

Series of training on Mines Safety for workers in Rajasthan December 2022



New Delhi, INDIA

Executive Summary

Series of training on Mines Safety for workers in Rajasthan December 2022 was organised by i-Catalysts during 9th December to 16th December 2022.

Mining sites who are undergoing global standard (Code of Responsible Extraction, CORE) implementation and certified participated in the programme. The participants included mines agent, CORE managers, mines manager, mining mate, operators, supervisors and worker who lead operational roles in different- different activity at Rajasthan region.

The training included lectures, discussions, role play and on-site demonstration.

It is accepted that mining is a hazardous profession. Just like in any other industrial accident, unsafe act and unsafe conditions of work lead to accidents in mines. Most of the accidents are preventable - they do not just happen, they are caused. Other than loss of lives or serious injuries due to mining accidents, the aspect of occupational health hazards in mining industry is critical and going to assume serious proportion with the increasing awareness. Hence it is pertinent to review the safety and occupational health status of the mining industry to work out a road map for its effective mitigation.

Objectives and Content of Training

The overall objective was increasing the awareness on safety for operational staff in mines. Following objectives were set to design the training programme by facilitators:

1. To understand about Tool box and Mock drills.
2. To understand the risks and hazards in mining (HIRA).
3. To provide a program on safety, consistent with good mining practices.
4. To create an attitude of safety consciousness in field supervisory personnel and all field workers.
5. To minimize accidents through pre-planning safety into the work to be performed on each project. Such pre-planning will require the identification of present and future hazardous conditions in each operation.
6. To provide a uniform policy of safety management consistent with the requirements of federal, state, and local safety standards.
7. To understand applicable legal requirements w.r.t Health & Safety.
8. To provide a means of continuing development and updating of safety education and training.
9. To understand about Personnel Protective Equipment (PPE's) and how to use them.
10. To understand about emergency situation and preventive measures.
11. To understand about importance of hygiene for women worker.
12. To understand dust controlling mechanism.
13. To understand about grievance mechanism.

Overview of Training program

Target Audience

Approx. 80 workers covered including unskilled, semiskilled and skilled from 06 different mines. These participants were trained to become trainers in building safety-oriented attitude while working at the site.

Training programme methodology

The session started with the level of awareness of participants about safety issues in the mines. And later compared with post session by taking randomly interview with the workers at the end of the training session on the same day.

Conduct of the training programme

Day 1: Bindu Mehta Mines (Hi-tech Minerals), Khemli

Firstly, introductory session among all the staff members and workers.

Followed by a rapid GAP of site is made before starting training and hand holding programme to get a first cut impression of mine and its functioning w.r.t. CORE.

About 09 persons (men and women) in workers, operators and supervisor category including security personal attended the training.



(Bench is highly strip. Therefore, suggested to maintain 60-degree angle to maintain stability)

After this, session started by Ms. Jhalak Sharma and Anjali Rathore, Trainer i-Catalysts.

During this interactive session participant shared their view on safety aspects and other necessary requirements at the site.

Majority of workers emphasized their concern about worker safety, dust management, noise management, blasting and PPE's usage.



Jhalak Sharma highlighted why is it important for women to work in this sector?

There are several reasons why mining wants to attract more women.

- First, there is a growing demand for skilled labor in the industry and so encouraging people from all genders and walks of life to join the sector can help meet this demand.
- In addition, diversity brings benefits such as team building and balance between different jobs. Women are able to bring different ideas to the table, new approaches and certain unique values.
- Therefore, the inclusion of more women in the sector is key in terms of competitiveness, as it improves profitability levels, which is essential in times of economic recovery. A higher incorporation of women in the labor market favors the growth and stability of societies.

Also, discussed risks and hazards in mining operations, recognition and avoidance of hazards: electrical, mechanical, traffic related, ground conditions, mobile equipment, etc. and the health and safety aspects of tasks being done and safe work procedures.

She described hierarchy of hazards control to the participants. During the session all participants shared their experiences of different incidence in their work place, the technical reasons behind these incidences were also discussed.

The evaluation of accidents was done through discussion were participants presented their views; Mr. Jaykishore Pandey (Mines manager) Bindu Mehta Mines said we need to fit the screen guard to avoid any accidents.



