



**Strengthening of Labour Standards
In Selected Developing Member Countries**

ADB/ILO RETA Project No. 5887

**Regional Review:
Occupational Safety and Health**

Douglas Hay

**Final Draft
September 2002**

This report has been lightly edited by the International Labour Office and the Asian Development Bank. The responsibility for opinions expressed in this report rests solely with the author, and publication does not constitute an endorsement by the International Labour Office or the Asia Development Bank of the opinions expressed therein.

List of Contents

Executive Summary	3
Section 1	
Introduction	4
Section 2	
Objective of Review	6
Section 3	
Administrative Infrastructure.....	7
Section 4	
Effective Administration of Safety and health Legislation	20
Section 5	
Employers and Workers Organisations	24
Section 6	
Health & Safety Training and Education	29
Section 7	
Worker Compensation and Accident and Injury Statistics.....	32
References	37
Appendix 1.	
Conventions and Recommendations	39
Appendix 2	
ILO Codes of Practice	42

Executive Summary

Every year it is estimated that 250 million workers are involved in occupational accidents and 160 million workers develop some form of occupational illness. It is the developing countries which are most affected by this injury and illness toll. It is these countries, which are the poorest and in their quest to improve economic conditions, forgo many of the basic controls to protect their workers from harm by uncontrolled workplace hazards.

For there to be improvement in working conditions there needs to be a concerted effort by governments, employers and unions to work together to control the hazards in the workplace.

This review centers in developing countries in the Asian region and the steps these countries will need to take if there is to be an improvement in working conditions.

These steps are centered around six areas of occupational safety & health and include:

- ▲ Drafting of a national occupational safety and health policy which is regularly reviewed
- ▲ Development of good effective OSH legislation covering all areas of economic activity and workers in both the formal and informal sectors
- ▲ A competent and knowledgeable inspectorate with the resources to undertake regular inspections and bring prosecutions where there are serious breaches in the law
- ▲ Provision of information to employers on the hazards in their workplaces and the methods to control these hazards.
- ▲ Provision of information to workers about the hazards they face and the effects these may have on their health if they are uncontrolled
- ▲ A workers compensation scheme that covers all workers and provides statistical information on the distribution of injuries and illness in the workplace.

People are a country's greatest asset for sustainable growth and development. A healthy and motivated workforce is a key ingredient for economic prosperity and this will only be achieved through the goodwill and cooperation of the 3 partners – government, employers and workers.

This regional review addresses the situation as it currently exists within the Asian region and suggest actions that need to be taken if occupational safety & health standards are to improve throughout the region.

Section 1 Introduction

A number of sources of information were used in the preparation of this report. Consideration was given to all of the available evidence and information in the formulation of the conclusions and recommendations in the report. Data was drawn from:

- ▲ A review of existing ILO reports
- ▲ Surveys and investigations of small, medium and large scale enterprises throughout the region.
- ▲ Discussions and interviews with relevant government agencies, employer organisations and unions.

The evidence establishes that occupational safety and health standards in the region are unsatisfactory and leave large numbers of workers exposed to significant and avoidable safety and health risks in their daily working lives. Limitations in accident and occupational disease and illnesses data coupled with a lack of inspectorial oversight of workplaces, mean that precise quantification of the scope and scale of these failures in workplace safety and health standards is difficult. Never the less, the statistics that are available, anecdotal reports from reliable observers and industry and workplace specific inquiries and investigations are all consistent in supporting the general conclusions outlined in this report.

There is no single reason for this situation but some dominant trends and factors can be identified. Prominent among these is the very rapid economic growth that has occurred in many Asian countries over the past two decades. This has transformed the economies of many countries and has created employment opportunities for large numbers of workers who would, in previous generations have been engaged in subsistence agriculture and home based "cottage" occupations. Much home based activity persists in the informal sector but this is now often driven by the economic imperatives and demands to supply new large manufacturing enterprises rather than being controlled by those carrying out the work.

There is evidence that this rapid economic growth has created and exacerbated safety and health risks for many workers. This report identifies the following essential factors as core contributors to this process –

