level. Hence, no water body shall remain.

7.1.11 Care and maintenance during temporary discontinuance

Temporary discontinuance of the mine due to unforeseen circumstances can occur. The following protective measures would be taken up to deal with the scenario arising due to same:

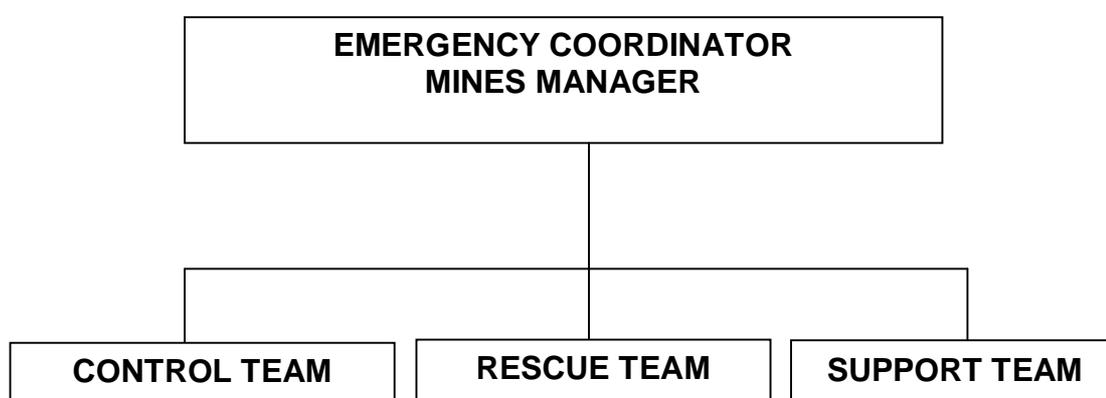
- All heavy earth moving machinery from the mine would be withdrawn and brought to a safe place. This will protect them against getting buried and damaged due to any benches collapse during the period of discountinuance.
- Security guards will be deployed to prevent stray animals or persons from entering into the mine.
- The entry to pit would be fenced. Notice board at the fences prohibiting entry of unauthorised persons will be put up.
- The fence will also prevent entry of cattle to the pit.
- At the entrance and strategic points, sentries/ watchmen will be posted to guard the mine area and Magazine. They will be provided with mobile phone/ walky-talkies to contact the mine authorities/ Police for help during emergency.
- The mine area will be kept illuminated during night time. Audible warning siren will be established at the mine office. It will for use during emergency so that prompt help can be received from proper sources.

- Managerial, supervisory and competent persons of the mine would be engaged for supervising machinery and house-keeping of the mine areas, as per needs.

7.2 DISASTER MANAGEMENT PLAN

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the description below. It is proposed to identify a dedicated group for dealing with emergency situations and for coordination among key personnel. The Group will comprise three teams, namely, Control team, Rescue team and Support team as shown in Fig 7.1.

FIG 7.1: ORGANISATION FOR DEALING WITH EMERGENCY SITUATION



The Group will be headed by an Emergency Coordinator (EC) who will be the Mines Manager. In his absence, the senior most person available at the mine will act as Emergency Coordinator.

The proposed composition of the teams is given in **Table 7.2**.

**TABLE 7.2
PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION**

Designation	Qualification
A. Control Team	
Leader/ Captain	Mines Manager
Member	Overman-I
Member	Foreman
Member	Mining Sirdar
B. Rescue Team	
Leader/ Captain	1 st Class Mines Manager
Member	Safety Officer
Member	Overman-II
Member	Foreman
Member	Mining Sirdar

Designation	Qualification
C. Support Team	
Leader/ Captain	1 st Class Mines Manager
Member	2 nd Class Mines Manager
Member	Foreman
D. Security	
A competent agency will be appointed for the security of various areas related to mining operations.	

A tele-communication network and wireless will connect Site Emergency Control Room (SECR) to control various Departments of the mine, fire station and neighbouring industrial units/ mines.

7.2.1 Roles and responsibilities of emergency team

(a) Emergency Coordinator (EC)

The emergency coordinator will assume absolute control of site and will be located at SECR.

(b) Incident Controller (IC)

Incident controller will be a person who will go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Manager will assume the charge of IC.

(c) Communication and advisory team

The advisory and communication teams shall consist of heads of various departments.