(Excavator, screen guard to be fitted from all the sides)

Further, by addressing monitoring of PPE's usage by workers Ms. Anjali Rathore shared importance of Personnel protective equipment's (PPE's) and highlighted for workers in miners, there are safety shoes, gloves, helmets, as well as protective padding.

All of this helps protect miners from the dangers that they experience on a daily basis. Every mine should set out the PPE that is required for the activity, as well as the specific mine they work in.



(Worker sharing their experience)

Further, a quick gap of the site was made. All previous points were included in meeting with mines manager Mr. Jay Kishore Pandey and CORE representative Mr. Jayesh.

1. Display of Policies and other safety environment and social posters in office
2. Separating out infrastructure to make provision for women rest room, toilet and nursing mother's room
3. First aid room with a bed and cooler/fan to accommodate heat stress / exhausted person
4. Testing of drinking water
5. Mining pit filled with water dewatering is to be undertaken

6. The water discharge should pass through mine drain and siltation pond
7. The Safe working load (SWL) to be mentioned
8. Separate stores for combustible and non-combustible materials

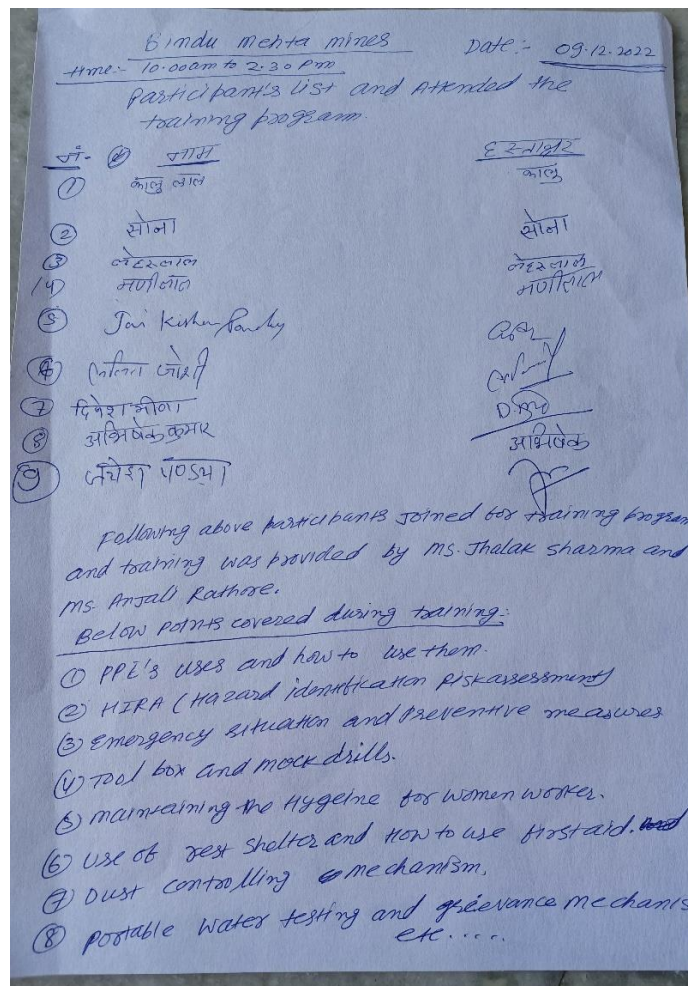
Rapid gap pictures:



(Bench width need to maintained as per MMR)



(Fire bucket and stands required)



(Participant's attendance sheet)

Day 2: Tarun Lodha's Dolomite mines (Palodara)

The second day of the training began at Tarun Lodha Dolomite mines with the introductory session among all the staff members and workers.

Followed by a rapid GAP of site is made before starting training and hand holding programme to get a first cut impression of mine and its functioning w.r.t. CORE.

About 17 persons (men) in workers, operators and supervisor category including security personal attended the training.



(i-Catalyst Trainer- watching the activities at site)

After this, session started by Ms. Jhalak Sharma and Anjali Rathore, Trainer i-Catalysts.

During this interactive session participant shared their view on safety aspects and other necessary requirements at the site.