- The drive for greater economic growth and higher productivity has outstripped the capacity of many countries to provide for the safety and health of their workers. This growth has had social costs in terms of its impact on the workers whose labour sustains the new industries and on the environments in which the new plants are located. There is often a compounding of the detrimental effects on the safety and health of workers in that they are exposed to hazards at work and also experience the environmental impact of the new workplaces in degraded air and water quality.
- Economic growth introduces new processes and activities, the safety and health implications of which are often poorly understood. This is particularly the case when the long term health effects of exposure to hazardous substances, occupational noise or repetitive manual work are considered. In countries where these industries with these characteristics have been long established the hazards are recognised and controlled. This knowledge is often either not transferred to the emerging Asian economies or is disregarded in a drive for lower costs and higher productivity.
- Understanding and awareness of occupational hazards among employers and workers is often limited and there is some sense that growth and profit is perceived to be more important than the preservation of the life and health of the workers creating the production. There is little evidence that a "safety culture" exists in Asian countries. In an occupational setting, this can be defined as a fundamental belief in the importance of ensuring that workers are able to perform their tasks without being harmed.
- Government regulation and oversight of working standards and conditions has not kept pace with economic development. Intervention by governments to protect the safety and health of their working populations has been limited because the legislative and administrative infrastructure needed to facilitate such oversight is insufficient to meet the demands of rapidly growing economies.

This report addresses all of these issues. Occupational safety and health standards in the region cannot be transformed by short term strategies and a series of programs and steps are recommended to advance the welfare of Asian workers. The ultimate objective must be to achieve, in each country, an environment in

which safety and health risks to workers are recognised and where the control of those risks is a basic priority for employers, workers and governments.

The process must start with a combination of strict regulation and enforcement coupled with information and education for workers and employers and the provision of positive incentives to encourage improvements in safety and health performance. This approach of informing employers and workers about their rights and responsibilities while penalising negligence and underperformance and rewarding good performance has the objective of eventually building strong sustainable commitments to safety and health.

Regulation and Enforcement

Governments at regional and national level have a crucial role in setting and enforcing occupational safety and health standards. This is a proper role for governments in intervening to protect the welfare of their people. The evidence from this study and from others is that most countries in the region lack adequate occupational safety and health legislation. Such legislation must be developed and it must be administered effectively by trained and competent inspectors who are sufficient in number to provide coverage of at least the highest risk workplaces in each country.

The nature and extent of the legislative arrangements that are developed should be tailored to the needs of each country. Initially such laws should generally be prescriptive in setting explicit and enforceable safety and health standards for different industries. This would provide clarity and certainty for employers as to required standards and inspectors would have specific standards against which to issue enforcement notices. As knowledge of safety and health requirements is developed and commitment gained to a “safety culture” a move to management systems based legislation should occur. Employers and workers would base this on the active and collaborative management of safety and health in workplaces with third party intervention evolving from an inspection and enforcement focus to more general oversight and advice.

Safety and Health Education, Training and Information

This is the second core theme of this report. Employers, workers and government agencies all require knowledge and skills to meet their respective responsibilities. Developing an awareness of safety and health issues and building a cadre of people with the skills and knowledge to address those issues is of critical importance.

Incentives

These should complement the regulatory and enforcement approach. Incentives to promote safety and health performance can include discounts on insurance levies or premiums for occupational injury and regional or national schemes to recognise and reward corporate and organisational commitment to safety and health. Again these should be tailored to each countries individual circumstance.

ILO Standards on safety & health

One of the key functions of the ILO is the development of international standards on labour and social matters. These international standards take the form of Conventions and Recommendations. About 70 of these standards deal with occupational safety & health matters. In addition to these conventions and recommendations further guidance is provided in the form of Codes of Practice and manuals, which are used as reference material by those in charge of formulating detailed regulations or responsible for occupational safety & health.

The key occupational safety & health conventions are listed in appendix 1. The key occupational safety & health codes of practice are listed in appendix 2. Detail on the contents of these conventions, recommendations and codes of practice can be obtained by accessing the ILO website (www.ilo.org)

Review Structure

This review examines each of the key areas given in section 2. of this report. In doing this the four country papers are used to illustrate issues arising in OSH. Illustrative examples are drawn from the four country papers together with other relevant examples from other ILO documentation. The structure used in each of the key areas is the same, under the headings: -

- ▲ General
- ▲ Strategies
- ▲ Actions.

Section 2 Objective of the review

This review is part of a larger study undertaken as a joint project between the International Labour Office (ILO) and the Asia Development Bank (ADB). This Regional Technical Assistance Agreement (known as RETA No 5887) was signed on 9 November 2000 and focuses on three major fields:

- Increase awareness of key policy makers in the Developing Member Countries (DMCs), Non-Governmental Organisations (NGOs) and the private sector regarding the economic and social implications of the non-implementation of labour standards.
- Improve the capacity of policy makers in DMCs and ADB staff to prepare and implement projects that would move children from the worst forms of employment and to school.
- Enable ADB staff at headquarters and country levels to address the issues of poverty reduction and child labour issues by strengthening the implementation of relevant labour standards in ADB assisted development interventions.

