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ADVANCED COURSE ON OCCUPATIONAL & ENVIRONMENTAL HEALTH

Dates : November 3 - 8 , 1997
Venue: NIOH, Ahmedabad.

In India awareness in the field of the occupational health and environment is yet in its infancy stage. Even the persons working in this area do not have the full requisite knowledge of the subject and face many problems. The situation is further complicated by the lack of information available on this subject which often leads to the wrong diagnosis and denial of basic right of good health to both the workers as well as the community living around the industrial area. Over the past five years, Society For Participatory Research in Asia (PRIA) has been trying to generate awareness among the masses in this issue and has been trying to enhance the knowledge of persons active in this field. This has been achieved by organising various workshops, training programmes and orientation courses on occupational health.

In continuation to its efforts, PRIA for the first time collaborated with India's premiere institute on occupational health, the National Institute of Occupational Health (NIOH), to organise a six day training programme which was held in the NIOH campus. The participants were from different fields and included industry workers, trade union activists, health workers, social activists, research students etc.

The course was devised with following objectives:

- To develop the capacity of the trade unions, workers groups, environmental groups and NGO's in understanding and handling the issues.
- To bring together different persons working on this common issue so that information and experiences could be shared along with the various difficulties faced by them.
- To disseminate the latest information available on this subject among the participants.
- To apprise the participants of the various legal provisions in the country (regarding Occupational Health & Safety) and the various procedures to be followed so as to get justice.

The course was conducted in a participatory methodology. Eminent scientists from NIOH delivered upon the various topics related to occupational health. The participants exchanged their views with the speakers after each lecture. There was general group discussion at the end of each day. Some practical demonstrations and industrial visits were also included in the course.

‘Occupational Health’ in itself is a very vast subject and any amount of training in this field can’t be termed as ‘sufficient’. However, in this training programme, efforts were made to cover as many topics as possible. In the subsequent pages some of the important topics discussed in the training programme and the queries raised by the participants have been discussed briefly* .

IMPORTANT TOPICS AND ISSUES DEALT IN THE TRAINING PROGRAMME

Neglected Field

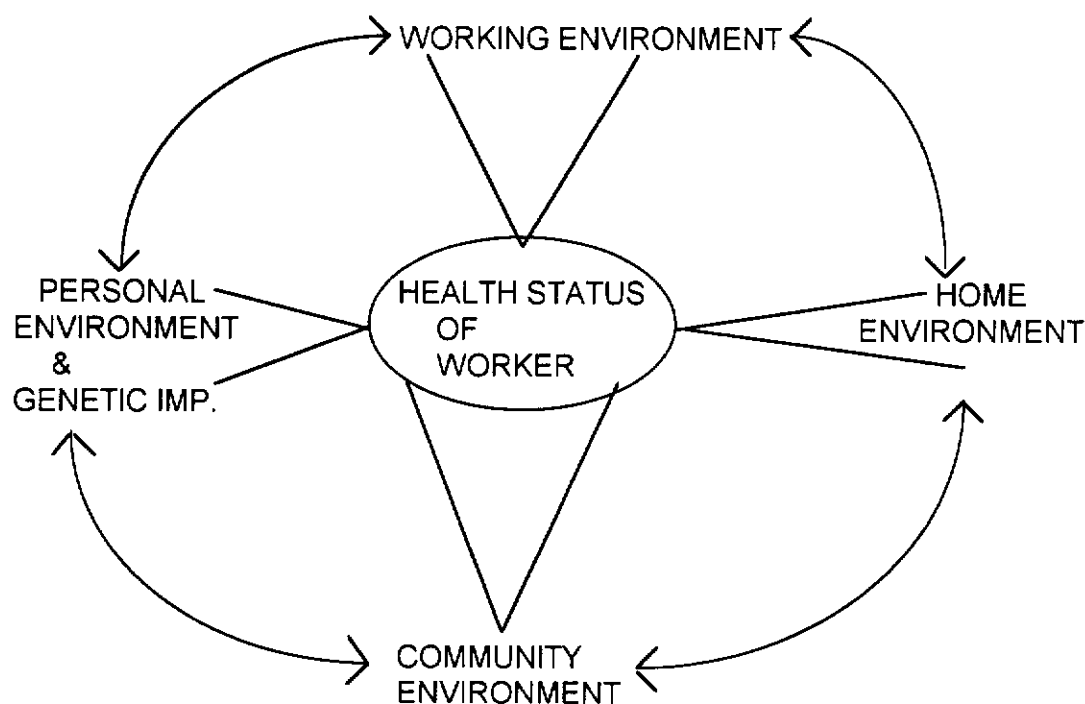
- It was felt that the area of Occupational Health and Medicine has been an area of sheer negligence. Even though its importance was realised as early as the 16th century AD, still no real advance has been made in this field till recent times.
- Persons like Agricola (1494 - 1555), Paracelsus (1493 - 1541) and Bernardino Ramazzini (1633 - 1714, also known as ‘Father of Occupational Medicine’) were some of the earliest pioneers in this field. In the later years many other persons also worked for this cause, but their views were never taken seriously neither could they ever generate any sort of mass appeal on this subject.
- The concept ‘Occupational Health’ is of recent origin and till the recent past it was practised as ‘Industrial Health’ or ‘Industrial Medicine’. Its main aim was to provide treatment for accidents and injuries arising in various industries. There was no mention of prevention and control of diseases arising out of various occupations.
- In India, legislations regarding safeguard of workers’ health were framed as early as 1881 (Factories Act). However, recognition and prevention of occupational diseases became the major purpose of activity only after 1980. Majority of workforce in India is unorganised and are exposed to countless occupational hazards, but very little is being done for them. (According to 1991 Census 91.5% workers are unorganised).