Majority of workers emphasized their concern about PPE's usage, Drilling, Loading, crane operating and noise management.
(Derrick crane machinery at site)



Anjali Rathore highlighted what are the risks associated with mining.

Anjali, said mines can often present much more dangerous hazards than your regular industrial facility. Following below are the risks that open cast miners can face:

Collapses of benches and rock falls: The infrastructure of mines can sometimes result in catastrophe. The benches of a mine can collapse and cause rocks and debris to become unstable and possibly strike workers. Therefore, appropriate safety plans will need to be practiced and workers should be trained on what to do in case of collapse in the mine.

Fires: There are a number of items and areas in a mine that can cause a fire and traditional fire suppression systems may not always be suitable for certain mining environments.

Electrical hazards: Most mines have different pieces of electrical equipment used on a regular basis. Although necessary, these machines can pose a risk of fire, shock. And the cords connected to equipment also pose a trip and fall



hazard to workers. Therefore, Policies should be put in place and electrical safety training should be offered to miners. Specific training may need to take place for especially dangerous machines.

Vehicle hazards: Mining vehicles like dumper, cranes, drilling machine and excavator found at mining sites. These vehicles do not usually offer the best visibility for operators and can put all the workers in the area at risk. Therefore, require regularly maintenance.

Noise: The loud equipment used in the confined spaces of a mine can cause permanent hearing loss.

Further, the evaluation of risks was done through discussion were participants presented their views; Mr. Nimesh Pandya (Mines Supervisor) Tarun Lodha mines Mines said we need to check regularly and need to do proper medical examination (IME, PME and FME) to all worker to avoid any accidents.

Further, a quick gap of the site was made. All previous points were included in meeting with mines supervisor Mr. Nimesh Pandya and mines owner Dhruv Lodha.

The following has been discussed with him separately.

- First aid kit need to be maintained.
- Testing of RO supplied drinking water
- Worker grievance handling procedure
- Dust controlling mechanism
- Medical test of newly introduced workers and other

- SOP for all operations to be formulated with safe work practices
- Review and update of HIRA with newly introduced machineries and cranes
- Revision of all legal display such as no of worker, minimum wage etc.

Rapid gap pictures:



(Store room is not properly maintained)



(Crane wire need to changed timely)



(First aid box not maintained)



(Huge dust)

Sl. No.	Date	Training title	Time	Trainer's Name
01	10-12-2022	① Basics ② Health & Safety	10:30 am to 2:30 PM	Ms. Shalini Sharma Ms. Anjali Sharma

Sl. No.	Name	Signature
01	विक्रम लाल	विक्रम लाल
02	पंकज	पंकज
03	संजय	संजय
04	गोविंद	गोविंद
05	पंकज	पंकज
06	शंकर	शंकर
07	प्रदीप	प्रदीप
08	दिनेश	दिनेश
09	नमोसोहन	नमोसोहन
10	शैलेंद्र	शैलेंद्र
11	गोविंद	गोविंद
12	कमलेश	कमलेश
13	पंकज	पंकज
14	संजय	संजय
15	सुदीप	सुदीप
16	सुदीप	सुदीप
17	विश्वेश	विश्वेश

(Participant's attendance sheet)



(Participants who attended the training)

Day 3: Tarun Lodha Feldspar mines (Bhilwara)

The 3rd day of the training began at Tarun Lodha Feldspar mines with the introductory session among all the staff members and workers.

Jhalak trainer- i-Catalysts, conducted session on topic safety aspects related to mobile equipment's, conveyor systems, cranes, crushers, excavators; blasting, handling reporting, recording and investigation of injuries and illnesses; overburden and dump design and slope stability.



Further, Anjali stated why is pre-employment medical testing important?

- A pre-employment medical checkup is an essential step to acquaint employers with good additions.
- It measures to check the comprehensive health condition of every individual.
- Employers may have to intervene for the betterment of the business.
- Pre-employment health checkups are beneficial to both employers and employees.

Subsequently, a quick gap of the site was made.