In respect to occupational safety and health the major objective of this review is to examine safety and health issues in developing countries and more specifically in the Asian region to develop an action plan for the improvement in working conditions. The ADB in its role as an international development finance institution whose main role is to promote the economic and social progress of its DMCs by lending funds and providing technical assistance has the ability to promote adherence to international labour standards in the projects that it funds.

In preparing this paper four country studies in South and South East Asia were carried out to illustrate the safety and health issues that exist in the region. These four country studies review the situation as it currently exists in each of the countries (macro-study) and then looks at a number of small & medium enterprises (SMEs) to observe what is actually happening in practice in the workplace (micro-study).

In achieving these objectives the paper reviews those key areas that have the most impact on working conditions namely:

- ▲ Administrative infrastructure
- ▲ Effective administration of safety & health legislation
- ▲ Employers and workers organisations
- ▲ Safety and health training and education
- ▲ Workers compensation and accident and injury data.

Section 3 Administrative Infrastructure

3.1 General

3.1.1 Coverage of OSH laws

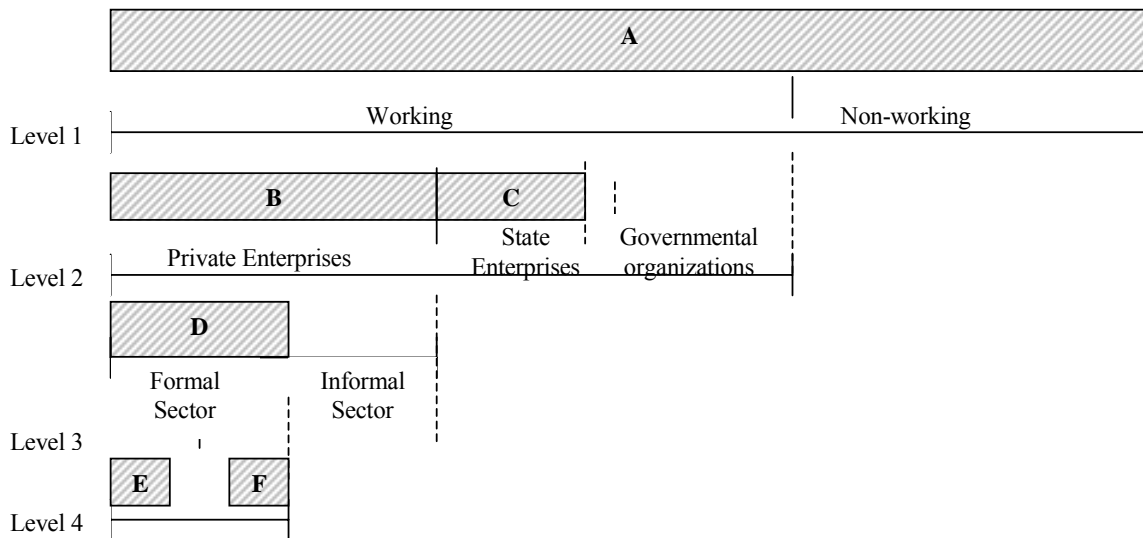
In most countries throughout the region there is a need for a clear coordinated national policy and mid-term programs on OSH and of clear government commitment to placing priority on the safety and health of workers in a climate of economic development. The pace of economic growth in the region has outstripped the ability of national governments to adequately provide for the safety and health of their workforce and large sectors in many countries lack statutory safety and health protection. This particularly applies to the large numbers of workers engaged under various contractual arrangements to manufacture or process a variety of goods in home based activities.

Another important consequence of the region's rapid economic transformation has been the development of entire industrial sectors previously unknown in many countries. This has led to industries being established where local understanding of the hazards associated with the processes is inadequate and there is a clear need for enhancements of safety and health information, training and education throughout the region. The key issues in respect to safety and health are:

- Lack of comprehensive national policy on OSH formulated jointly by the relevant authorities and social partners
- Need to develop medium term OSH strategies and programmes with concrete actions and targets
- Need to develop a firm legal basis for OSH promotion including statutes for safety and health.

The administrative structure in Thailand illustrates the levels of coverage in the different sectors of the economy. There are basically four levels of protection in respect to safety and health. This is shown in figure .1.

Figure. 1



In level 1. The laws in the level (A) cover the total population. These laws are; Public Health Act, Hazardous Substances Act, Fuel Storage Act and associated local regulations. These laws cover both the working and non-working populations.

In level 2. This deals only with the working population in which there are three groups: private enterprises, state enterprises and governmental organizations. The workers in private businesses are protected by the Labour Protection Act (B) which deals with wages, working hours, forced labour and safety and health. Workers in state enterprises are covered by the state enterprises Relation Act (C). Workers in Government organisations are not covered by any safety and health legislation.