* Full details regarding the topics are available at PRIA.

Occupational Health - Definition & Early Detection of Disease

- WHO/ILO in 1950 defined Occupational Health as “**the highest degree of physical, mental and social well being of the workers in all occupations**”. It aims at prevention among the workers of departure from health caused by their working conditions, the protection of workers, in their employment, from risks resulting from factors adverse to their health and the placing and maintenance of the workers in an occupational environment adapted to his physiological and psychological conditions.
- The various disciplines under Occupational Health are:
 - Occupational Medicine
 - Occupational Hygiene
 - Occupational Hygiene engineering
 - Occupational Physiology
 - Occupational Psychology
 - Occupational Sociology
 - Occupational Safety
- Early detection of the Occupational Disease is of great importance as it can reduce the risk to a great extent. This can be achieved through proper medical examination of the workers. Medical examination of worker is important, and equally important is the right time at which it should be done. In any industry the medical check-up of employees should be done :
 - Prior to his employment (Pre- Employment)
 - Prior to placing him at any sort of job or even during any change of work. (Pre - Placement).
 - Every six months after his employment (Periodical Examination)
- The above procedure may appear ideal for early detection and hence prevention of the occupational disease but its practical implication is limited. The medical examination of all workers is a costly affair and can' be afforded by every industry, even organised sector. In India, this procedure is followed only in a few industrial sectors.

Factors affecting the health of a worker



Health Problems of Working Women & Children

- In India women are often neglected in terms of health & nutrition. Working women especially face many health problems as they have to work both outside as well as within the home. Their condition is further aggravated by the poor dietary intake.
- Working women face great deal of stress as unlike men they have no time to relax once they finish their day's work. In addition to her work she has to take care of her home, children etc. Such amount of stress makes them irritating and deteriorates their mental health.
- Child labour is a grave problem in India (app. 17.55 million child workers in 1983). 90% of total child workers work in urban area. In rural area, 90% of children are employed in agriculture.
- It is assumed that children working in hazardous environment are more easily affected compared to any adult as they are in developing stage. Once engaged in work, they lose their childhood and undergo undesirable psychological changes.

