Chapter 5
Dangers at work and the issues of safety

This chapter will look at the safety issues in the Jharia Coalmine. In Chapter 4th and 5th an attempt had been made to portray a vivid picture of the work in the coalmines and the hazardous nature of it. One has also focused on the caste politics and the mafia rule intersecting with the functioning of the trade union. Further, in this chapter one seeks to understand the unequal power relations with respect to the safety rules and regulations. One would like to give a brief overview of the safety violations that have been a cause for the accidents in the mines over a period of time. In this chapter one will also highlight the forms of resistance adopted by the workers to oppose the violation of safety rules at the workplace. The researcher’s visit to the workplace and specially the underground mines helped her understand the safety issues at work. At the end of the chapter one has also mentioned the provisions related to occupational health and safety in the mines.

Since 1901, some 52 major accidents have taken place in the colliery. Some 164 miners were killed by roof fall and other surface disturbances, 646 by inundation, etc, and 1,339 by poisonous gases, and five by explosion as per the list published by DGMS listing all incidents where more than 10 persons were killed. Including all other accidents the figure would be much higher. It may be noted that mines safety includes all accidents - accidents which take place by roof fall or subsidence of the solid surface are numerous. There have been fewer casualties for each in Kesargarh colliery of BCCL in 1975 where 11 miners were killed and in the Topa colliery of CCL in 1982 where 16 people died. By providing proper support by strong wooden props or steel props and using roof stitching and other scientific measures, such accidents could have been avoided. The section 108 (systematic support rules) and section 109 (selling support) of the Coal Mines Regulations, 1957 give details of these measures.

Accident occur by inundation by the water accumulated in the upper seam of the mine as that in Chasnala (IISCO mine) in 1975 where 375 workers were killed - the highest casualty in any single mishap so far, and in the BCCL mine Hazaribagh in 1982 where 19
were killed and now Bagdigi with 29 deaths. Inundation can also take place due to surface water flowing into the mine just as the adjacent Katri river flowed into Gaslitand colliery of BCCL in 1995. The underground mines have remained equally accident-prone. In 1990 some 166 miners were killed and in 1991, 143. The figures went up to 241 in 1994; in 1996, it was 146, which again increased to 165 in 1997. This fluctuation indicates that there is no real control over the situation.

Leaving adequate barriers of more than 60 m thick and building dams such tragedies could have been averted. Section 127 of the Regulations (danger from underground inundation), 126 (danger from surface water) and 129 (construction of water dam) have dealt elaborately with this menace suggesting foolproof measures. Accidents take place due to poisonous gases, explosions and fires in the mines as happened in Chinakuri (ECL) in 1958 causing the deaths of 268 workers, in Dhori (CCL) taking 268 lives in 1965, in Jitpur (IISCO) in 1973 where 48 workers died, in Sudamdi (BCCL) in 1976 with a toll of 43 workers and a few years back in New Kenda (ECL) in 1994 where 55 workers were killed (Roy, 2001).

The frequency with which the accidents at mines take place reflects the government's attitude towards mining work. Human life is devalued at mines and there is lack of safety implementation at the work place.
5.1 Negotiating Safety at work place

About forty to fifty percent of the total accidents in the coalmines were associated with the handling of mining tools, like lift-cages in the shaft, explosives used for blasting a coal seam, coal-cutting machines, tram lines and tubs, haulage engine, boilers, railway sidings or tramways, lamps and electricity. Industrialists install machine tools to undertake vertical and horizontal expansion of mining activity. Since miners handle these tools, and engineers and supervisors have to oversee their use, hazards were linked to both human and mechanical causes.

BCCL operates the most difficult mines of Coal India. Because of small lease holds mines fare, exhaustion of better quality coal, deep underground mines and due to many water logged abandoned mines, the mining here is dangerous and unsafe. Of the 50 accidents that have taken place here in the coalmines, 20 have been in the mines of Jharia Coalfield. After nationalization, 11 major coalmine accidents have taken place, out of which eight were in the Jharia coalfields (Pathak: 2001). Two conclusions can be drawn from this. One that mining conditions in this region is inherently dangerous and accidents will occur no matter what precautions are taken. The second and more important point is, that given the greater accident liability the mines operating in this region need to be extra cautious. A closer analysis of the accidents and their causes reveals that the mines managers of this region it is the first conclusion that the mines managers of this region seems to agree with. Safety is treated as an input, cost on which can be reduced.