(d) Roll call coordinator

A senior person from administration or personnel department will be the Roll Call Coordinator. The Roll Call coordinator will conduct the roll call and will evacuate the mine personnel from assembly point. His prime function will be to account for all personnel on duty.

(e) Roll call leaders

EC will appoint Roll Call leaders from maintenance/ store. The Roll Call leaders will carry out roll call physically at roll call/ evacuation point.

(f) Search and rescue team

There will be a group of people trained and equipped to carry out rescue operation of trapped personnel. The people trained in first aid and fire fighting will be included in search and rescue team.

(g) Emergency security controller

An Emergency Security Controller will be senior most security person located at main gate office and coordinating with the outside agencies e.g. fire brigade, police, DM, civil/ defence representatives and media men, etc.

(h) Shift medical officer

He will be a doctor at the first aid centre/ medical centre of mine.

(i) Personnel manager

The personnel manager on arrival at site will handle all media men, contact public and handle the visits by political/ statutory authorities.

7.2.2 Outside organisations involved in control of disaster

In the event of massive spillage of fuel oil or occurrence of fire, population inside and outside mine boundaries, vegetation and animal etc. may be affected. In such circumstances, secondary fire may also take place. In such an event, help will be taken from outside agencies also.

The organisations that will be involved are as follows:

- (a) State and local authorities: District Collector, Revenue Divisional Officer, etc.
- (b) Chief Inspector of Explosives.
- (c) Environmental agencies: Member Secretary of State Pollution Control Boards, Regional Officer of State Pollution Control Board.
- (d) Fire Department: District Fire Officer.
- (e) Police Department: District Superintendent of Police, SHOs of nearby Police Stations.
- (f) Public Health Department:
 - District Medical Officer.
 - Residential medical officers of PHCs in a radius of 5 km around mine site.
- (g) Local Community Resources:
 - Regional Transport officer.
 - Divisional Engineer Telephones.
- (h) Director General of Mine Safety.
- (g) Mines of ECL in surrounding area.

The outside organisations will directly interact with District Magistrate, who will consult and interact with EC to issue instructions on how to control the emergencies.

7.2.3 Emergency control procedure

The onset of an emergency will in all probability, commence with a major fire, explosion, inundation or collapse of face along excavation or failure of mine/ dump slope. These will be detected either by various safety devices and/or by members of staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms or immediately inform the site office through mobile phone or wireless, from where the alarm can be sounded. He will also try his best to inform the emergency control room about location and nature of accident. In accordance with work emergency procedure, the following key activities will immediately take place to control the emergency:

- Emergency Security Controller will commence his role from main gate office.
- Incident Controller will rush to the site of emergency and with the help of rescue team, will start handling the emergency.
- Site Main Controller will arrive at SECR with members of his advisory and communication team and will assume absolute control of the site. He will receive information continuously from incident controller and make decisions and give directions to:
 - Incident controller
 - Mine control rooms
 - Emergency security controller
 - Site or shift medical officer
- After all key emergency personnel have taken up positions, the incident Controller will use communication system to convey and receive the messages.
- At the site of incident, the incident controller will directly handle the emergency with the help of specific support group and fire fighting personnel etc.
- At the main gate Emergency Security Controller and Personnel Manager will contact external agencies.
- At the site medical centre/ first aid centre medical officer will take control of medical support services. Emergency Co-ordinator will be directing and deciding a wide range of emergency related issues. In particular, EC has to decide and direct.
 - Whether incident controller requires reinforcement of manpower and facilities?

- Whether mine is to be shut down or kept running?
- Whether staff in different locations is to remain indoors or to be evacuated and assembled at designated collection centre?
- Whether missing staff members are to be searched or rescued?
- Whether off-site emergency plan to be activated and a message to that effect is to be sent to district head quarter?
- Whether staffs in different locations are to remain indoor or are to be evacuated and assembled at designated collection centre?
- Whether missing staff members have been searched or rescued?
- Whether and when district emergency services are to be called?
- Respond to any large size complaints from outside public and to assess an off-site impact arising out of the on-site emergency?
- When the incident has eventually been brought under control, it will be declared by the Incident Controller. The EC will then send two members of his advisory team as inspectors to incident site for:
 - An assessment of total damage and prevailing conditions with particular attention to possibility of re-escalation of emergency which might, for the time being, be under control.
 - Inspection of other parts of site, which might have been affected by impact of incident.
 - Inspection of personnel collection and roll call centres to check if all persons on duty have been accounted for.
 - Inspection of all control rooms of mine to assess and record the status of respective departments and any residual action deemed necessary.
- Post Emergency, the inspectors will return to SECR with their observations and report on findings and will submit the same to EC.
- Based on these reports, EC will communicate further directives to all emergency management sub-centres and will finally declare and communicate termination of emergency and authorise step by step restoration of normal operation of the affected mine areas. The fire siren will be sounded with all CLEAR – SIGNAL.

