

International Labour Office

Preventive measures in hazardous occupations in Asia: A guide



40219

94209/515 eng

sep.

ILO East Asia Multidisciplinary Advisory Team (ILO/EASMAT)
ILO Regional Office for Asia and the Pacific
Bangkok

Copyright © International Labour Organization 1994

Publications of the International Labour Office enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorization on condition that the source is indicated. For rights of reproduction or translation, application should be made to the Publications Branch (Rights and Permissions), International Labour Office, CH-1211 Geneva 22, Switzerland. The International Labour Office welcomes such applications.

ISBN 92-2-109696-3

First published 1994

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory, or of its authorities, or concerning the delimitation of its frontiers. The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them. Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

ILO publications can be obtained through major booksellers or ILO local offices in many countries or direct from ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland. A catalogue or list of new publications will be sent free of charge from the above address.

Printed in Thailand

Foreword

Rapid economic development in the Asian and Pacific region has led to significant improvements in incomes and the quality of life. However, rapid industrialization has also resulted in great increases in the number of people killed and injured at work. To protect workers from increasing occupational hazards, urgent action is required at all levels.

Over the last 75 years, the ILO has been striving to protect working people. The International Labour Conference, which the ILO convenes on an annual basis, has provided the forum for adopting a number of international standards for protecting workers from various hazards.

This booklet presents a brief overview of the occupational safety and health situation in the region and highlights the issues which require special attention. It also provides guidance concerning the practical steps that need to be taken at both the national and the enterprise levels to improve workers' health and safety. It has been published on the occasion of the 75th anniversary of the International Labour Organization in 1994, and is one of a series produced by the ILO Regional Office for Asia and the Pacific.

The publication has been prepared under the direction of Mr. Seiji Machida, Occupational Safety and Health Technical Specialist, ILO/EASMAT. Special thanks are due to ILO consultant, Dr. Kazutaka Kogi, who drafted this document.

We hope this booklet will inspire governments, employers and workers throughout the region to increase their efforts to improve safety and health at work.

Assefa Bequele

Director

ILO East Asia Multidisciplinary
Advisory Team (ILO/EASMAT)

Bangkok
December 1994

Table of contents

Foreword	iii
1 Background and scope	1
2 The problems of hazardous occupations	4
3 Key elements and practical steps for action	6
Meeting urgent needs	6
Key elements of a national programme of action	6
Selecting priority industries and occupations	8
Practical steps	9
Identifying resources and expertise	10
4 Policy framework	12
Tripartite collaboration	12
Setting priorities for action	14
5 Legislation and guidelines	15
Roles of social partners	15
Risk control	17
Special preventive measures	18
Occupational safety and health administration	18
Upgrading standards and guidelines	19

6	Inspection and advisory services	21
	Enforcement and advisory functions of inspectors	21
	Important aspects of inspection	22
7	Promotional activities	24
	National campaign	24
8	Direct support for enterprise action	25
	Support for management leadership	25
	Management-worker cooperation	27
	Practical preventive measures	27
9	Training and information	29
	Training of management	30
	Training for new assignments and retraining	30
	Training of trainers	31
10	Joint industry-wide action	32
	Exchange of "best practice" experiences	34
	Relevant ILO publications	35



Background and scope

Countries in the Asian and Pacific region attach high priority to industrial expansion and modernization of agriculture as a means of sustaining economic growth. The extensive use of new and transferred technologies has an impact on working conditions and the safety and health of workers. It has brought about many new types of work and increased the potential for work-related accidents and diseases. Workers migrating from rural to urban areas have to cope with new environments and dangerous tasks unfamiliar to them. The wide geographical distribution of small and medium-sized enterprises hampers legal protection of workers.

Despite recent progress, accident rates are particularly high in construction, mining, transport, manufacturing (machine operation), farming and forestry. These sectors account for the great majority of fatal or very serious occupational accidents because they involve complex and high-risk work situations. The construction industry in many countries has the highest number of fatal accidents, due primarily to work in elevated places, constant changes at work, and subcontracting practices. High risks in mining, transport, agriculture and forestry

are similarly related to constantly changing, complex work situations and difficulties in work organization.

Workers in many occupations are exposed to health risks due to chemicals, noise, vibration, heavy materials, repetitive motions and overwork. Many industrial accidents which caused environmental damage have resulted from lack of adequate protection in high-risk occupations. The restructuring of economies has often taken place without due regard for social consequences, leaving vulnerable groups, including a large number of working children, unprotected in hazardous work situations. There are reports in the region that the economic costs of work accidents and diseases amount to as much as 2 to 4 per cent of total labour costs.

In the Asian and Pacific region, some of the most common hazardous activities are:

- work in dangerous site conditions, such as construction sites, elevated sites, underground mines and tunnels
- operation of dangerous machinery, installations and equipment

- use of and exposure to hazardous chemicals
- work in hazardous physical environments
- strenuous work involving hazards.

Recent experiences in some high-risk workplaces demonstrate that a combination of preventive measures can reduce the incidence and severity of accidents and diseases. There is need for joint action by employers and workers and for good safety management.

International labour standards, such as the ILO Occupational Safety and Health Convention, 1981 (No. 155), and subsequent Conventions and Recommendations, stress the importance of active participation of employers and workers, and a multifaceted set of measures to control risks. In addition,

they recognize the need for a management system that ensures accountability for safety and health from top management to workplace levels.

Throughout the region, international cooperation is urgently needed to establish and strengthen national action programmes for the prevention of accidents and diseases in hazardous occupations. National programmes should take into account both general safety and health requirements and the local context. Priority objectives of a national policy and programme are indicated in box 1.

This booklet has been prepared as a guide for such international cooperation in the Asian and Pacific region. Its purpose is to promote national and enterprise-level action and preventive programmes in hazardous occupations.