The safety policy of Coal India Limited is that of Plan operations & systems to eliminate / reduce mining hazards, implement statutes, and to improve working conditions by technology up gradation. The policy focuses on multi-level monitoring of safety, to inculcate safety awareness & practice in the functioning, training & retraining and to promote safety-oriented skills. It also strives to improve the living conditions & health of employees.
5.1.1 Visit to Underground mines in Boragarh Colliery

One visited the underground colliery in the Boragarh coalmines and the bhelatand mines (TISCO) in Dhanbad. The safety measures at both BCCL and the TISCO colliery were very different. The visit to a better equipped (TISCO) colliery help the researcher understand the safety measures taken by the private mines owned by Tata. The discussion in this section is about the government owned (BCCL) Boragarh mines where the structure of work is quite old fashioned and the tools used at work are outdated.

The work/production process in the mine is explained below:

- Blasting/Drilling
  - Roof Bolting and Roof Support
  - Water Spray
    - Mucking/Loading in the Coal Tubs
      - Transporting to Cage via Rope Haulage System
        - Loading in the Cage
          - Unloading the Cage
            - Loading into Transport Trucks/Dumpers
The mine is about 500 to 600 meters deep and there is only one shaft, in which a cage/lift is operated manually via a crane and pulley. Coal tubs and personnel ascend and descend using the same lift; however, when the lift is carrying coal tubs, no persons are allowed in and vice versa. The cage/lift is operated on the basis of a signal system, a bell that indicates to the cage operator if the tubs have been loaded and if the cage has touched the ground.

Photograph 5.1(a) Old fashioned Shafts: Still in use
Photograph 5.1 (b) Lift doli, used for carrying the workers Underground mines.

- It was not easy walking underground, as the path was uneven and one had to make an effort to balance oneself. Following the safety rules one had to wear a helmet and take a battery and light which helped one see things in the dark.
As one reached the underground mines, one could see men cutting the coal and making a road inside the earth. One can go a long way under the surface for kilometers. The workers were busy with various aspects of the mining work. Some were cutting coal, some were loading it, some were busy spreading limewater on the black wall. There was a big hole, like a pond and few pumps were lifting water out of that. The atmosphere is very different underground and it is impossible to fathom the scene from above.

The coal in this mine is extracted using Board and Pillar Method. There are about 50 workers in the mine working for an eight hour shift with no breaks.

The ventilation in the mine seems fairly good and one could feel a rush of fresh air at many places. However at certain places, it is very warm and workers worked with minimal clothes on.
Workers cannot go inside the mine without the safety lamps and self rescuers, hard hats and safety shoes. The batteries used for safety lamps are wet batteries (which can be recharged). These batteries are quite heavy and workers have to wear this gear for a period of eight hours with no rest breaks. Sometimes acid also leaks out of the batteries causing skin burns and ruining the workers’ clothes.
The loading and unloading of tubs is carried out manually and involves hard labour. Workers work (pull and push) in a very uncomfortable position. Sometimes workers have to drill the coal from the coal face using a long mechanical drill.

The mine has very little lighting and most of it is pitch black, which is very dangerous.

There are no toilets in the mine and workers use abandoned work areas for this purpose which is very unhygienic.

Inspite of safety policies and norms being set up, it has been admitted that most of the safety policies are not followed. Most of the tools and equipments which are been used for mining are old and outdated. The lift that is used to carry the workers underground mines is completely outdated and dangerous, which increases the number of accidents in the coalmines.

Photograph 5.5 Colliery had been shut down as the outdated machines causes heavy accident.
Photograph 5.6 Heavy machine in bad shape used for extracting coal in Open Caste Mining

Photograph 5.7 Old and outdated machine which are no more in use
On the contrary, the TISCO owned coalmines are well equipped with all the safety devices and their machines are well monitored and examined. It has more than 100 years old five underground mines operating at maximum depth (600m) in Jharia Coal Fields. Their work setting and the underground mines are well maintained. They follow the safety rules therefore the accidents rate is very low at the TISCO owned colliery. The safety modules followed at their colliery are quite different from what they practice at the BCCL colliery. TISCO has their own research and development department which speculate all the devices which are been used undergrounds. There is rare chance of any corruption taking place at their worksite which reduced the chance of accidents. Their health centers are also well equipped with all the medical facilities and workers get good medical benefits. The Health Division has dedicated departments to monitor and improve safety, occupational health, and environment.