Rapid gap pictures:



(First-aid box not available)



(Crane wire need to checked)

Taran Lodha F&S trainees - Bhilwara

S.No.	Date	Date	Training title	Time	Address
01	11-10-2022		Occupational Health Safety and security @ worker's site	10:30 am to 2:30 pm	M/s Shakti Sinter Mills, Bhilwara

points covered:-

- Personal protective equipments and their uses at the working site
- Hazard identification and Risk assessment
- Emergency situation and preventive measures
- Tool box and mice drills.
- Risk of injury related to use of equipments, tools, machinery and vehicles and preventive measures
- Maintaining the hygiene for women worker.
- Use of rest shelter and how to use first aid kit.

Participants Name who attended the training

क्र.सं.	नाम	हस्ताक्षर
1	शरमलाल	शरमलाल
2	शुवर शीरे	शुवर शीरे
3	केशी	केशी
4	रंजित	रंजित
5	मनोज	मनोज
6	जीतू	जीतू
7	भुरालाल	भुरालाल
8	रतनी	रतनी
9	चैतन	चैतन
10	रामेश	रामेश
11	शिव	शिव
12	शुक्ल	शुक्ल
13	बिंदू	बिंदू
14	राधा	राधा
15	रतनी	रतनी

T. P. No.- 161/2017
M/s नेहा एन्टरप्राइजेज
आराजी नं. - 3044/1
वि. ग्राम - महेंद्रगढ़
त. सहाड़ा (भीलवाड़ा)
खनिज-फेरसफायर, क्वार्टरिंग, मार्ग

(Participant's attendance sheet)



(Participants participated in training)

Day 4: Sonaria Soap stone mines (Sonaria)

The 4th day of the training began at Sonaria soap stone mines with the warm welcome followed by the introductory session among all the staff members and workers.

Mr. Palliwal introduced to all workers with the i-Catalysts trainer.

About 17 persons (men and women) in workers, operators and supervisor category including security personal attended the training.



(Welcome by mines supervisor)

After this, session started by Ms. Jhalak Sharma and Anjali Rathore, Trainer i-Catalysts.

During this interactive session participant shared their view on safety aspects, hygiene and other necessary requirements at the site.

Majority of workers emphasized their concern about PPE's usage, Shorting Loading, Excavator handling and noise management.



(Trainer providing the training)

Anjali Rathore highlighted 7 Safety tips to reduce mining accidents

- ❖ Don't Ignore the Danger zone.
- ❖ Dangerous Tasks Require Planning and Communication.
- ❖ Get Professional Training at regular interval.
- ❖ Always Wear Personnel protective equipment's.
- ❖ Supervise Your Team.
- ❖ Document Your Safety Procedures. Follow the Latest Safety Standards.

2nd session given by Jhalak Sharma on safety aspects and use of personnel protective equipment's (PPE's). Also, briefed on hazard, risk, incident, near miss, accident and control measure.

The evaluation of accidents was done through discussion were participants presented their views; Mr.Palliwal and Mr. Samer Singh (Mines mate) Sonaria Mines said we need to list down the minor accident as well to avoid reoccurrence the same.



(Jhalak sharing about PPE's and its usage)

Further, a quick gap of the site was made. All previous points were included in meeting with mines supervisor (Mr. Palliwal) and Mines owner (R.P Gupta).

- To display compulsorily minimum wage, no. of workers, working hours etc.
- To display 'minimum age for working' at gate
- To review HIRA
- To issue a wage slip
- To consider provision of crèche and nursing room
- provide shocks to develop the culture of wearing safety shoes with shocks
- Women to motivate to wear tight fit clothing (bring in cultural change gradually)
- Screen guard on excavator from all the sides
- Mock drill for fire and other emergency once in two month or as guided legally
- Secondary containment at diesel store (either leak proof flooring or steel tray).