In level 3. For workers in private enterprises there are two main sectors – the formal and informal sector. The formal sector is a group of workers in the enterprises having certain organizational structures; recruitment systems, employment contracts and social security. These enterprises usually have more than 10 workers. The workers in this sector are covered by some OSH relevant laws (D) such as the notifications of the Ministry of Labour and Social Welfare (MOLSW) and the notifications of the Ministry of Interior. On the other hand, the informal sector is a group of workers in the enterprises without the characteristics given for the formal sector. This sector included self-employed workers, home workers and agricultural workers. According to Thai national statistics in 2000, there were 20.9 million people working in the informal sector. This represents 68.7% of the total working population. Although the informal sector is covered by the Labour Protection Act it is almost impossible to enforce this law.

In level 4. In the formal sector, there are two related laws which are the Factory Act (E) and Workmens' Compensation Act (F). The Factory Act covers factory workers. The Workmens' Compensation Act covers some in various industries. Prior to 2001 coverage only extended to those enterprises employing 10 or more. From the beginning of 2002 coverage has been extended to cover all establishments in the Formal sector.

Diagrams similar to figure 1 could be drawn for each country in the region – it illustrates, the lack of comprehensive coverage for safety and health. It shows that only a relatively small proportion of workers are afforded any form of statutory protection from workplace hazards.

Figures from the Philippines follow closely those from Thailand. The informal sector comprises 60% of the working population and they also are outside effective OSH coverage. The situation is similar for other countries in the region.

In summary the following observations can be made in respect to safety and health coverage:

- Government workers are not adequately covered by safety and health legislation
- Workers in the informal sector are virtually unprotected in respect to safety and health
- Safety and health legislation does not cover all work activities.

3.1.2 Inconsistencies in Regulations

Safety and health regulations are highly prescriptive and in many instances inconsistent. This makes it very difficult for enterprises to administer the law. Government labour inspectors charged with enforcing the safety and health regulations find many of these regulations confusing. The confusion arises when different government agencies are required to administer regulations with similar content.

An example from Thai legislation, concerns the fire exit widths mentioned in the fire protection regulations contained in the legislation from Ministry of Labour and Social Welfare, the Public Works Department and the Department of Industrial Works. The MOLSW regulation requires all people to evacuate a floor within 5 minutes. The Public Works Department regulation requires all people to evacuate a floor within one hour and the Department of Industrial Works gives no times.

These anomalies are also found in Philippine laws and other countries legislation within the region. Where there are many government departments having similar responsibilities in respect to safety and health, there will be differences in interpretation.

Legislation that does exist is also highly prescriptive and extremely difficult to enforce. This is due, in part, to the nature of the legislation and the inability of the factory inspector to enforce. (Box 1.)

Box.1 *An example of highly prescriptive legislation found in Thai legislation is typical of the region (Thailand)*

“Regulation under Ministry of Interior – Safety in connection with electricity (1972). The employer must not assign the employee to be near or bring the conductor with no well-insulated handle to be near the electricity matter at the distances mention in Table 1. except:

- The employee is wearing the insulated protective equipment which is tolerable with high voltage as that electric matter’s*
- The electric matter is covered or insulated with the material tolerable with that voltage*
- The worker is working with the electric matter by a bare-hand technique under the supervision of a licensed electrical engineer”*

Table .1

Voltage from line to line (kV)	Distance (m)
2.1 –15	0.65
15.1 –35	0.75
35.5 – 46	0.8
46.1 -121	0.95
72.6 – 121	1.05
138 – 145	1.10
161 –169	1.15
230 – 242	1.55
345 – 362	2.15
500 – 552	3.35
700 – 765	4.60

Source: Chaikittiporn 2002

3.1.3 Government agencies with OSH Responsibilities

Many countries in the region are currently reviewing their labour laws with a view to consolidating safety and health requirements under one Act, and administered by a single government agency. In reviewing OSH with a view to strengthening the labour laws a number of issues will need to be considered. The approach

in the Philippines was to look at the issues to be addressed and then propose recommendations for each of these issues. The review of their labour code began in 1999 and the issues identified included:

- Issue .1. Fragmented OSH administration and enforcement of OSH rules by at least 10 Government offices including a lack of monitoring mechanism of all these agencies by the Department of Labour and Employment.

- Issue .2. Implementation of OSH enforcement in small and medium enterprises – and none in the informal economies.

- Issue .3. Social security/protection largely limited to formal private sector

- Issue 4. The very low sanctions do not serve as a deterrent

- Issue .5. No state policy on occupational safety and health

All of these issues are relevant to other countries in the region and will need to be addressed.