In all other type of emergencies like land slide etc, similar action will be taken as in case of fire and explosion explained above.

During entire period of emergency, the site will remain out of bounds to external visitors except.

- District Fire Personnel
- District hospital ambulance staff
- Civil/ defence personnel
- District administration
- Factory inspectorate and Labour Commissioner
- Officers of State Pollution Control Board
- Insurance authorities
- Directorate General of Mine Safety
- Chief Inspector of Explosives

All the members of public, political parties, gram panchayat, etc. will be dealt with from the main gate office by the Emergency Security Controller and the Personnel Manager.

7.2.4 Alarm system to be followed during disaster

On receiving the message of disaster, from Site Main Controller, fire station control room attendant will sound SIREN I WAILING TYPE FOR 5 MINUTES. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for two minutes. The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

7.2.5 Actions to be taken on hearing the warning signal

On receiving the disaster message following actions will be taken

- All the members of Advisory Committee, Personnel Manager, Security Controller, etc. shall reach the SECR.
- The persons of various Departments of mine production will remain ready in their respective units for crash shutdown of mining activities on the instruction from SECR.
- The persons from other sections will report to their respective officers.
- The concerned section will take immediate action to remove contractor's personnel outside the mine gate.
- Residents of surrounding villages will remain alert.

7.3 SUMMARY OF THE PROCEEDING OF PUBLIC CONSULTATION

Public hearing for the proposed mine was held on 20.09.2018 at 12:00 hrs at the “Agniveena Hall” at the office campus of Barabani Block Office, Dist-Paschim Bardhaman, West Bengal under the Chairmanship of Sri Prasanta Mandal, WBCS (Exe.) Additional District Magistrate, Paschim Bardhaman with Sri Surojit Ghosh, WBCS (Exe.), Block Development Officer, Barabani Block, Sri Shouvik Ganguly, Assistant Environment Engineer, West Bengal State Pollution Control Board on the basis of the prepared draft EIA report, which included the Terms of References prescribed by the Ministry of Environment, Forest & Climate Change. Sri Gourab Poddar, Executive Director of WBMDTCL welcomed the gathering on his company’s behalf and gave a brief introduction of the proposed project. He further assured that the proposed project will lead to overall socio-economic development of the neighbouring area. Representatives of various villages, people’s representatives and officers of M/s West Bengal Mineral Development & Trading Corporation Ltd. (WBMDTCL) were also present.

Various points were raised by the local people during the public hearing. The same were recorded by the WBPCB and the points requiring action from the Company have been addressed and their execution outlined in **Table 7.7**. The summary of the proceedings of the public consultation and the actions taken or to be taken by the company are covered in this section.

The notice for public hearing was published in daily English newspaper “The Times of India” and “Ei Samay” on 18.08.2018. 129 persons signed the attendance sheet and 10 people raised questions/ doubts/ comments/ suggestions during Public Hearing. Public hearing documents including notice published in newspaper, English translation of Minutes of Meeting, etc. are given in **Annexure XXVII**.

During public hearing, the people welcomed the project but raised few points related to proposed pollution and mitigative measures, R&R package, impact on ground water, employment opportunity etc. Sri Gourab Poddar, Executive Director of WBMDTCL assured the audience that being a government organization they will ensure that during project activities all statutory norms regarding mine safety and pollution control are strictly complied with. Questions/ doubts/ comments/ suggestions raised during public hearing and replies by the project proponent as per the latest activities undertaken/ proposed to address them has been given in **Table 7.3**.