Box 1: Summary of conclusions on improving occupational safety and health from the ILO's Eleventh Asian Regional Conference, Bangkok, 26 November – 2 December 1991

National policy and programme

Priority objectives should include:

- reduction of the incidence and severity of occupational accidents and diseases, especially in hazardous occupations
- prevention of work-related diseases
- protection of workers, the public and the environment against industrial disasters
- safe use of technology, including new and transferred technologies
- improvement of safety and health standards in small and medium-sized enterprises
- improvement of occupational safety and health and living conditions for rural workers
- protection of children who have to work, and the ultimate abolition of child labour.

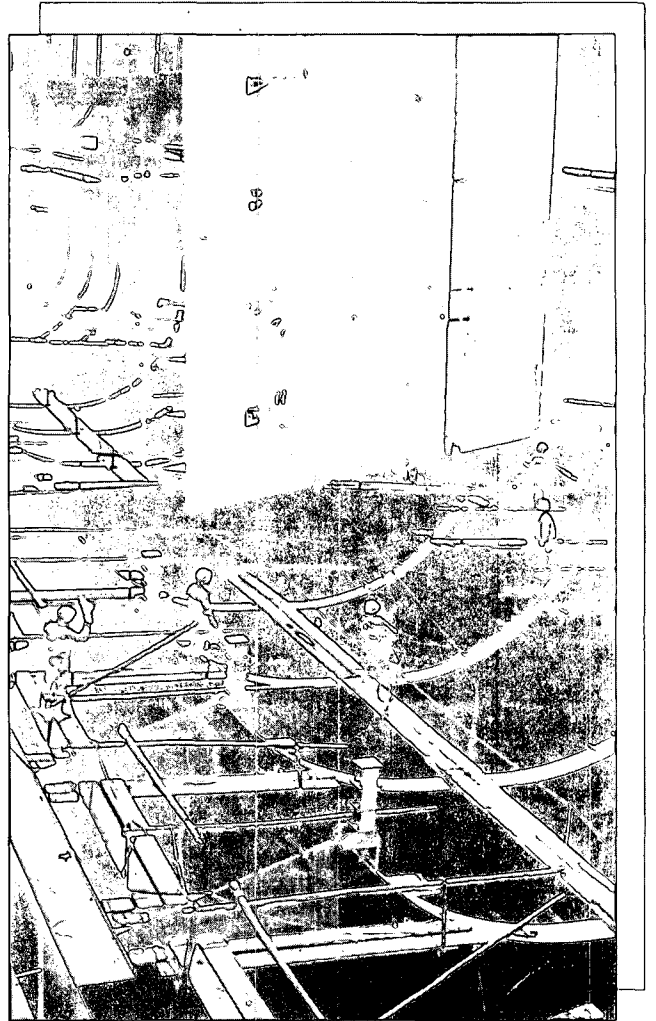
2

The problems of hazardous occupations

Hazardous occupations which involve high accident or health risks are found in many industries and in the rural and informal sectors. They require special preventive measures provided by laws, regulations and voluntary preventive programmes. Such risks are usually related to specific hazards inherent in the work or to hazardous situations. Typical examples are:

- work on scaffolds and elevated platforms
- work in underground mines
- operation of machines with moving parts or dangerous points of operation
- work with hazardous chemicals
- jobs exposed to high noise levels
- heavy physical work.

Many risks are so complex that taking a single preventive measure against a specific aspect of risk is inadequate. For example, work on scaffolds and elevated platforms exposes workers to risks of falling, being struck by falling objects, injury from unsteady operations, and adverse weather conditions. Dangers in machine operation



include unsafe materials handling, hazardous wastes, dust and fumes, electric shocks and repetitive tasks. Similarly, use of chemicals may involve fire risks and dangers associated with work in confined spaces.

The complexity of these risks makes it essential to identify and seek to control multiple risks. An additional problem is that, because the risks are encountered daily, managers and workers tend to accept them as unavoidable. They may feel that they cannot afford remedial measures or do not have the technical expertise to im-

plement them, especially when new technologies are used.

Problems are even more serious for hazardous jobs in small enterprises, subcontract work and work in rural areas. Such workplaces are geographically scattered. Safety and health centres in many countries are often unable to service these widely dispersed workplaces. Employers often feel they cannot afford special measures to reduce safety and health risks. Even those who are willing to solve the problems may not be able to do so as support in introducing remedial measures is not readily available.



Key elements and practical steps for action

■ Meeting urgent needs

The need for preventive action in hazardous occupations is acute in all countries in the region. The national programme of action for these occupations should be practical and aimed at realistic and immediate measures. While legislation and infrastructure will be the basis for effective measures, every effort must be made to initiate action even in imperfect conditions. Tripartite consensus can expedite action without waiting for a complete solution. Practical steps should include the following:

- promoting awareness that realistic action can be taken by strengthening existing structures
- upgrading legislation and administrative organization targeted at hazardous occupations
- encouraging a step-by-step approach through the provision of support measures, including technical guidance, training and information on hazard-specific action in priority areas
- mobilizing action by employers' and workers' organizations and other voluntary organizations

- promoting regional and subregional cooperation.

It is important to identify priority steps that are feasible under the existing conditions in each country and industry. Progressive implementation of the steps should be planned.

■ Key elements of a national programme of action

The following are the key elements of a national programme of action for preventive measures in hazardous occupations. Depending on the local situation, initial efforts may concentrate on some of the elements. A full-fledged programme of action should incorporate them all.

- Establish and strengthen **national policy** on occupational safety and health in hazardous occupations. The policy should be clear, succinct and part of the national development plan.
- Adopt and reinforce **mechanisms to facilitate tripartite cooperation** among government, employers and workers,

including a national tripartite consultative mechanism and a national tripartite safety council. These bodies should pay special attention to hazardous industries and occupations.