3.1.4 Formal Sector

The formal sector is dominated by small to medium sized enterprises. In the Philippines 91% of inspectionable establishments employ less than 10 workers and this is 80% in Thailand.

The classification criteria for industries of varying size varies from country to country but in general a figure commonly used throughout the regions is that small to medium sized establishments are those that employ less than 200 workers. In the Philippines 99.6% of all industries are classified as SME's and in Thailand 98% of all factories are classified as SME's from the figures it is clear that SME's are an extremely important part of the regions economy – also they employ the majority of the workforce. It is essential that SME's must be fully supported from the government both financially and technically. The problems facing most SME's are:

- Poor marketing:
most are unable to compete in large scale international markets because of insufficient knowledge and qualified personnel
- Lack of funds:
they have problems raising loans from financial institutions
- Labour Problems:
high turn-over rate because of low wages and poor welfare
- Limitations of Technology:
the technologies used in SME's are usually basic, easy to use, but have low efficiency.
- Management Problems:
businesses are usually administered by the owner and family members. This causes problems when the business grow.
- Cooperation Problems:
Some SME's are in the informal sector and not registered. These enterprises are often not willing to cooperate because they are not compliant with the laws regarding taxation environmental protection and safety and health.
- Accessibility of governmental and non-governmental organisations:
the large numbers of SME's makes them difficult to access for inspection purposes and provide information services etc.

The Thai government has a distinct policy in respect to SME's, which emphasises development by using local resources and mobilizing community financial aid. The implementation of this policy has been done through providing financial aid, expanding their markets and developing new technologies as well as providing new technologies as well as providing technical knowledge. In 2000 they promulgated the SME's Act and consequently established a SME's Promotion Board responsible for national policy, and an office for SME's Promotion responsible for administrating a SME's fund and implementing SME's promotion

plans. The SME's Act states that SME's promotion plans must be undertaken to support and encourage technology in energy conservation, environmental preservation, and workers' health. Also the SME's fund can be used to support and encourage safety and health activities in the workplace. Employers have a responsibility to ensure the safety of their workers and yet the mechanism for a bi-partite approach to safety and health in SME's is virtually non-existent. There is a lack of employee participation in those aspects of the various laws covering safety and health. Many countries have legislation requiring the formation of safety and health committees and when introduced this was seen as an important step in the development of safety and health in the workplace. However regional surveys show that the majority of small enterprises (<50 workers) do not have active safety committees (Box 2.).

Box.2. Bipartite approach to safety and health (Thailand).

“Survey results from 23 SMEs in Thailand showed that most small enterprises (< 50 workers) did not have any type of OSH forum. Most medium sized enterprises (50-200 workers) had an OSH forum but most of these were inactive in the workplace. The few meetings that did take place did not adequately address OSH issues. These results were similar to a survey carried out by the National Institute for the Improvement of Working Conditions and Environment (NICE) in 1998. This survey indicated the majority of small and medium sized enterprises did not have effective OSH forums. The results are shown in the table below.”

<i>Establishments with safety committees and frequency of meetings (NICE 1998)</i>						
<i>Enterprise size</i>	<i>No. surveyed</i>	<i>% with safety committee</i>	<i>Frequency of safety meetings (%)</i>			<i>% without safety committee</i>
			<i>>12 per yr</i>	<i>< 12 per yr</i>	<i>N.A.</i>	
<i>10-49</i>	<i>359</i>	<i>24.5</i>	<i>29.5</i>	<i>54.5</i>	<i>15.9</i>	<i>75.5</i>
<i>50-99</i>	<i>167</i>	<i>77.8</i>	<i>50.8</i>	<i>38.5</i>	<i>10.8</i>	<i>22.2</i>
<i>100-299</i>	<i>255</i>	<i>86.3</i>	<i>57.7</i>	<i>29.1</i>	<i>13.2</i>	<i>13.7</i>
<i>300-499</i>	<i>80</i>	<i>97.5</i>	<i>73.1</i>	<i>20.5</i>	<i>6.4</i>	<i>2.5</i>
<i>500-999</i>	<i>56</i>	<i>94.6</i>	<i>77.4</i>	<i>13.2</i>	<i>9.4</i>	<i>5.4</i>
<i>1000+</i>	<i>38</i>	<i>97.4</i>	<i>73</i>	<i>13.5</i>	<i>13.5</i>	<i>2.6</i>

Source: (Chaikittiporn 2002)

3.1.5 Informal Sector

Using the ILO definition the informal sector consists of small-scale, self-employed activities (with or without hired workers), typically at a low level of organization and technology, with the primary objective of generating employment and incomes. Activities are usually conducted without proper recognition from the authorities and usually operate under unsafe and unhealthy conditions. Workers in the informal sector are poorly protected by safety and health legislation due to the ineffectiveness and lack of coverage of these laws. However, throughout the region the informal sector is growing rapidly due to large enterprises taking advantage of the low pay rates. Present estimates of the percentage of the workforce engaged in the informal sector range from 50-60% in the Philippines to around 95% in Bangladesh.