**TABLE 7.3
STATEMENT OF MAIN ISSUES RAISED BY THE PUBLIC AND RESPONSE OF
THE PROJECT PROPONENT WITH ACTION PLAN**

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
1.	Sri Anup Kumar Roy Vill-Panuria, Barabani Block, Paschim Bardhaman	He wanted to know about the probable air pollution caused during mining operation and the mitigative measure to be taken by the Project Proponent (PP) for minimizing the same.	<p>Air pollution during mining will be due to excavation, transportation, handling, loading and hauling operation. Dust generation due to mining operation occurs within the mine pit, from haul roads as well as dumping areas. At the same time, gaseous pollutants like hydrocarbons, NO₂, CO, CO₂, SO₂, etc. are also generated from the vehicle exhaust, due to blasting and spontaneous heating in coal stock.</p> <p>Mitigative measures to reduce dust emission will be adopted such as water spraying. Other measures include control blasting techniques will be followed. Maintenance of HEMM, transport vehicles, wetting of the coal/ OB prior to loading, avoiding overloading of dumpers, plantation in peripheral greenbelt (7.5m), in safety zone between village and quarry (45 m), along the sides of haul roads (outside quarry area or working dumps) and other vacant areas etc.</p>	<p>Company will follow the mitigation measures as detailed in Chapter 4 of EIA/EMP Report to minimise air pollution.</p> <p>Execution plan On commencement of construction of Infrastructure facilities & operation of mine and will continue till the end of the life of mine operation.</p>	<p>The EMP cost has been worked out in detail in Table 6.2 (capital cost) and Table 6.3 (recurring cost) of Chapter 6.</p> <p>Capital Cost - Rs. 17.27 crores & recurring cost - Rs. 6.35 crores/ annum</p>

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
2.	Sri Byomkesh Bhandari Vill-Panuria, Barabani Block, Paschim Bardhman	He requested PP to elaborate about the proposed relocation and rehabilitation (R&R) package to be offered to the villagers of Gourangdih B area which is excluded from the scope of the proposed project.	Since Gourangdih B area will not be mined, the inhabitants and land owners within the boundary of Gourangdih B will not be disturbed in any way. A 45 m wide buffer will be maintained between quarry and the settlement in Gourangdih B so that indirect impacts are also not there. Hence, there is no proposal for relocation or rehabilitation (R&R) for villagers of Gourangdih B area.	Nil Execution plan Buffer zone between quarry and Gourangdih B will be maintained from beginning till the end of project life.	Cost of plantation @1.0 lakhs/ ha
3.	Sri Dilip Kumar Sharma Vill-Panuria, Barabani Block, Paschim Bardhman	He enquired about the probable impact of the proposed project on the ground water level of the locality What precaution the PP will take to ensure that there is no detrimental effect of proposed mining activity on the local underground water table.	Mine seepage is anticipated as the mine workings will go below the water table. The maximum mine seepage is anticipated as 10,120 cum/day in tenth year. The radius of influence has been identified as 160 m. The mine seepage water be collected in the mine sump, pumped to surface reservoir and will be utilized for mine activities, plantation, etc. after settlement of suspended solids. The excess water can be utilised for agriculture by nearby farmers or released to the natural drain after settlement of solids. The mine seepage will have a radius of influence within which decline of water table will be experienced.	For the areas within the radius of influence, company is committed to ensure potable water supply in the villages through construction and maintenance of deep tubewells or construction of over head tanks with piped water supply. Peizometers shall be installed and water level and quality will be checked regularly. Execution plan On commencement of operation of mine and will continue till the end of life of mine operation	The EMP costing has been worked out in detail in Table 6.2 (capital cost) and Table 6.3 (recurring cost) of Chapter 6. Capital Cost - Rs. 20.0 lakhs for installation of 4 numbers of Peizometer. The cost of deep tubewell construction will be approx. Rs. 25 lakhs