- Review and upgrade **occupational safety and health legislation**, with special reference to hazardous occupations. The legislation should require employers to ensure that working conditions are safe, with minimum risks. It should also establish the rights of workers. Where necessary, it should require registration and examination of major hazardous plants and equipment, as well as certification of competent people dealing with particularly dangerous machines, equipment and processes.
- Strengthen **occupational safety and health administration** for enforcing relevant legislation, especially in hazardous occupations. The administration should have the power and technical capability to set relevant standards, register and inspect hazardous plants and equipment, investigate accidents, arrange for certification of competent people, organize promotional activities, provide and arrange for technical advisory services and specify training requirements.
- Reinforce mechanisms for **reporting of occupational accidents and diseases**, with special reference to hazardous occupations. The administration should

be allocated adequate funds to facilitate such reporting. Reports should be analysed and publicized.

- Reinforce, in coverage and technical aspects, the **inspection and advisory services** of competent government agencies and safety and health institutions in addressing hazardous occupations. Technical advisory services could include assistance in risk assessment, workplace environment measurements, and technical solutions. These services must also reach individual enterprises. A positive approach to encourage action by employers is essential.
- Organize **promotional campaigns** to secure the commitment of employers and workers to improving occupational safety and health, with emphasis on selected priority hazardous occupations. Practical preventive measures which can be easily applied in these occupations should be emphasized. Their impact on productivity and national development should be widely recognized. Governments can play a major role in organizing promotional campaigns.
- Encourage and support the establishment of **enterprise-level organization** of safety and health that is accountable. Action should focus on hazardous occupations. Managers and supervisors at all levels should be empowered to assess existing safety and health risks and plan and implement, in col-

laboration with workers and their representatives, measures to eliminate or minimize risks. This must be supported by advice and technical assistance from safety and health professionals and related services.

- Incorporate **action-oriented safety and health training** in training programmes for new workers and in re-training programmes for managers and workers in hazardous occupations. Training should cover general and specific hazards, practical preventive measures, and first-aid and emergency measures.
- Establish and implement **training-of-trainers' programmes** in occupational safety and health, especially for hazardous occupations. Trainers may be drawn from among inspection and advisory services, safety and health institutions, employers' and workers' organizations, and industry- and enterprise-level safety and health leaders.
- Develop and disseminate **ready-to-use information materials** on hazards and on preventive measures in hazardous occupations.
- Develop and promote **joint industry-wide action** focusing on feasible and locally available preventive measures for hazardous occupations. These measures should be advocated in training, information and promotional campaigns.

- Encourage the **exchange of experience on practical solutions** for improving safety and health in hazardous occupations. Tripartite meetings, meetings of employers' and workers' organizations, seminars and training should be utilized for exchanging positive experiences. National and regional information networks can play an important role in this regard.

■ *Selecting priority industries and occupations*

It is useful to promote safety and health in hazardous occupations on a priority basis. Industries which require particular attention should be selected, and special efforts should be made progressively for selected occupations. Successful efforts in selected hazardous occupations can serve as examples for other hazardous industries and occupations. The criteria for selecting priority industries and occupations should include:

- incidence of work-related accidents and diseases
- significance of the industry or occupation to national economic development
- receptivity of the industry and enterprises to development of a national approach to improve safety and health
- preparedness to commit resources to the national approach to improve safety and health.

■ *Practical steps*

Recent experiences of participating countries in the ILO Finnish-funded Asian-Pacific Regional Programme on Occupational Safety and Health demonstrate that tripartite consensus on practical steps is crucial for effective national and industry-wide campaigns on occupational safety and health.

In planning and implementing the programme of action, practical steps reflecting national priorities should include the following:

- | | |
|--|--|
| <p>Step 1: Collect information on recent occupational safety and health experiences, including national statistics on work-related accidents and diseases.</p> <p>Step 2: Formulate a national policy on preventive measures for hazardous occupations as part of the national development plan.</p> <p>Step 3: Select priority industries and occupations.</p> <p>Step 4: Consult employers, unions and other concerned bodies to agree on consultative mechanisms, planned action, resources and timetables.</p> | <p>Step 5: Review relevant legislation and plan to upgrade them through consultative mechanisms.</p> <p>Step 6: Upgrade workers' compensation schemes and reporting procedures for occupational accidents and diseases.</p> <p>Step 7: Establish and strengthen the system for diagnosing occupational diseases.</p> <p>Step 8: Strengthen inspection and advisory services, and train inspectors for effective enforcement and advisory functions.</p> <p>Step 9: Hold workshops for key people to secure the cooperation of inspectorates, safety and health institutions, training institutions, employers' and workers' organizations, and other relevant bodies.</p> <p>Step 10: Integrate action plans for hazardous occupations into national and industry promotional campaigns — such as national safety weeks — and facilitate monitoring and evaluation activities through national and industry-level tripartite meetings, seminars and workshops on occupational safety and health.</p> |
|--|--|

- Step 11:** Identify and publicize "best practice" enterprises and simple, practical improvements.
- Step 12:** Identify and promote opportunities for integrating planned occupational safety and health action into existing industry reform initiatives.
- Step 13:** Mobilize resources and expertise at all levels for action-oriented training programmes on hazardous occupations for employers, line managers, supervisors and workers.
- Step 14:** Provide direct support for training activities on preventive measures in hazardous occupations through the development and dissemination of practical training manuals, checklists and audiovisual materials.
- Step 15:** Strengthen existing channels for disseminating such ready-to-use information material by establishing a national occupational safety and health information network.

- Step 16:** Utilize seminars, workshops, and exhibitions to exchange positive experiences on safety and health action in hazardous occupations.

Box 2 summarizes these steps.

■ *Identifying resources and expertise*

An important prerequisite for implementing these practical steps is to identify available resources and expertise. A realistic search for resources and expertise should be made within the industries concerned and through the national and provincial authorities, funding agencies, safety and health institutions, and employers' and workers' organizations.

It is necessary to mobilize resources and expertise on a step-by-step basis. Efforts must be made to select priority hazardous occupations and provide support for the implementation and evaluation of safety and health strategies. Once there is clear commitment on this, significant progress can be made.