The politics of safety emphasizes links between safety and the necessity for bettering working and living conditions. Most of the labour advocates seemed to believe in the 'labourite' politics and stressed on the principle whereby 'the interests of labour is the interests of industry'. They advocated 'for a settled, experienced and efficient mining community, with improved living and working conditions.' Their demands included improved wage rates, housing and water supply, reduced working hours, paid leave, social insurance (Sickness, old age, maternity benefits), as well as arrangements for ventilated working faces, adequate supply of tubs and other safety materials. In particular it was emphasized that 'a short and delayed supply of basic appliances like coal, tub, timber and safety light to miners causes long and fatigued workdays, and consequently miners are hurried up in the end to finish their day's task, which then can cause negligence and carelessness making them prone to accidents.

There are no payment registers, no duty hours, no supervision of any safety rules or labour laws under illegal mining. Accidents due to illegal mining take so many lives making so little noise and creating no news at all as if the tribals and poor are not human beings. After accidents take place, if they are big enough, they are reported in the national press. Trade union leaders denounce management, Ministers come and make promises and bureaucrats
hand out compensation. If they are not big enough, they are conveniently forgotten about (interview with A.K Roy).

The negligence of the contractors, officials, BCCL and the Labour department, after an accident has taken place, is apparent. There remain nobody to dig up the bodies of the dead and arrange for the treatment of the injured. Mines are the womb from which minerals that make the body of the industrial world are created. Coal being the most important and abundant amongst them.

Given the need for special safety measures in mines, the Mines Act was passed as long back as 1901 during the British regime. The first act was replaced in 1923 and then amended in 1935, 1938 and 1940. However, after independence this was replaced by a more comprehensive Mines Act 1952 and by the Coal Mines Regulations, 1957 incorporating meticulously all provisions of safety and welfare in its 17 chapters and 196 sections. To enforce the Mines Act and Regulations an institution was created headed by an inspector in 1901, renamed director general mines safety (DGMS) in 1967 with its head office at Dhanbad. Ironically, DGMS celebrated its centenary on January 7, 2001 with great fanfare - the Bagdigi disaster took place in a mine allegedly certified as 'safe' by the DGMS only a month before. The police have instituted a criminal inquiry under section 304 IPC against the BCCL and the DGMS (interview with Roy). DGMS has its own story to tell: becoming weak after the nationalisation of collieries with its meager human power and steady dissertation and without recruitment it has been unable to cope with the task. However, under a separate Ministry of Labour and not Ministry of Energy to which BCCL belongs, it is apparent that the department of coal has neither the will nor the requisite skills to initiate change (Roy, 2001).

It is true that Kumaramangalam Committee even in 1980-81 recommended the strengthening of an organization which however was ignored by the government. But the DGMS officers themselves are responsible for many mishaps through their inaction and corruption. The CBI sometime back caught a DGMS official taking bribe, placing the office in the same category as the colliery and the management that it is supported to inspect and command. It is claimed that after nationalization there has been a decline in
accidents in coalmines. In 1973 death rate per million-tone coal production was 2.73, which became 0.68 in 1993. However, these figures are partly deceptive. In 1973, coal production was 78 million tones and in 1993, it was 238 million tons (now in 2001 coal production is around 300 million tones). But in 1973 about 75 per cent of the production was from underground mines but now all 20 per cent is from open cast mines where the chances of accidents are naturally less.

5.2 Resistance to work and illegal mining

The labouring people in the mining industry do not, however, passively accept the varied forms of subjugation, oppression and exploitation to which they are subjected. They resort to extraordinarily diverse types of collectives as well as small groups or even individual defiance, protest and assertions. It is shown that these do not always depend on formal organisation and are of both covert and overt nature. They range from the appropriation of work space in various ways such as sleeping at the workplace or gossiping during the working hours or absenteeism (a "passive means of resistance"), to putting up of all kinds of deities in the mines and factories or construction of temples and mosques in the mining and factory area to rioting -

Offerings to Khadan as a aftermath of an accident was observed in the underground mines. A fatal accident in the mines called for suspension of work for a day or two and collective offerings were made to maa kali. Goats were sacrificed along with sweets, fruits and the mantras were chanted to pacify goddess kali. Khadan is regarded as the womb and mouth of 'kali maee' and working in it is a visit to her womb. The accident is the expression of the displeasure or anger of the Ma/Maee and therefore that calls for Bali (blood sacrifice). A bali assuages the Maee, and helps secure, in a renewed way, blessing for preservations and protection. Entering her womb, and mining coal by cutting and blasting would cause disquiet and disturbance, and hence invoked the displeasure of the goddess. Lordess kali becomes displeased and angry over the wrong doings in the khadan, such as reckless coalcutting and mining, blasting... and other 'unethical behaviour'. Notwithstanding the offerings, accidents recur, but the people continue to trust her and renew their offerings. (Belmundi majhain)
"the acute expression of a world without a voice". Also hunger strikes or 'dharna' having Gandhian origin, defiance of prohibitory orders (Sec 144), strikes, gheraos, and tactics of collective taking of leave (Heuze 1996).