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
4.	Sri Rameswar Hansda Vill-Digalpahari	i) He wanted to know about the overall environmental impact of the proposed project on the neighbouring area and the probable mitigative measures in this regard to be taken by the PP.	As mine will be worked by opencast method there shall be impact in environment as detailed in Chapter 4 of EIA Report. Executive Director of WBMDTCL assured the audience that being a government organization they will ensure that during project activities all statutory norms regarding mine safety and pollution control are strictly complied with.	Company will follow the mitigation measures as detailed in Chapter 4 of EIA/EMP Report. Execution plan On commencement of construction of Infrastructure facilities & operation of mine and will continue till the end of the life of mine operation	The EMP costing has been detailed in Table 6.2 (capital cost) and Table 6.3 (recurring cost) of Chapter 6. Capital Cost - Rs. 17.27 crores & recurring cost - Rs. 6.35 crores/ annum
		ii) He further requested the PP to elaborate about the R & R package to be offered to the residents of the villages which are just beyond the project area but will be directly be affected during mining activities.	The project falls under seven villages which are Shibdhara, Bandhaura, Lalbandh in Block-A and part of Panuriya, Kantapahari, Gourangdih & Bhuiapara in Block-C. Total 629 houses and various PAFs under different categories have been identified in total project area. An R&R plan has been prepared and will be implemented for the project affected people in consultation with the local administration and public representatives. The people beyond the project will be protected from indirect impacts by creation of 45 m buffer zone between Quarry and settlement in Gourangdih-B area. The persons outside the project area are not covered under the purview of R&R plan	A committee will be constituted at project level under the chairmanship of the District Magistrate or authorized representative and WBMDTC Ltd. to be called the "Rehabilitation and Resettlement Committee". The committee shall endeavour to monitor and review the implementation progress of the Rehabilitation and Resettlement scheme for Project Affected Persons and to carry out post implementation social audits in consultation with village panchayat. The Rehabilitation and Resettlement Plan will be monitored and evaluated periodically after completion of the land	R&R package is expected to be in the range of Rs. 91.81 Crores (PAF Opt for employment) to 105.95 Crores (in case PAF not opt for employment). This package includes the costs due to R & R of the PAFs, excluding the compensation for the land.

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
				acquisition process. Execution plan On commencement of land acquisition for the project till the completion of land acquisition for the project.	
5.	Sri Jagannath Mondal Vill-Panuria, Barabani Block, Paschim Bardhman	He requested the PP to inform about the probable impacts of blasting operation during mining on the neighboring villages and protective measures to be taken in this regard.	Flying fragments due to blasting or vibration and secondary minor cracking of structures on the surface may occur in nearby villages if precautions are not taken. However, in our case, controlled blasting techniques including muffled blasting will be adopted to avoid tension cracks and back breaks. The DGMS norms for peak particle velocity and minimum safety distance shall be maintained	Permission from the DGMS shall be obtained prior to blasting. Fencing, protection, regeneration & maintenance of Safety Zone shall be there Execution plan Start - During operation, Before commencement of blasting till the blasting is required.	Capital Cost - Rs. 10 lakhs & recurring cost - Rs. 5.37 lakhs/ annum
		He requested PP to take necessary action on poor road conditions and traffic nuisance in the neighboring mining areas due to frequent movement of heavy vehicles and improve the prevailing situation.	The company commits that the trucks leaving the mine lease shall be optimally loaded and over loading will be prohibited. The transportation vehicles will undergo for "Pollution Under Control (PUC)" checkups every six months. Company will undertake road maintenance activities, where permitted.	Company would initially target the villages within 2 km of Gourangdih ABC coal mine. Construction of a new road from tribal basti at Kashidanga to Jamgram (1 km) and Aliganja village to Panuriya (1.5 km) is proposed. Maintenance of roads, where required in phase manner in collaboration with local	Capital Cost - Rs. 35 lakhs & recurring cost - Rs. 10 lakhs/ annum

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
				<p>Panchayat and Govt. Schemes shall be done.</p> <p>Execution plan Roads shall be maintained from commencement of construction and operation of project and will continue till the end of life of mine.</p>	
6.	Sri Shyama Maji Vill – Shibdhawara Barabani Block, Paschim Bardhman	He wanted to know about the compensation package including jobs to be offered to the farmers who will lose their agricultural land in the project area.	The benefits determined under rehabilitation scheme will comprise of land compensation (for land procured and associated solatium and other compensations, if any), employment provision (one job for every 2 acres of land) or lump sum payment of Rs. 10 lakhs in lieu of employment.	<p>As per R&R plan</p> <p>Execution plan On commencement of land acquisition for the project till the completion of land acquisition for the project.</p>	Same as point 4 (ii) above
7.	Shri Sonaram Soren Vill – Shibdhawara Barabani Block, Paschim Bardhman	He informed the gathering that the local tribal villages will be seriously affected by the proposed project.	Total 629 houses and various numbers of PAFs under different categories including SC and ST Population have been identified in total project area. Population of these houses and various PAFs will be shifted and resettled. For this, detailed R&R plan has been made by WBMDTC Ltd and the same is under process for approval.	<p>These PAFs shall be benefited as per R&R policy.</p> <p>Execution plan On commencement of land acquisition for the project till the end of entire land acquisition.</p>	As per R&R Plan of WBMDTC Ltd.