Box 2: Summary of steps in developing a national action programme for preventive measures in hazardous occupations

1. Collect information on recent occupational safety and health experiences.
2. Formulate national policy on preventive measures.
3. Select priority hazardous industries and occupations.
4. Agree on industry plans for preventive measures in hazardous occupations.
5. Review and upgrade legislation and regulatory standards.
6. Upgrade workers' compensation schemes and reporting procedures for occupational accidents and diseases.
7. Establish and strengthen the system for diagnosing occupational diseases.
8. Strengthen inspection and advisory services.
9. Organize workshops for key people and trainers.
10. Integrate action plans for hazardous occupations into national and industry promotional campaigns.
11. Identify and publicize "best practice" enterprises.
12. Promote opportunities for integration of planned action into industry reform initiatives.
13. Mobilize resources and expertise for training.
14. Support training by developing practical manuals, checklists and audiovisual materials.
15. Establish a network for disseminating ready-to-use information.
16. Promote the exchange of positive experiences.

Regional and subregional cooperation can play a vital role in mobilizing resources and expertise and facilitating practical national action. Such cooperation is particu-

larly useful when it focuses on concrete guidance, training, information and the exchange of positive experiences.

4

Policy framework

A coherent national policy is crucial for a good safety and health management system at the workplace level. The policy should provide concrete support for enterprise-level safety and health management and practical preventive measures. It should also incorporate a statement of commitment by the government and industries concerned for coherent and sustained preventive action aimed at hazardous occupations.

The policy on hazardous occupations should be based on the overall national policy on safety and health at work, which should be part of the national development plan. It should cover legal standards for safety and health at work, inspection and advisory services, workplace safety and health management, and support measures, including training and information. Special measures for hazardous occupations must be emphasized.

■ *Tripartite collaboration*

Tripartite consultation between the government, employers and workers is essential in the formulation and implementation of a national policy and programme for hazardous occupations. It

should be part of the mechanism established for tripartite consultations on occupational safety and health policy, in general. An essential function of tripartite consultation should be to review the effectiveness of existing legislation and programmes on occupational safety and health.

Implementation of a national policy for hazardous occupations requires good workplace-level organization of safety and health action involving both employers and workers. Preventive measures should be taken through workplace-level organization, based on existing local achievements. Employers should be encouraged to view workers' safety and health as part of good business practice.

The role of safety and health committees, comprising representatives of employers and workers, must be clearly defined in the national policy. The committees should be obligatory for enterprises with a specified number of employees. They should participate in planning and monitoring safety and health action, and pay special attention to hazardous jobs. In small enterprises, safety representatives should be appointed by workers to support safety and health activities in the workplace.

In all safety and health policies and programmes, the active participation of workers is essential. Workers have the right to be fully informed of the hazards they are exposed to and the countermeasures for removing or minimizing them. They should receive appropriate training and be involved in workplace inspections and assessments of risks. They are essential partners in planning and implementing countermeasures as they often know the dangers of their jobs and ways to minimize them. Safety and health programmes for hazardous occupa-

tions cannot be successful without the active involvement of workers.

Workers should be encouraged to immediately notify the employer or supervisor about faults or defects in equipment and processes involving hazards to life or health that they, themselves, are unable to remedy. When faced with an imminent and serious risk to their safety or health, workers should be able to remove themselves immediately from work, while informing their supervisors. Workers should be able to take such



action without undue consequences, and in accordance with national laws and regulations.

■ *Setting priorities for action*

The national policy for hazardous occupations must set priorities for action. As available material, equipment and human resources are limited, it may not be realistic to tackle all hazardous occupations at once. Priorities could be set annually and reviewed frequently. It will be useful to assign high priority to particularly hazardous occu-

pations for which effective preventive measures are readily and locally available. Carefully designed immediate objectives may be defined for specific high-risk occupations in selected priority sectors of the economy. It is vital to have clear, short-term objectives that vary from year to year, or at least medium-term objectives.

Priorities could also be set for the sectors to be addressed each year, depending on local socioeconomic conditions and technological developments.

The government should enact laws and regulations that specify minimum workplace safety and health requirements, provide for inspection and advisory services, designate the responsibilities of employers and the duties and rights of workers, and provide for the cooperation of employers and workers at enterprise and workplace levels.

It is important to develop legislation that accords high priority to hazardous occupations. This is usually done by upgrading the regulatory safety and health standards for all workplaces and by specifying the additional, special regulatory measures for hazardous occupations.

As a sound basis for regulatory and voluntary measures for all hazardous occupations, legislation should cover:

- specific roles of government, employers and workers in action against all workplace hazards
- responsibility of employers for safeguarding all workers against such hazards and taking special measures for hazardous occupations

- duties and rights of workers, including cooperation with employers and the right to know about work hazards and receive training on available action against hazards
- roles of safety and health committees and safety representatives
- minimum workplace requirements for safety and health and special requirements for hazardous occupations
- need for codes of practice and guidelines on effective action against workplace hazards.

■ *Roles of social partners*

Occupational safety and health legislation should determine well-coordinated roles for the social partners (the government, employers and workers) in planning, implementing and sustaining preventive measures against all workplace hazards.

The government is responsible not only for establishing legislation, but also for administering and enforcing it, including the organization of inspection and advisory services.

Legislation should specify the employer's responsibility for keeping the workplace safe and without risks to health. Malaysian legislation provides an example (box 3). In some countries, the law may impose such responsibility only on employers of enter-

prises with more than a specified number of workers, or enterprises in certain sectors. Where there are such limitations of legal responsibility, governments should make every effort to upgrade the law so that all employers are responsible for the safety

Box 3: General duties of employers and self-employed people concerning the safety and health of workers derived from the Occupational Safety and Health Act 1994, Malaysia

To ensure, so far as is practicable, the safety, health and welfare at work of all employees, including:

- provision and maintenance of plant and systems that are safe and without risks to health
- arrangements for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of plant and substances
- provision of such information, instruction, training and supervision as is necessary to ensure the safety and health at work of employees
- maintenance of workplaces in a condition that is safe and without risks to health, and provision and maintenance of the means of access to and egress from workplaces that are safe and without such risks
- provision and maintenance of a working environment for employees that is safe, without risks to health and adequate as regards facilities for their welfare at work.