Though presently the burden of welfare of coalminers has been jointly shared by the employer, the coalmines welfare organizations and the government, practically it appears to be a veritable no man’s land due to lack of integration and coordination. Earlier mining was mostly underground and there was a lot of manual operation. Now that mining is opencast, there are fewer jobs so many people have now lost the jobs they once had in the mines. This opens the door for illegal mining.

With their forests depleted and with no land, entire families are forced to go into abandoned mines underground, bringing the remaining coal to the surface to sell (also known as illegal mining). Men and women dig the coal, children bring it up, and men take it on bicycles and haul it to town. Every day, hundreds of these ‘coal-pushers’ can be seen on the highway into the state capital of Ranchi. For the poor people of the state, this is the only source of coal for domestic use. Coal-pushers take a load of up to 250kg to a town, on a journey that can take two days. They then sell the load for about 150 rupees.

In a paper on informal mining, Lahiri-Dutt says that, “whereas the government has hesitantly accepted participation rights of communities over forests, no such response has taken place in the mining sector.” She also points to the increased role of private capital in the mining sector as being a significant part of this problem. In an interview, few miners reported that when accidents takes place in illegal mining, the police investigates and harasses the family to extort money, since the work they are doing is illegal. People look at illegal mining as a crime committed by the poor villagers who go to any lengths to survive, as we see from the risks they take. State Government does not pay attention to such kind of mining. Rather it imposes fine and taxes on the people who dig and sell coal for their livelihood.
The new public sector coal managers are zealously concerned about production targets, but are indifferent to the human aspects of production. The callousness with which the public sector management has been treating the workers is seen most blatantly in the working conditions inside the underground collieries and the living condition of the workers (Kumarmangalam 1873: 19). There is a serious gap between technology and the knowledge about technology; between problem in handling machines and steps taken to overcome the problems; between miners awareness and wisdom, and capital effort to understand the truth of that wisdom (Nite 2009: 177). A comparison of standards of welfare in coalmines with other public sector undertakings, makes it clear that much has been left to be done here. Giant public sector organizations such as SAIL, Bharat Petroleum, BHEL are far ahead in content, standards and range of welfare programmes, than of the coal mining industry (Panda 1988).

However, it's not only the mafia which has benefitted from the profitable public sector. BCCL officials also joined in. Everywhere in Dhanbad one comes across tales of wealth amassed by various officials. "A former CMD of BCCL was nicknamed as the golden deer. He set up two multi-crore industries near Delhi," says Gopal Agrawal of Jharia. The unchecked plundering of the public sector industry led to mining hazards as the company found itself short of funds for basic safety items such as wooden props for roofs, helmet lights and shoes. "Contracts were given for filling up abandoned mines with sand. Huge sums were spent on filling up mined areas with sand to avert flooding. The money was given to the contractors without even a handful of sand being filled in the used mines,"

47 Strangely, even Left-oriented trade unions now say that mining was safer during the pre-nationalisation era. "The post-nationalisation era has witnessed unscientific mining, leading to deaths of thousands of miners," says S K Bakshi, a prominent CITU leader. "Before nationalisation, mine-owners used to keep basic instruments such as water pumps, pipes and health teams needed in emergency situations. But, in Bagdigi, rescue operations began almost two days after the mishap as everything had to be brought from outside," points out Satya Dev Pathak, who once worked as a contractor in the Kewraj mines in