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
		He emphasized that the local tribal villagers should be offered proper R&R package before the project activity is started.	As per provision of R&R plan, in the case of land being acquired from the SC and/ or the ST, at least one-third of the compensation amount due shall be paid to the affected families initially as first instalment and the rest shall be paid after taking over the possession of the land.	As per R&R plan Execution plan On commencement of land acquisition for the project till the completion of land acquisition for the project.	As per R&R Plan of WBMDTC Ltd.
8.	Sri Ujjal Bauri Vill - Kashidanga Barabani Block, Paschim Bardhman	He wanted to know the probable impact of project activities on their village which is located at a distance of about one hundred meters from the project site.	The impacts of the project will be felt in terms of increase in fugitive dust from dumping activities. For this, the company will be undertaking rigorous sprinkling, geo-stabilisation of dump slope and plantation to minimise the magnitude and duration of impact. Another likely impact will be in decline of water table for which deep borewell with water supply system is proposed,	Dump management and dust suppression measures will be implemented. Deep tubewells with water supply system are proposed. Execution plan Start - On commencement of operation till end of life of mine.	The expenditures will as per Table 6.2 (capital cost) and Table 6.3 (recurring cost) of Chapter 6.
9.	Shri Bablu Ruidas Vill-Panuria, Barabani Block, Paschim Bardhman	He requested the PP to ensure proper R&R package for land losers and affected people.	The company is committed to follow the R&R plan	The provisions of R&R plan shall be followed.	R&R package is expected to be in the range of Rs. 91.81 Crores (PAF Opt for employment) to 105.95 Crores (in case PAF not opt for employment).

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
10.	Sri Somnath Maji and Sri Asit Singh Vill-Panuria, Barabani Block, Paschim Bardhman	They welcomed the proposed project with the hope that the same will contribute towards overall socio-economic development of the locality.	Project Representative thanks and welcomes the support	Activities under CSR and CER plans are proposed for implementation	1% of the project cost under CER and 2% of the average profit of the last three years as part of the CSR
		They requested the PP to ensure proper R&R package for the land losers.	The company is committed to follow the R&R plan	The provisions of R&R plan shall be followed.	R&R package is expected to be in the range of Rs. 91.81 Crores (PAF Opt for employment) to 105.95 Crores (in case PAF not opt for employment).
		Pollution free process activities, generation of employment for the local youth and proper implementation of CSR commitments.	Sri Gourab Poddar. Executive Director of WBMDTCL assured that they will ensure that during project activities all statutory norms regarding mine safety and pollution control are strictly complied with. The company also assures that Company will fulfil all the CSR & CER commitments by taking up different programs like development of local roads and other infrastructural facilities, providing health care facilities, drinking water facilities, helping local schools, initiating extensive plantations activities etc. and will also ensure proper R&R package as per	Company shall take mitigation measures as suggested in Chapter 4 of EIA-EMP Report for pollution control. Benefits of the project are detailed in Chapter 9 of EIA - EMP Report. Local youth will be trained so that they can become capable of employment. Execution plan The execution of Mitigation	The EMP cost : Capital Cost - Rs. 17.27 crores & recurring cost - Rs. 6.35 crores/ annum as detailed in Table 6.2 & 6.3. CER costing-1% of project investment as detailed in Chapter 9

Sl. No.	Name & Address of villager	Question/ Issue/ Suggestion	Response by project proponent (after PH)	Action Plan proposed	Budgetary provision as on 31-12-2018
			<p>prevailing norms in consultation with the local administration and public representative.</p> <p>The appointed MDO will be instructed by WBMDTCL to give priority to local people in employment in their proposed project as per their capability and eligibility.</p>	<p>measures and CSR activities will start from the commencement of project and will continue till end of life of mine.</p>	