To prepare and revise a written statement of general policy with respect to the safety and health at work of employees, to arrange for carrying out that policy, and to bring the statement and any revision of it to the notice of all employees.

To conduct undertakings in such a manner as to ensure that people, other than employees, who may be affected thereby are not exposed to risks to their safety or health.

and health of their workers. Employers should also make voluntary efforts, beyond the minimum legal requirements, to eliminate or minimize existing risks at work.

The legal responsibilities of employers should include establishment of company safety and health policies (which should be made known to all workers) and organization of safety and health action involving managers, supervisors and workers.

Workers should be able to remove themselves from work, without undue consequences, and in accordance with national law and regulations, in case of an imminent and serious risk to their safety or health, but should inform their supervisors immediately.

The law should specify that workers have the duty to participate in safety and health activities of the enterprise, to perform work safely in accordance with instructions from superiors, to use the prescribed protective equipment, and to cooperate to prevent accidents and injuries. The law should provide that workers have the right to be fully informed of the hazards that they are exposed to and the necessary counter-measures.

Legislation should also provide for safety and health committees and safety representatives, and define their roles in organizing the control of workplace hazards. Effective safety and health committees should be set up in as many enterprises as possible.

Likewise, it is important to have elected and effective safety representatives in as many workplaces as possible.

■ Risk control

Legislation should provide minimum requirements with respect to protecting the safety and health of workers. It is not possible to specify all the requirements, in detail, because of diverse conditions across workplaces and rapid technological developments. However, legislation should stipulate the general minimum requirements, perhaps with more detailed requirements spelt out in codes of practice and guidelines. Examples of the general aspects which could be covered in legislation are: protection against moving parts of machinery; safe construction and maintenance of electrical equipment; safety in the use of all hazardous chemicals; safety of lifting equipment and pressure vessels; adequate ventilation and lighting; suitable means of extinguishing fires and escape in the event of a fire; provision and maintenance of suitable protective equipment.

Legislation should also state clearly the obligations of manufacturers, importers and suppliers of machines, technical equipment and chemicals used at work. They should provide users with information about the hazards involved in equipment and chemicals, and their safe use. In the case of hazardous chemicals, this means the provision of chemical safety datasheets (material safety datasheets). Such legislation is es-

pecially important in the case of new and transferred technologies.

■ *Special preventive measures*

Further legislative provisions are needed for special preventive measures for hazardous occupations. Legislation should define the occupations which require special efforts, as part of occupational safety and health legislation, and specify necessary measures for these occupations. Special measures could include:

- particular safety standards for workers in the defined occupations
- special health measures to protect workers in the defined occupations, and for surveillance of their health
- examination and certification of competent people responsible for workplace safety and health
- requirements for appropriate training of the concerned workers
- promotional measures to assist enterprise-level action.

■ *Occupational safety and health administration*

Effective implementation of legislation depends on the efficiency of the national administration for occupational safety and health. The administration must:

- enforce all specified measures, particularly through its inspectorates
- review measures taken by enterprises, such as those concerning the safety of machinery and effectiveness of protective equipment
- arrange for the examination and certification of people with special occupational safety and health roles



- assist in providing technical services for enterprises
- arrange appropriate training programmes
- assist voluntary organizations in promotional activities.

One important role of the administration is to ensure the reporting and investigation of accidents and diseases covering all hazardous occupations. Coordination is desirable with the social security system and agencies responsible for national statistics and accident investigation. Investigation of the causes of the most serious or frequent occupational accidents and diseases is essential for identifying preventive measures. The law should provide for a committee of inquiry to be appointed to investigate the causes of very serious and complex accidents.

A system of diagnosing occupational diseases should be established. There should be a national list of notifiable diseases, which should be reviewed from time to time. Medical professionals may have difficulty in diagnosing occupational diseases because they are unfamiliar with them. There should be a system of facilitating diagnosis and determining whether a particular disease is occupational or not according to national legislation. Training of physicians in diagnostic techniques is important. The system should have appeal procedures to deal with disagreements.

Within the social security system, there should be arrangements for compensation for occupational accidents and diseases. Normally an insurance scheme for workers' compensation is set up nationally. The coverage of such a scheme should be extended to all workers, with priority for those in hazardous occupations. Such a scheme may be combined with the reporting procedure for these accidents and diseases, and with a system for recognizing them. This system should establish general criteria for recognizing accidents and diseases and procedures for appeals in case there are differences of opinion.

■ *Upgrading standards and guidelines*

There is a clear trend towards emphasizing good organization of safety and health programmes with the active participation of employers and workers. Recent ILO Conventions and Recommendations offer valuable guidance in this regard. Especially important are:

- Occupational Safety and Health Convention No. 155 and Recommendation No. 164 (1981)
- Occupational Health Services Convention No. 161 and Recommendation No. 171 (1985)
- Asbestos Convention No. 162 and Recommendation No. 172 (1986)

- Safety and Health in Construction Convention No. 167 and Recommendation No. 175 (1988)
- Chemicals Convention No. 170 and Recommendation No. 177 (1990)
- Night Work Convention No. 171 and Recommendation No. 178 (1990)
- Prevention of Major Industrial Accidents Convention No. 174 and Recommendation No. 181 (1993).

National codes of practice and action guidelines need to be developed for risk assessment and management, in general, and for specific sectors and job groups, in particular. Existing international codes of practice and guidelines can provide the foundation for developing national codes and guidelines.

6

Inspection and advisory services

Inspection plays a vital role in supervising compliance with occupational safety and health legislation. The appointment procedure and functions of labour inspectors (in some countries, the officials responsible for technical safety and health are called factory inspectors) must be clearly stipulated in law. The law should also provide for procedures for issuing orders and imposing penalties and for appeals against such orders and penalties. It is crucial to have enough trained inspectors who are capable of enforcing legislation and providing advice to enterprises.