Occupational Ocular Injuries

Occupational ocular injuries account for 3 - 4% of all industrial injuries. Only 10% of the injured attend the hospital. No industry is safe from ocular hazard and in general they fall in following categories :

1. Engineering workers - are liable to injuries with metals like iron and steel, metal dressers, drillers, revators, plators etc. The injury is mostly caused by small chips of flying particles which hit the eye and producing a penetrating wound in the eye.
2. Mine workers and quarrymen - Explosions and accidents in the mines can lead to blast injuries. Often eyes are hit by flying particles of silica or coal and cause injury.
3. Chemical Industries - Chemicals used in these industries are damaging to eyes. Alkalis like Ammonium hydroxide and Sodium hydroxide cause severe burns in the eyes. Acids like Hydrochloric acid, Chromic acid etc. Cause burns of the lids, conjunctiva and charring of the cornea.
4. Injuries in farming and poultry industry - Use of pesticides and chemicals in these industries results in many ocular infections. Ocular injuries are also caused by penetration of foreign bodies like thorns, dust etc.

Ergonomics

Ergonomics in simple words would mean "fitting the job to the worker". Also known as the 'science of work', this is relatively a recent concept which came into limelight during World War II. The object of ergonomics is to achieve the best mutual adjustment of man and his work for the improvement of human efficiency and well being. Through ergonomics three major goals can be achieved :

- Prevention of accident.
- Prevention of fatigue
- Prevention of musco skeletal disorders

The application of ergonomics has made a significant contribution in reducing industrial accidents and overall efficiency and health of workers.

Noise Pollution - Effects on Health & its Prevention.

Noise in brief can be defined as any unwanted sound at wrong place and at wrong time. Noise at workplace today is a major problem. Many adverse effects to health are caused due to uncontrolled noise.

- Auditory Effects:
 - a) Auditory fatigue - appears in the 90 dB region and is greatest at 4,000 Hz and 6,000 Hz frequency.
 - b) Deafness - caused by too intense or too prolonged noise. Loss may be temporary or permanent. Continuous exposure to 100 dB noise may damage inner ear to produce permanent hearing loss.

- Non - Auditory effects :
 - a) Interference with speech.
 - b) Annoyance resulting in decreased efficiency.
 - c) Physiological changes like rise in blood pressure, increase in sweating and symptoms like giddiness, nausea and fatigue.

Noise can be controlled :

- a) at source.
- b) by controlling transmission (using sound absorbing material)
- c) by using Personal Protective Equipment (PPE).
- d) by legislation

Prevention of Occupational Disease

To ensure total health protection in an industrial set-up two approaches are required :

- To maintain safe and healthful work environment by minimising, if not eliminating the health risk by keeping the levels of chemicals within the prescribed safe limits and by adopting safe practices.

- To preserve human resource by active practice of promotive, preventive, curative, rehabilitative and reconstructive aspects of the medicine. This can be achieved by organising health surveillance programme of continuous nature.

Hurdles in getting the compensation

Though prevention of accident / disease at any workplace must be given highest priority but in case of an accident or any work related disease, the affected person should get his rightful compensation. However, this is 'easy said than done'. At present there are mainly two compensatory legislation's in our country viz. Workmen's' Compensation Act and Employees' State Insurance Act, which clearly specify the norms and procedures in claiming compensation for the affected persons. These procedures are very complicated and time consuming and employer generally being at a stronger financial position can withstand the lengthy legal procedures whereas the poor worker, most of the times, due to lack of resources, settles for something which is much less than his rightful need.

Experimental Demonstrations and Field Visit

The course was supplemented with practical demonstrations and field visits so as to apprise the participants of the latest techniques and methodologies being used in the field of occupational health. This included :

- **Demonstration of Pulmonary Function Test (PFT)**

NIOH possess a very sophisticated PFT instrument (Spirometer). Its working was explained in detail to the participants. PFT of every participant was taken so as to make them understand the working of the instrument and correct way of taking the reading.