There are three main categories of work in which workers are engaged in the informal sector:

- ▲ home-based work
- ▲ agricultural work
- ▲ self-employed working in commerce and services

Workers usually earn low incomes and are rarely covered by social security. In addition they are poorly protected by safety and health laws due to lack of coverage by these laws and a lack of effective enforcement of those laws that do provide some degree of coverage. Government agencies throughout the region are supporting some areas within the informal sector by providing skill training, marketing skills and micro-loans but are neglecting issues such as fair wages, occupational safety and health and social security for workers in this sector.

Some countries within the region are moving to provide protection to home based workers. Thailand, in its 8th Economic & Social Development plan (1999-2001), has developed a national policy on employment and protection for workers in this sector. The policy was to expand coverage of the labour laws to home based workers, and to strengthen safety and health requirements in small-scale enterprises. To date the implementation of this plan has not been successful. The workers are still working in poor environments and do not receive social welfare. Also it is very difficult to access workers in this sector due to the wide geographical scattering of these enterprises. Moreover the existing labour laws do not allow workers in the informal sector to form labour unions or to apply for membership in labour unions – this is considered a major impediment in the promotion of safety and health in the informal sector.

Home based workers

Home based workers are those who work, for employers or order makers, by themselves, with family members or in a group in order to earn wages. The work must be manufacturing, assembling, making products but not the provision of services. All of the products are made for the employer only and not sold on their own account. There are three kinds of home workers;

- ▲ Contract workers
- ▲ Paid home workers
- ▲ Subcontractors

There are six main categories of work: agriculture, handcraft, industrial manufacturing, commerce, construction, services and transportation. Industrial manufacturing and handcraft have by far the largest numbers of workers.

Productivity is high in home-based work and the Thai government is fully supporting this type of work in its 'one Tambon, one product' project.

This project is set up to encourage the unemployed and housewife groups in every sub-district (Tambon) to produce a local product. It is estimated that there are now around 900 000 home based workers in Thailand with 80% of the workers being women.

One of the problems with home based work is the lack of written contracts – all arrangements are entered into verbally. Working hours are uncertain with most working in excess of 8 hours a day, work 7 days a week and rarely take holidays. Moreover, they often earn wages that are lower than those employed in the formal sector. Surveys show that most workers, especially women, who work from home are satisfied with their jobs because it allow flexible work schedules.

One of the main problems for home based work is the lack of safety and health measures. Workers are generally unaware of the health risks, as most health conditions do not occur suddenly but over a reasonable long time period. Chronic health problems are generally attributed to ergonomic factors – prolonged working at static work sites. Frequent ailments include; back pain, body pain, head aches and eye fatigue.

Also home-based workers are at risk of acute injury due to inappropriate controls being used on moving machinery and exposure to electrical hazards. Some are exposed to hazardous chemicals and do not have appropriate personnel protective equipment (PPE). Training in how to do the work safely is the responsibility of the employer but this is rarely provided.

Agricultural workers

In the region around half of those employed are in the agriculture sector. These workers are generally in rural areas that extend over the whole country. The specific characteristic of agricultural work is that the working area is large with workers usually living in areas near their work. There are two groups of agricultural workers: - individual farmers and waged farm workers. Also farmers can be contracted to produce particular types of agricultural products.

In respect to agricultural work the most common safety and health issues are:

- ▲ Equipment handling
- ▲ Back problems from lifting heavy loads
- ▲ Cuts
- ▲ Handling toxic chemicals without PPE
- ▲ Skin cancer
- ▲ Disease vectors
- ▲ Drinking unclean water

Not only are the agricultural workers at risk but also their families who share their living quarters on the land – this includes children and old people. (Box. 3)

Box 3. *Survey on the Health Effects of Organophosphate use in the Cordillera Administrative Region, Buguias and Bauko towns (Philippines)*

This study was conducted to determine farmers' knowledge and practices on pesticide use as well as to determine the association of pesticide exposure and symptoms experienced by farmers using organophosphates/carbamates and pesticide mixtures in the municipalities of Buguias in Benguet and Bauco in the nearby Mt. Province. Respondents came from two farmers cooperatives engaged in vegetable garden farming.