Inspection and advisory services should support effective preventive action in enterprises against all work hazards. Priority should be placed on:

- encouraging the initiative of employers and workers in assessing and controlling safety and health risks at the workplace
- promoting action to address priority work hazards
- providing guidance on practical, technically sound improvements which are feasible in the local context

- furthering participatory training of employers, supervisors and workers in risk assessment and control
- promoting the exchange of positive experiences among different enterprises and sectors.

■ *Enforcement and advisory functions of inspectors*

Inspection activities should be developed in an integrated way. Occupational safety and health inspection is normally carried out as part of inspection of observance of labour laws and regulations. The functions of inspectors may differ from country to country, depending on the division of work among government agencies. In some countries, a labour inspector has the power to inspect all aspects of working conditions, including occupational safety and health. In other countries, a general labour inspector may inspect general working conditions, while an occupational safety and health inspector (often called a factory inspector) may inspect safety and health conditions only. There may also be inspectors specialized in certain fields such as boilers and pressure vessels, mines, explo-

sives, occupational medicine and industrial hygiene. It is important to try to inspect individual enterprises in an integrated manner so that inspectors can guide enterprises in addressing safety and health hazards as an essential part of overall management.

It would be worthwhile, for example, to train general labour inspectors to inspect basic aspects of occupational safety and health, and also to train safety and health inspectors to inspect general working conditions. Such "cross-training" can help in inspection of a larger number of enterprises, given the limited number of inspectors. A system of integrated inspection may evolve, depending on the national context.

The inspection procedure and requirements should be specified in legislation. They should include registration of hazardous equipment or processes designated as such, entry of inspectors into establishments, qualifications and functions of inspectors, maintenance of inspection records, notification of violations and necessary instructions, and follow-up procedures.

An important function of inspectors is to provide technical advice to individual enterprises. Advice should be given on the safe design and operation of machinery; health risks associated with the use of machinery, equipment and processes; safety in the use of hazardous chemicals; protection against hazardous physical agents; and provision of

appropriate protective equipment. Inspectors can play an important role in guiding enterprises on the use of personal protective equipment as a last protective measure after all practicable measures have been taken to improve the working environment. Inspectors can also promote the integration of environmental concerns into workplace safety and health programmes.

■ *Important aspects of inspection*

Top priority must be given to the elimination of imminent dangers. An imminent danger is any condition where there is reasonable certainty that a danger exists that can cause death or serious harm to workers or the public. Imminent dangers must be identified during routine risk assessments by employers and their representatives. Inspectors should be well trained to note such dangers during normal inspection.

It is also important to ensure good safety and health management for all hazardous occupations designated by national legislation. This can be effectively done by checking whether there are persons responsible for safety and health for such occupations, as specified by law, and how they plan and implement relevant programmes on a routine basis.

In assessing the standards of safety and health management of the enterprise, special attention should be paid to the accident reporting and recording system. Inspectors,

together with employer and worker representatives, should check the records and examine the results of investigations of fatalities and serious accidents.

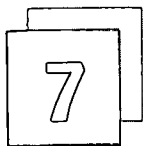
The next priority is to ensure safety in the use of hazardous machines and processes. Where national legislation requires a competent person to be employed to act as chief operator or safety officer, it is necessary to check if the person is qualified and receives adequate retraining. For other types of hazardous machines or processes for which the legislation does not require appointment of a competent person, inspectors should ensure that the people employed are adequately trained.

Everyday management of workplaces must ensure adequate maintenance of hazardous machines and equipment. Employers should ensure that machines and equipment meet design standards and are properly maintained. Inspectors should check the effectiveness of such measures.

Training and promotion of safety and health within the enterprise are other matters on which employers should provide information to inspectors. In particular, proper records of training of new workers and retraining of workers in hazardous occupations should be kept.

The effective functioning of a safety and health committee within the enterprise, as required by legislation, should be checked by inspectors. The results of self-evaluation of safety and health programmes of the enterprise should provide evidence to inspectors about the appropriateness of safety and health management.

All these aspects of inspection must be supplemented by provision of advisory services at the time of inspection. While the primary purpose of the inspection visit is to check compliance with laws and regulations, this occasion can also be used to advise the enterprise on practical improvements.



Promotional activities

The level of safety and health consciousness varies among countries in the region. Some countries have a fairly advanced occupational safety and health infrastructure. In others, the basic concepts of safety and health have not yet been incorporated into the national policy and programme. Promotional activities, through tripartite cooperation, can play a vital role in evolving practical strategies at the national and enterprise levels.

The principal aim of promotional activities should be to secure national and enterprise-level commitment to safety and health in the workplace. Emphasis should be given to:

- publicizing the need for safety and health action in all workplaces, particularly for hazardous jobs
- organizing regular national campaigns, such as a national safety week
- conducting safety and health campaigns to promote awareness among specific target groups in specific sectors
- promoting the exchange of experiences on practical improvements in dealing with workplace hazards.

□ *National campaign*

The organization of a national campaign on safety and health at work is particularly useful. Such a campaign could include an annual safety week, occupational safety and health conferences, regular awards to enterprises with good safety records, promotion of safety and health through mass media, and wide distribution of practical information materials.

The development of ready-to-use information materials has a special place in such campaigns. Such materials are particularly effective in raising safety and health awareness among employers and workers, and in guiding them on how to eliminate or minimize risks at work and prevent or reduce the consequences of accidents and diseases. They should emphasize practical, low-cost solutions.

Promotional activities should focus on establishing close links between good working conditions and productivity and economic development. These activities should advocate good safety and health management as part of sound business practice.

There is growing awareness in the region of the need for good management of safety and health programmes at the enterprise level. Serious occupational accidents and diseases, and occupational safety and health legislation have reinforced this awareness. This calls for direct support for enterprise action, including:

- fixing responsibility for safety and health action at the workplace, with particular emphasis on priority hazards
- undertaking management-initiated risk assessments
- conducting regular surveys of the working environment and the health of workers
- identifying available, technically sound solutions
- developing positive attitudes towards safety and health at work and action-oriented training for managers, supervisors and workers.