Rapid gap pictures:



(Excavator's glass need to covered)



(back horn is missing)



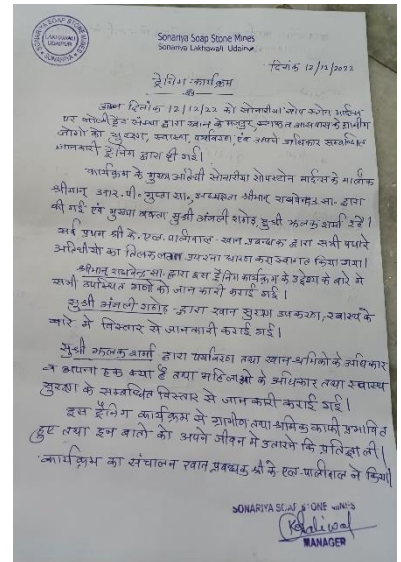
(Women worker's masks required)



(Slippery sorting area)



(Green belt developed at the mine)



(Training letter issued)

Day 5th : Piparach mines (Aravali polyart Pvt. Ltd), Pipar

The 5th day of the training began at piparach mines with the introductory session among all the staff members and workers.

Mr. Bhavar singh introduced to all workers with the i-Catalysts trainer.

About 13 persons (men) in workers, operators and supervisor category including security personal attended the training.



Trainer- i-Catalysts, gave training on process of blasting, method/technique of drilling, spacing and burden, explosive used, charging of explosives in the manner to reduce vibration and dust.

Also, highlighted about the blasting procedure:

Blasting, process of reducing a solid body, such as rock, to fragments by using an explosive. Control blasting operations include

- Drilling holes,
- Placing a charge and detonator in each hole,
- Detonating the charge, and
- Clearing away the broken material.



(Ammonium nitrate store house at site)

Further, a quick gap of the site was made and discussed with the management:

- To review HIRA
- Screen guard on excavator from all the sides
- Mock drill for fire and other emergency once in two month or as guided legally
- Secondary containment at diesel store (either leak proof flooring or steel tray).

Day 6th Punam Rajgariya mines (Banswara)

The 6th day of the training began at Punam Rajgariya mines with the introductory session among all the staff members and workers.

About 07 persons (men and women) in workers, operators and supervisor category including security personal attended the training.

During this interactive session participant shared their view on HIRA and First-aid necessary requirements at the site.



Jhalak highlighted about HIRA in mining

- Mining required stringent safety measures to avoid incidences involving life and damage to machineries.
- It may cause extensive damage to property and serious disruption in work inside & outside the premises.

Objective:

- Hazard and risk analysis is to identify and analyse hazards, the event sequences leading to hazards and the risk of hazardous events.

2nd session of the training began by Anjali, trainer i-Catalysts on First-aid and other emergency medical procedures.

Ms. Rathore discussed and said how to handle accidents on primary level, importance of checking pulse rate after incidence, techniques for control of bleeding, how to handle burn incidence.

Also added that, in case of Serious injuries like head injury, spinal cord injury patient should be quickly approached to the nearest hospital.



(Anjali discussing about first-aid)

Further, a quick gap of the site was made. All previous points were included in meeting with mines supervisor (Mr. Palliwal) and mines manager (A.K Pandey).

- To review HIRA
- To issue a wage slip
- Screen guard on excavator from all the sides
- Mock drill for fire and other emergency once in two month or as guided legally
- Secondary containment at diesel store (either leak proof flooring or steel tray).
- Keep the first-aid facility at the site.

Rapid gap pictures:



(Need to do dewatering from pit)



(Excavator glass need to be covered)



(Dumper's glass need to be covered)



(Bench height need to be maintained)

Conclusion

The 6-days training programme covered various topics on Safety in Mines and discussions on current issues in operations. The awareness level of all participants was measured by conducting personnel interview. The participation level of all participants was good throughout the training session. The evaluation conducted of participants indicated the effectiveness of the training programme were trainers meet to the expectations of the participants which was conveyed at the beginning of the session.

Recommendations

The following recommendations were made on the concluding day of the training by participants and they agreed to undertake the following actions on their work place:

1. Demonstrated blasting technique with bottom to top approach was evident by participants. All participant agreed that particular practice has less harm to the safety in surroundings and has less impact on environment in terms of dust, noise and vibrations.
2. First aid details, primary care and kit to be maintained in work place as per the suggestions of trainer.
3. Proper storage for the explosives.
4. Will implement and document the HIRA.
5. Following the proper safety procedure before every blasting activity.
6. In field training to the vehicle operators about possible incidences and precautions to be taken.
7. Placing safety indications/ slogans in mining area.

Suggestions from participants

- Organize such types of training sessions regularly.