- **Visit to Acoustic Chamber**

The amount of noise induced hearing loss is measured by a technique known as 'Audiometry'. The prerequisite for this technique is a total sound proof room or acoustic chamber. NIOH have a fully developed acoustic chamber where audiometry is carried out. This was demonstrated to the participants.

- **Visit to Hygiene & Air Pollution Laboratory**

NIOH possesses well developed hygiene & air pollution lab. Participants were shown various instruments used to measure the parameters like intensity of light, sound, quality of air etc. The working of both personal and high volume sampler was explained.

- **Field Visit to IFFCO**

Participants were taken to IFFCO Kalol, 30 Kms away from Ahmedabad, for field trip. IFFCO Kalol produces Urea and Ammonia. Safety is given the highest priority. Participants were apprised of the various safety measures taken by the company to ensure the well being, not only of their workers but also of the surrounding population. The participants interacted freely with the safety officer of the plant, who in turn showed them whole plant and various safety measures in the plant.

Feed - back from Participants

The course was conducted in a participatory methodology and participants were not only the silent listeners but took active part in discussions throughout the course. At end of the training programme there was a small presentation by each participant. Everyone praised NIOH - PRIA in their effort to conduct such a course. There were however some suggestions from participants towards making course more effective in future. Some of the suggestions were:

- Course to be conducted in a more simple and lucid language so that every one can understand even the difficult technical details on the subject and the highly technical subjects to be omitted as the participants may loose interest.
- Devising the contents of the course should take place after consultation with the participants.
- Need to generate more literature on the subject in simple language and also in local languages.
- Occupational health hazards to hospital \ health workers to be included in the course.
- Duration of the course to be increased with more stress on practical demonstrations and field visits.

DESIGN OF TRAINING PROGRAMME

	Contents
Day- 1	<p>Introduction to Occupational Health Evaluation of "Health Status of Working Population in Relation to Exposure to Work Environment". Early Detection of Occupational Diseases. Demonstration of PFT.</p>
Day - 2	<p>Legal Aspects of Occupational Health. Occupational Health Problems of Tobacco workers. Occupational Ocular Injuries. Health Problems of Working Women. Health Problems of Working Children. Ways and means of getting information on Occupational Health.</p>
Day - 3	<p>Ergonomics. Byssinosis. Occupational Health Problems Due to Noise, Evaluation of Noise and Intervention. Visit to Acoustic Chamber.</p>
Day - 4	<p>Environmental Evaluation of Occupational Hazards. Legal Aspects to Protect the Health of Workers. Concept of Preventive Technology. Health Hazards due to Exposure to Pesticides / Toxic Gases. Biological Monitoring.</p> <p>Field visit to IFFCO.</p>
Day - 5	<p>NGOs and Occupational Health Occupational Hazards faced by Health Workers.</p>
Day - 6	<p>Presentation by Participants.</p>

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General

Transcending boundaries **Occupational and Environmental Health Scenario in South Asia**

In spite of the salient characteristic of diversity of culture, history and economic development, the common cord of man made environmental disasters join the region of South Asia. We in this region are experiencing the rapid and unplanned industrialisation, which has led to the widespread suffering of the workers and the community with occupational and environmental diseases. In spite of various initiatives undertaken by the trade unions, workers groups, environmental groups, not much thrust is given to the subject by the governments.

In a recently organised training programme by Society for Participatory Research in Asia (PRIA) and the Asian South Pacific Bureau of Adult Education (ASPBAE), interesting revelations were made by participants from India and its neighbouring countries. The four day training programme which was organised from March 17-20, 1998 in Kathmandu, Nepal had participants from India, Bangladesh, Sri Lanka, Pakistan and Nepal. Representing various unions and NGO's they exchanged information on Occupational & Environmental Health in their work sphere.

This paper tries to give a brief overview of the salient points discussed during the four days. The objective of the training was to provide information on various aspects of Occupational Health and also to learn from the experiences of the participants. Specific case studies were presented by unions and NGO's throwing light on the state of Occupational Health in their country. The objective of the training programme was firstly to provide information on the so called 'technical' subject in a simplified manner which can easily be understood by the layman and secondly to provide a platform to unions and NGO's of different countries to share the scenario of their home country and together evolve new initiatives for intervention.