■ *Support for management leadership*

The enterprise safety and health programme must start with active support of top management. Without clear management leadership in workplace safety and health action, the enterprise will not be able to take sustained action for hazardous occupations. Management leadership involves willingness to accept responsibility for the safety and health of workers as an integral part of company operations. It also means accepting responsibility for raising the awareness of all members of the enterprise. All representatives of management must demonstrate their commitment to safety and health at work.

Management should demonstrate its active interest in the safety and health of its employees by a written policy statement. The policy statement should be made known to all levels of management and employees. It should outline the enterprise's objectives for safety and health action and make it



clear that the responsibility for achieving the objectives lies with top management, operations managers, supervisors and workers. It should be regarded as the cornerstone of the enterprise's safety and health programme. Such a policy can be promoted by training employers, line managers and safety and health personnel.

The employer's responsibility for safety and health at all levels of management should be given full support through legislation and the national programme, as well as through promotional activities at national, regional, industry and local community levels. Areas for support for top manage-

ment in assuming safety and health responsibilities should include:

- ensuring a clear and consistent leadership role by top management in enterprise safety and health programmes
- ensuring safety in the design, use and maintenance of plant, machines, tools and equipment
- designating competent supervisors well trained in safety and health practices
- establishing and updating operating procedures, and communicating them to enable employees to follow safety and health requirements

- recording work-related accidents and illnesses, investigating their causes and identifying countermeasures
- reviewing safety and health action, and ensuring appropriate action against work-related accidents and illnesses
- ensuring that management obligations under legislation and labour-management agreements are fulfilled
- holding regular meetings, including meetings of safety and health committees, for monitoring safety and health activities.

■ *Management-worker cooperation*

Management must make it clear to workers that they are to follow all safety and health rules, procedures and instructions in a responsible manner. Workers must regard safety and health measures as an overall part of their job. In particular, the duties of workers include:

- following enterprise safety and health rules, procedures and regulations
- receiving training and instruction on potential hazards associated with their jobs and on preventive and first-aid measures
- wearing or using prescribed safety and protective equipment, as required by the employer

- reporting hazardous conditions and equipment to the supervisor
- reporting work-related injuries or illnesses to the supervisor and seeking prompt medical or first-aid treatment
- participating in safety and health programmes of the enterprise.

Enterprise-level cooperation in all aspects of safety and health at work should be promoted with the active participation of workers. This should also be pursued through safety and health committees, safety representatives (selected from among workers), and daily contacts with managers and supervisors.

A safety and health committee is particularly important where there are hazardous occupations. The committee should have members representing both management and workers. It should hold regular meetings, as specified by law, to discuss safety and health programmes, the results of investigations of work-related accidents and illnesses, and the preventive measures that need to be applied immediately.

■ *Practical preventive measures*

It is particularly useful to advocate practical preventive measures for hazardous situations. This can best be done

by acquainting employers and workers with locally feasible measures through training and information activities. While compliance with laws and regulations is important, it is

also important to encourage voluntary action by promoting such practical improvements in the existing local conditions. Box 4 cites an example of self-regulatory measures.

Box 4: Practical self-regulatory measures for hazardous jobs in the construction industry

These are some self-regulatory rules set by a Japanese construction company:

- Long-term management plans and annual management policies on the control of safety and health risks are established for each branch office.
- Site managers establish an annual plan and select key areas of safety and health administration.
- The site director becomes the site overseer for safety and health management.
- A safety and health committee is organized in each branch office and at each construction site (a site with five or less employees may choose not to have a safety and health committee so that the site is subject to the control of the safety and health council organized at every workplace).
- For each place of operation, a general safety and health supervisor, a site safety and health supervisor and an industrial physician are appointed.
- The head of each place of work appoints a suitable person in charge of work safety.
- The safety and health plan, which constitutes a part of the construction plan, is studied by a special committee.
- The site staff inspect equipment, the working environment and work methods according to a plan.
- At each site, staff conduct safety and health training based on their own plan of action.
- Presidential awards are given every year to branch offices with excellent safety and health performance.

The promotion of training and information activities should be an essential part of the national policy for hazardous occupations. Appropriate action-oriented training programmes must be organized for all workers in hazardous jobs and for employers, managers and supervisors. Training of safety and health committee members and safety representatives is also important. Information activities should be encouraged at all levels to provide ready-to-use information on potential risks and feasible improvements.

In addition, training of inspectors and safety and health professionals is critical, especially for their roles in promoting safety and health of workers in hazardous occupations. Also crucial is the training of trainers in safety and health in these occupations. Trainers can be drawn from various sources such as industry, government and academia. Training is necessary not only on potential hazards and locally feasible solutions, but also on how to organize enterprise-level action with the active participation of employers and workers. Further, training of designers and suppliers of hazardous machines, equipment and chemicals is indispensable.

In many countries, safety and health training is being organized by public and private organizations for specific target groups among employers and workers. It is essential to exchange positive experiences and develop and apply appropriate training methods that address priority hazards.

Recent training and education activities in the region have highlighted practical and widely applicable occupational safety and health principles which are particularly relevant to hazardous occupations. Future training activities should:

- advocate a training strategy that addresses specific local needs and is integrated into the management of enterprise-level activities
- establish a training infrastructure, possibly within each sector, with legislative back-up
- organize action-oriented training programmes focusing on practical cost-effective improvements in the working environment

- furnish these programmes with action-oriented ready-to-apply training and information materials that take account of local conditions and are in local languages
- facilitate the training of trainers by developing good training packages based on positive local experiences.

□ *Training of management*

It is essential to train top management, operations managers and supervisors in the execution of their responsibilities, which include:

- ensuring that the enterprise policy is known to all workers
- instructing employees about safety and health hazards inherent in their work
- ensuring that established safety and health rules for all operations under their jurisdiction are followed
- correcting unsafe acts and unsafe and unhealthy conditions
- ensuring that safety devices and personal protective equipment are used in accordance with job requirements
- encouraging workers to report unsafe conditions, faulty equipment or defective safety devices

- making daily inspections of work areas to identify unsafe conditions and practices.