47 The killing mines of Dhanbad, THE TIMES OF INDIA NEWS SERVICE 16 February 2001
Jharia. The Directorate General of Mines Safety (DGMS) appears to have lost its teeth while dealing with a government organisation, he adds. However, despite the increase in mine accidents, coal miners are today economically more secure. "The take-home salary of a miner is around Rs 8,000 a month. In case of accidental death the compensation package is Rs 7 lakh to 9 lakh plus a job assured for a family member," says S Ayker, general manager (industrial relations), BCCL. No wonder, immediately after the Bagdigi disaster there was a crowd of relatives before the BCCL make-shift office seeking compensation and jobs. However, most of them were pleading that if given a job they should not be deputed inside the deep mines. Incidentally, the work-force of BCCL has shrunk from 2.6 lakh to 1.2 lakh. Even this depleted strength is being termed as over-staffing by the BCCL brass. A 3,000-strong contingent of the Central Industrial Security Force (CISF) has been stationed in Dhanbad to check pilferage of coal and other materials. The cost of CISF is met by BCCL and most trade unions are now dubbing the cost as a burden as at least 20 per cent coal still goes in pilferage. "Not a single new mine has been opened by the BCCL owing to shortage of funds and mining is confined to the mines of pre-nationalisation era," says Bakshi. However, if BCCL is on the verge of an economic disaster and there is lack of safety, the trade unions cannot evade responsibility. There is a safety committee comprising the members of various trade unions and the BCCL brass which meets regularly and suggests measures for the safety of miners. "These meetings are never held in the pits of the coalmines but in air-conditioned rooms," says Sanjay Maharaj, a miner who narrowly escaped death at the Chaitudih mines. Maharaj, like most miners, accuses the trade union leaders of being "sold out" to the management in exchange for favours such as recruitments. After the Gaslit and mines mishap in 1995 when 64 miners lost their lives, the probe panel indicted 13 officials of the BCCL. "Not a single officer was prosecuted. On the contrary quite a few of them were promoted to higher posts," points out Yogesh, insisting that economic and safety responsibilities must be fixed to save the coal industry from total collapse.

The irony about the Jharia coalmines is that it should have been the centre of mining-related safety regulations and R&D in the country. After all, as a Government of India

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48 THE TIMES OF INDIA NEWS SERVICE 16 February 2001
website says, “For administering the provisions of the Indian Mines Act, the mine Inspectorate was first created as Bureau of Mines Inspection on June 7, 1902 forming a part of the GSI (Geological Survey of India) in Calcutta. Later the name of the organisation was changed to Department of Mines in 1904 and its headquarters shifted to Dhanbad in 1908.” From then to now, this centralisation of coal administration in Dhanbad has not made a whit of a difference to the area’s inhabitants. Except after the Chasnala disaster in 1975, in which 375 workers were drowned to death, not a single official has been pulled up for culpability in the absence of mining safety.

5.3 Provisions related to Occupational Health and Safety

The safety setup (administrative) for mining is the best of any industry in India. The legislations related to mining are very comprehensive. National tripartite conferences on safety in mines are held, and each mining company is supposed to comply with its recommendations as well as the law. Under the Constitution of India, safety, welfare and health of workers employed in mines are the concern of the Central Government.

**Salient features of Mines Act:**
- minimum age of employment is 18;
- one day of rest per week;
- limited working hours; (48 in a week)
- no underground work for women;
- provision of clean water and medical facilities;
- constitution of tripartite safety committees;
- no unsafe mines;
- right of inspectors to survey safety and health;

The objective is regulated by the Mines Act, 1952 and the rules and regulations framed there. These are administered by the Directorate-General of Mines Safety (DGMS), under the Union Ministry of Labour. The health and safety of the workers is governed by Coal Mines Regulations 1957, Metalliferous Mines Regulation 1961, Maternity Benefits (mines) Rules 1963 and Mines Rules, 1955 created under the jurisdiction of the Mines Act, 1952. Specific provisions have been made to protect workers from occupational health hazards and prevent occurrence of occupational disease. (see appendix)
Annexure 5.1


Section 25 Notice of diseases
Mine management is required to submit notice of occurrence of diseases notified under the following laws:

Section 25 of the Mines Act, 1952
The following diseases have been notified as diseases connected with mining operations for the purpose of sub-section (1) of Section 25 of the Mines Act, 1952:

• Silicosis
• Pneumoconiosis
• Manganese poisoning - nervous type
• Asbestosis
• Cancer of lung, stomach or the pleura and peritoneum (i.e. mesothelioma)

Mines Rules, 1955
Rule 29B Initial and Periodic Examination
The Rule provides for;

(a) Initial medical examination of every person to be employed in the mine.
(b) PMA once every five years of persons employed in the mines.

Routine initial and PMA should include:

• General physical examination.
• A full size posterior-anterior chest radiograph.
• Lung Function Tests (Spirometry).