Salient Topics Discussed

The main topics on which sessions were taken were slotted in the following themes :

- Health Hazards affecting the workers: Human Body, Lungs/skin diseases, Noise Induced Hearing Loss.
- Vulnerable Sections: Women and Child worker.
- Prevention and Compensation: Biological and Engineering Monitoring, Accident Analysis/Safety Audit/Inspections, Prevention Techniques, Politics of OH/Law, Public Hearing, T.L.V and its politics.
- Role of the Medical Community, Trade Unions and NGO's on the issue of Occupational Health.
- Case studies of Country/Union/Industry.

Emerging Issues

The training programme generated lot of discussions and queries on various aspects of Occupational and Environmental Health from the participants. Some of the emerging issues which were debated and discussed are given in brief.

Initially there was some debate whether Occupational Health and Environmental Health were separate issues to be tackled separately or were interlinked to each other. There was a mutual consensus after discussions that Occupational Health is a subset of Environmental Health. By not giving adequate recognition to this fact, the trade unions and NGO's risk reinforcing the traditional stand of factory management that because the two are mutually exclusive, environmental concerns cannot be brought to bear on Occupational Health concerns. The equation between the two must become an integral part of our joint thinking and articulation.

The emerging scenario of Liberalisation, Privatisation and Globalisation threatens to pose a serious setback to Occupational Health and Environmental Health concerns of Trade unions and NGO's. A concerted effort must be mounted to counter this setback through a well-orchestrated campaign of public awareness and education.

In a broader perspective, the debate on alternative development models, which have traditionally focused on the 'Capitalism vs. Socialism' dichotomy has to be extended to include concerns of environmental conservation and sustainable development.

Workers' and peoples' participation in research on Occupational and Environmental Health must be actively encouraged in terms of setting research agenda, asserting ownership over research findings and deciding on the ways in which the findings can be used.

Health education in general and Occupational Health and Environmental Health education in particular must be actively encouraged in all segments of society, and women and children in particular. Mechanisms for disseminating such education must be worked out by NGO's and Trade unions in consultation and partnership with community groups.

A greater emphasis on preventive and promotive health care rather than curative health care needs to be promoted in medical education, medical professionals and health care delivery systems. Every doctor must also be an educator, and his/her ultimate goal must be to make himself/herself largely redundant.

Country Presentations

It was interesting to note the commonality of issues in all the five countries. Though there are slight differences the main issues were the same in all the countries and the unions and NGO's were also facing the same dilemma. Whether it was the implementation of laws or the apathy of the management, the issues broke all boundaries and gave the impression

that we all were a part of one same region facing the same frustrations. The participants presented case studies of their countries one by one.

Srilanka: The main produce in Srilanka is agriculture. The main crop being rice, and main cash crops being tea, rubber, coconut and spices. Recently large industries and multinationals have come up in the country to manufacture goods and services for the World market. Labour is cheap and abundantly available making the country a desirable place to set up an establishment. Some of the emerging concerns regarding Occupational and Environmental Health are the incessant use of pesticides in agriculture, non implementation of the labour laws and low awareness level of workers and unions on this issue.

Nepal: The history of democratic trade union movement in Nepal is rather brief and the growth and development of trade union movement dates back to only two to three decades. There are not many industries in Nepal. Tourism being the largest industry, it is followed by carpet industry, sugar mills, tea and jute industry. Majority of the sugar mills are owned by the government while most of the carpet and jute trade is privatised. The tea industry has ownership of both the government and private sector. On the whole the ratio of ownership is 49% government and 51% private. The retiring age in the country is 55. Health services by the industry is provided only in the big industries. The labour problems are the same like insecurity of jobs in the unorganised sector, unequal wages for women and men, low level of awareness among workers regarding occupational health, and rising dust related ailments among the workers.