Since supervisors have direct control over employees and can act directly in maintaining a safe and healthy workplace, they must be given the appropriate authority, as well as management support, to carry out their responsibilities. Operations managers and supervisors should be trained in auditing and monitoring safety and health activities. It is particularly important that they are trained to take appropriate corrective measures for safety and health problems.

When work to be carried out in the enterprise is assigned to contractors or subcontractors, the employer should ensure that the safety and health standards applicable to regular employees also apply to subcontract workers. The contractors and subcontractors should be responsible, together with the principal employer, for ensuring the implementation of safety and health rules and practices.

□ *Training for new assignments and retraining*

Employers have the responsibility for providing training and information on safety and health to managers, supervisors and workers at all levels. Workers must receive adequate safety and health training, in the form of information and instructions specific to their jobs, upon recruit-

ment, transfer or change of job, or the introduction of new or different equipment or technology. They must also undergo re-training to maintain and refresh skills and knowledge.

Training upon recruitment or transfer to hazardous occupations must be obligatory for workers. The content of the training must take account of the general principles of safety and health at work, as well as the specific risks in the job. Training for new workers will normally last several days, followed by on-the-job training.

Training must be comprehensive and cover all work risks, focusing on potential hazards, practical preventive measures, emergency action and first-aid. It should cover not only safe behaviour, but also knowledge and skills to reduce or eliminate risks. Well-informed workers can also protect themselves better and minimize the consequences of accidents and illnesses at work.

Employers should ensure that workers from outside the enterprise receive appropriate safety and health instructions for work within the enterprise.

Dissemination of ready-to-use information should be linked with training activities. Where safety and health information services exist, it should be ensured that the information is effectively used in relevant training programmes.

Training expenses should not be borne by workers or their representatives.

■ *Training of trainers*

Training of trainers is a key factor for the success of all training activities. As training must be participatory and focus on practical aspects of prevention, trainers should be trained on how to organize participatory training programmes. They must be knowledgeable about the specific hazards of each occupation for which training is to be provided.

Development of good training programmes and training materials is essential for effective training. Checklists, action manuals, information sheets and job instructions must be developed taking fully into account the specific risks of the occupations. The cooperation of safety and health centres and bodies is crucial.

10

Joint industry-wide action

Enterprises in the same industry face similar hazards and problems. The problems can be better tackled when these enterprises take joint action, as is the practice in some countries. Industry-wide cooperation is particularly valuable in dealing with hazardous occupations.

It is very useful to organize joint industry-wide action for common safety and health problems, such as:

- organization of joint awareness campaigns, within the industry, on enterprise initiatives in safety and health



- organization of joint events, such as industry-level meetings and workshops
- joint development and use of risk assessment methods for the main hazardous occupations
- joint development and use of action-oriented training programmes targeted at hazardous occupations
- exchange of experience on positive achievements in dealing with common hazards, through meetings, workshops, training and practical information materials (as described in box 5)

Box 5: Industry occupational health and safety development: The Australian experience

With its new Corporate Strategic Plan on occupational health and safety (OHS) for the period 1992-95, the Australian National Commission on Occupational Health and Safety (Worksafe Australia) has placed special emphasis on industry OHS development as one of three urgent priorities. (The other two priorities are national uniformity of OHS standards and research responsive to the OHS needs of industry.)

The objectives of the plan are to improve industry OHS performance and reduce the incidence, severity and costs of occupational injuries and diseases in selected national industries. Worksafe Australia's Business Plan 1992-93 has the following key elements:

- Develop national industry OHS strategies and plans by an advisory group and implement them in selected industries
- Liaise with national employer and union organizations
- Release OHS "best practice" case studies in the industry
- Organize industry seminars
- Disseminate "best practice" and "how to" information
- Develop guidelines for integrating OHS competencies into industry and occupational competency standards
- Develop computer information discs and publications, and promote, for each industry, a training resource kit
- Train managers, supervisors, safety representatives and health and safety committee members.

- incorporation of safety and health matters into management and vocational training programmes for the industry.

Industry-wide activities can be promoted through consultation among employers, trade unions and other concerned bodies, to reach agreement on resources, and activities and timetables for their implementation.

■ Exchange of "best practice" experiences

The exchange of positive experiences within an industry is especially valuable. Efforts should be made to

identify "best practice" enterprises or enterprises with above-average safety and health performance. Information on their activities and achievements should be publicized.

Of particular interest to an industry is the dissemination of training and information materials that illustrate practical solutions available within the industry: examples of simple low-cost improvements are particularly important. Such training materials can facilitate the training of trainers, managers, supervisors, safety and health representatives, and safety and health committee members for dealing with industry-specific hazards.

Relevant ILO publications

1. *Encyclopaedia of occupational health and safety* (Geneva, 1983)
2. *Higher productivity and a better place to work: Action manual* (Geneva, 1988)
3. *Major hazard control: A practical manual* (Geneva, 2nd impression, 1990)
4. *Occupational exposure to airborne substances harmful to health: An ILO code of practice* (Geneva, 3rd impression, 1991)
5. *Prevention of major industrial accidents: An ILO code of practice* (Geneva, 1991)
6. *Safety, health and welfare on construction sites: A training manual* (Geneva, 1995)
7. *Safety and health in the use of chemicals at work: A training manual* (Geneva, 1993)
8. *Safety in the use of chemicals at work: An ILO code of practice* (Geneva, 1993)
9. *Safety and health in construction: An ILO code of practice* (Geneva, 1992)
10. *Safety and health in the use of agrochemicals: A guide* (Geneva, 1991)
11. *Safety and health in opencast mines: An ILO code of practice* (Geneva, 1991)
12. *Safety in the use of asbestos: An ILO code of practice* (Geneva, 3rd impression, 1990)
13. *Safety, health and working conditions in the transfer of technology to developing countries: An ILO code of practice* (Geneva, 1988)
14. *Safety and health in coal mines: An ILO code of practice* (Geneva, 1986)