Results revealed that the most common pesticides used by respondents were Carbamates (78%) and organophosphates (56%). Some farmers were using banned and restricted pesticides such as Endrin and Mevinphos. Improvised personal protection or PPEs were used by all respondents when handling pesticides. These included the use of towels as masks, inappropriate gloves and jackets instead of work clothes. Most frequent symptoms experienced by the subjects were muscle cramps, weakness and respiratory tract irritation, symptoms which are fairly common in pesticide exposure. Results also showed the dearth of information and guidance to farmers of government agencies on the safe use of pesticide.

The findings contributed to the understanding of safety and health problems of farmers especially those exposed to pesticides. Farmers' training, information dissemination on the safe use and handling of pesticides are immediate activities that can be done by concerned agencies. In addition, attention should also be given on the enforcement of laws on the rational use and disposal of pesticides and the protection of the farmers from these toxic chemicals.

Source: OSHC/DOLE 2001

Self employed working in commerce & services

These are different from agricultural workers in that they live and work in urban areas. As a group these workers have poor social security, welfare and little protection from their workplace hazards. The activities these workers are engaged in spans a wide spectrum of work activities with wide ranging safety and health issues. For examples, those involved in the repair of machinery are exposed to chemicals and moving parts while street hawkers are exposed to carbon monoxide and smoke from car exhausts. Safety and health issues within this sector are varied and hence difficult to address. Also the uncertain relationship between employers and workers make it difficult to enforce labour laws.

Organisations involved in informal sectors

Throughout the region there are a number of organisations involved in the improvement of working conditions in the informal sector. In Thailand the Office of Homebased Workers (OHW), the Ministry of Labour & Social Welfare in collaboration with the Ministry of Public Health and National Institute of the Improvement of Working Conditions and Environment (NICE) are addressing the activities and protection of home-based workers. Also a number of non-governmental organisations such as HOMENET Thailand, Friedrich Ebert Stiftung, ILO and others. In 2001, the Office Homebased Workers (OHW) organised a workshop in the ways of applying WISE techniques in groups of home based workers. The success of this workshop has led to the WISE techniques being expanded to increase the coverage of home based workers.

An ILO/UNDP funded project in the Philippines has been looking at safety and health concerns in this sector. The Occupational Safety and Health Centre (OSHC) has provided the technical support and is playing an active role.

Governmental agencies throughout the region are addressing issues in respect to safety and health for agricultural workers. The Thai government has included the safe use of pesticides in the National Master Plan for chemical safety.

For the self employed workers in commerce and services sectors there is very little help in respect to safety and health and in most jurisdictions there is no responsible governmental agency.

Children engaged in hazardous work in the informal sector

The ILO estimates 120 million children aged between 5 and 14 work full-time worldwide. More than 60% of the children work in Asia. On average one child in five is working in Asia. In the Philippines 3.7 million children are working, 2.2 million of whom are engaged in hazardous work such as mining, agriculture, the manufacture of pyrotechnics and construction. Children are also engaged in the service sectors as domestic helpers.

ILO convention 138 on minimum age (1973) requires that ratifying member states pursue a national policy designed to ensure the effective abolition of child labour and to progressively raise the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons. An important requirement in the Convention is that a minimum age of at least 18 be set for hazardous work. The determination of the specific content of these activities is the obligation of individual countries after consultation with employers' and workers' organisations.

The convention also allows a lower age of from 13 to 15 years for light work, provided that the work is not hazardous to the child's health or development and does not hinder his or her education. A minimum age of 14 is allowed after consultation with employers' and workers' organisations. As of January 2002, 116 countries have ratified Convention No 138. In addition several Asian states are currently examining the possibility of ratification or have initiated the ratification process.

ILO Convention No. 182 on Worst Forms of Child Labour Convention (1999) is the most recent instrument on child labour and targets the worst forms of child labour as a matter of urgency. Convention No. 138 remains a fundamental instrument on child labour. This Convention allows for determination at the national level of what constitutes work likely to harm the health, safety or morals of a child. The Convention stipulates that the national authority should, after consultation with the employers and workers concerned, make such determinations. It also provides that consideration should be given to Paragraph 3, *inter alia*, of Recommendation No 190 as it provides further guidance on which types of work are likely to be harmful to children. Particular attention should be given to:

- Work that exposes children to physical, psychological or sexual abuse;
- Work underground, underwater, at dangerous heights or in confined spaces;
- Work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads;
- Work in an unhealthy environment that may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels or vibrations damaging to their health;
- Work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer.

Studies, carried out in the Philippines, show that during childhood tremendous physical and psychological changes occur which make children extremely vulnerable to stress and hazards in the environment in which they live and work. These findings have been shown in several case studies carried out in the areas of manufacturing (footwear, pyrotechnics), small scale mining and deep sea fishing. Also networking is being carried out in sectors where children are known to work in hazardous occupations so that not only primary prevention programs are set in place, but also links are established between and among those who could address the immediate and possible long term consequences of hazardous work on the health, safety and development of child labourers.