Bangladesh: There are lot of issues in the realm of environment, poverty and occupational hazards which demand critical investigation. In the wake of globalization, occupational hazards are becoming rampant. In most of the industries in Bangladesh, there are no safety measures. Some of the major pollution causing industries are tanneries, jute, paper and pulp, textile, fertiliser, plastic, leather, chemicals, food and beverage, sugar, tobacco and local distilleries. Pesticides are used incessantly. Some extremely hazardous pesticides are used despite its exclusion from national standards as per WHO classification of poisoning. There are no standard minimum wages and no social security scheme like the Employees State Insurance Scheme as in India. The unions and NGO's have unfortunately not found a common ground to work on this issue.

Pakistan: The industrial development in Pakistan is taking place at a fast pace also resulting in increasing health hazards among the workers. New technology, automation and increased production have taken priority over worker's health. The unions in Pakistan are active but have not been able to work sufficiently on the issue of worker's health and safety. The workers are provided welfare schemes by the government but not adequate safety measures. The prevalence of child labour is on a large scale. Women employees do not get the same wages as their male counterparts and their problems have not been given much attention.

India: The issues emerging in the above country's presentation are the same with India. The presentations made by the participants included the health and safety status in the mining industry, railways, and the impact of industrial and environmental pollution in Aurangabad. Brief presentation was also made on the plague which had gripped Surat city in Gujarat some time back. There was a common disapproval over the ESI scheme in India which was not functioning for the purposes it was formed. The issue of worker's health keeps shuttling between the ESI and the management as a result the workers keep suffering. The unions have recently started paying attention to the issue of worker's health but have unfortunately not gained much success.

Future Challenges and Strategies

The participants came up with suggestions and views which should be paid attention by the unions and NGO's to bring about a meaningful change in the present state of workers all over the region. The emerging views from the participants stressed on the Trade unions and the NGO's taking up more responsibility to take up new initiatives.

Some of the suggested strategies were as follows:

- More initiatives at the South Asian level should be taken. There is a need to have more trainings and workshops at the South Asian level with NGO's and unions.
- More Information should be disseminated regarding the Multinational Companies. The advent of Multinationals is a common phenomenon in all the developing countries and thus more information needs to be disseminated to generate some work with this sector.
- The participants felt that the state of Occupational Health in each country should be documented and shared.
- The Central Trade Unions should set up sub-committees and give responsibility of spreading awareness on Occupational Health and Safety to union representatives at different levels from the centre to the factory level.
- Trade unions should carry out studies of all aspects of the industry involving the worker's participation. Involvement of workers participation in important decisions taken by the management on the issue of Occupational Health and Safety should be promoted.
- Joint Trade Union committees should be formed to monitor the state of Occupational Health and Safety in the country.
- Unions should broaden their work sphere by involving the people's support on environmental issues.
- Joint action by all unions should be initiated to observe a week for awareness and propaganda on Occupational Health; have special health departments for workers, ESI doctors should be permitted to visit the factories and accident sites; Special programme to extend Social Security schemes - particularly in health to unorganised sector and informal sector; introduce Occupational Health as part of Workers' Education Programme.

- Joint action with NGO's, medical institutions and other related institutions for collection of data, public awareness, putting pressure on government regarding Occupational and Environmental Health problems.
- International co-operation for data bank, advocacy to stop transfer of hazardous chemical industries from developed countries to less developed countries.
- PRIA should take up more studies on the specific occupational health problems of women and child workers.
- Special training should be given to the ESI doctors.

Conclusion

The deliberations made in the four days helped in consolidating the various issues on Occupational health which remain isolated with individual unions and NGO's. Reflections of one's own experiences which were shared with members of other countries brought a commonality to the issue which otherwise is always tackled in isolation.

The training programme came up with lot of new suggestions which can materialise in common efforts by like minded organisations to bring about a positive change in the already existing deteriorating scenario. Joint efforts and collaborations were suggested for initiating collective actions.

We hope that the deliberations take us further to action where the knowledge gathered in these four days comes out to contribute in making the workplace healthier and safer for the workers and the community living around it.