2.3 Coal Mines Regulations, 1957 / Metalliferous Mines Regulations, 1961/ Oil Mines Regulations, 1984
Regulation 123A of the Coal Mines Regulations, 1957 and Regulation 124 of the Metalliferous Mines Regulations, 1961 prescribe the permissible limits for various types of airborne reparable dusts, dust sampling strategies and control measures required to be adopted in mines. The important provisions are;

The eight hours time weighted average permissible limits for airborne respirable dust as determined by use of approved dust sampling instruments and procedures are as follows-

- 2 fibres per millilitre of air in case of asbestos.
- 5 milligrammes per cubic metre of air in case of manganese ore.
- 3 milligrammes per cubic metre of air; where the working is done wholly in the coal seam or where free respirable silica content in respirable dust is less than 5%.
- In other cases where free respirable silica content in respirable dust is more than 5 percent, the permissible limit shall be calculated by the formula: 15/% of free silica in milligrammes per cubic metre of air

Provisions have also been made for environmental surveillance to be exercised by the mine management in respect of airborne respirable dust viz. location, frequency and manner of sampling.

Regulation 91 of Oil Mines Regulation stipulates that mine management shall take reasonably practicable means to reduce noise level and exposure to workers. No person shall be allowed to enter an area with Sound Level 115 dBA or more without ear protection.

RECOMMENDATIONS OF CONFERENCES ON SAFETY IN MINES

In addition to the statutory provisions on Occupational Health and Hygiene prescribed under the Mines Act, 1952, Mines Rules, 1955, Coal Mines Regulations, 1957, Metalliferous Mines Regulations, 1961 and Oil Mines Regulations, 1984 the issues related to Occupational Health and Hygiene in mines have been discussed in Conferences on Safety in Mines. The VIIth, VIIIth, and IXth Conferences on Safety in Mines have made detailed recommendations on creation of occupational health services, occupational health
hazards and occupational health surveillance in the mining industry. Some of the important recommendations of Conferences on Safety in Mines are:

**Occupational Health Services**

1. There is a need for creation of occupational health services in each mining company working mechanised mines.

2. Occupational Health Services shall have sufficient technical personnel with specialised training and experience in occupational health. The Occupational Health Services shall carry out following functions:
   - I. identification and assessment of the risk from health hazards at the work place;
   - II. surveillance of the factors in working environments and work practices which may affect workers' health;
   - III. surveillance of workers' health relating to work;
   - IV. Advising the management on issues relating to occupational health, industrial hygiene, first-aid and ergonomics.

**Medical Surveillance**

1. There should be at least one medical officer properly trained in occupational health and in use of the ILO Classification of Radiographs for Pneumoconiosis.

2. Adequate facilities for X-rays and lung function tests should be provided at each medical examination centre.

3. If the profusion of any type of pneumoconiotic opacities in chest radiograph is 1/0 or above according to ILO classification, the case shall be certified and notified as pneumoconiosis.

4. One medical examination for every person should be arranged within one year of his superannuation.
Dust

Every mining company operating mechanised mines should take early steps to ensure that:

1. adequate arrangements and wherever necessary infrastructure facilities to carry out dust surveys in mines are established.
2. Air-borne dust surveys are conducted and necessary control measures, wherever required are taken;

   I. at all mechanised longwall faces, mechanised bord and pillar workings and road header drivages in coal mines;
   II. at all drilling, mechanised loading and crushing operations in non-coal mines;
   III. at all ore/coal handling/benefication plants.

Noise

All mining companies should take steps regarding

- standardisation of the information to be furnished by the manufacturers/suppliers; as well as its assessment procedure;
- development and supply of the proper type of ear protectors including helmet-mounted ear muffs.

Audiometry should be introduced, as a mandatory part of medical examination, for persons seeking employment in mines and for persons engaged in operations/areas where noise levels exceeds 90 dBA.

Occupational Health Surveillance

1. Occupational Health Services in mining companies wherever not yet established shall be established.
2. Each mining company operating mechanised mines shall computerise all records of medical and environmental surveillance.
3. All chest radiographs of Initial and Periodical Medical Examinations shall be classified for detection, diagnosis and documentation of pneumoconiosis in accordance with ILO standards.

4. Classification for Pneumoconiosis.

5. Each mining company operating mechanised mines shall set up an Occupational Diseases Board consisting of one Occupational Health Physician, one Radiologist and one General Physician.