These progressive efforts of the Philippines were not left unnoticed by the international organisations and have included the Philippines in ongoing preparatory activities for an Asian Network on hazardous child labour, aimed at strengthening the implementation of Convention 182 the region. (Box 4.)

Box 4. Health assessment of working children in Barangay de la Paz, Binan, Laguna, (Philippines)

This case study is a vital component of the OSHC Action Program on the elimination of child labor in the footwear manufacturing in Binan, Laguna. It is a contribution to the implementation of ILO Convention 182 on the Elimination of the Worst forms of Child Labor. The purpose of this study was to determine the health status of child laborers in Barangay De La Paz in Binan, Laguna as well as to document and record the working conditions and safety hazards in small scale footwear manufacturing in these areas. Teams from the OSHC visited Purok 4 and 5 of Barangay De la Paz in Binan, Laguna to conduct an evaluation of 14 pre-selected workplaces in the area. At the same time, a medical team interviewed and examined 93 working children.

Safety audit of the workplaces showed that most working areas were in the living areas of the worker and their families, posing difficulty in terms of exposure for all members of the family. A variety of hazards were observed, like chemical, physical, biologic and ergonomic stresses. The symptoms most often experienced by child workers during the course of their work were forgetfulness, headache, fatigue and irritability. On physical examination, 30% of children examined were found to have enlarged lymph nodes, usually indicating an on going bacterial or viral infection of the upper respiratory tract. In this connection, it is worth noting that Binan has the highest prevalence of pulmonary tuberculosis (PTB) in the country, therefore a high index of suspicion for children infected with PTB should be entertained. Moreover, more than half of the subjects were noted to be malnourished, thus the synergy between PTB, malnutrition and possible effects of solvent exposure were causes for concern.

The research team recommended that the proprietors of these workplaces and/or their managers be given instruction on basic occupational safety and health. This activity was immediately followed by a series of appreciation courses for the operators and families in Barangay de la Paz. It was also recommended that attention be given to the nutritional and urgent medical needs of these children. Lastly, recommendations were given on the follow-up research agenda to further elucidate the health implications of footwear work on children and adults. This research agenda should include the following: The long-term effects of exposure to solvents among footwear operators and workers, and the improvement of productivity in the workplaces related to safety and health practices.

Source: OSHC/DOLE, 2001

3.1.6 Women at work

The rapid growth in small scale home based industries within the region has led to working women being exposed to a wide range of occupational hazards. Of particular concern is the exposure of pregnant women to toxic materials that can induce spontaneous abortion of the foetus. Women are rarely aware of these hazards as very little information is made available to them. Both women and small children in home

based occupations are vulnerable to long-term disorders through daily exposure to chemicals stored in their homes.

Women working in the agriculture sector in the region are particularly at risk. They end up doing dangerous jobs such as mixing and applying harmful pesticides without adequate protection. Also heavy manual work during crop cultivation and harvesting produces high incidences of still-births, premature births and the death of the child or the mother.

Women working in the manufacturing sector are poorly represented on workplace safety & health committees even in those workplaces where women predominate. Representation on these committees needs to be encouraged if women are to become active and influence safety & health at work. Also with women having a voice on workplace committees they can bring their concerns to management on such related issues as violence, sexual harassment and the use of intimidating language.

The United Nations Convention on the Elimination of All Forms of Discrimination Against Women ensures 'the rights to protection of safety & health in working conditions, including the safeguarding of the function of reproduction'.

Clearly for change to occur in the region safety & health laws need to consider the particular issues of women's safety & health.

Comprehensive and effective safety and health legislation is the basis for any coherent national policy for enhancing occupational safety and health standards. Legislative requirements clearly establish the minimum OSH standards in any jurisdiction. These must be sufficiently comprehensive to cover the full range of economic activity and employment in any country. To be effective an independent and competent inspectorate must administer it.

3.2 Strategies

3.2.1 Management system approach to OSH legislation

A number of approaches can be adopted in the development of legislation frameworks in OSH. The most widely adopted legislative practice in developed countries is the past thirty (30) years has been the enactment of comprehensive 'safety and health at work' Acts, that are based on coverage of all workers no matter the type of enterprise in which they are engaged.

These Acts specify that it is the responsibility of employers to develop management systems to protect the safety and health of workers. An alternative strategy is to consider the development of a legislative framework that is both prescriptive in nature and specific to defined industries or activities. This type of legislation typically contains detailed requirements for the maintenance of safety and health standards in the industries covered by the law. This contrasts with the management systems approach where the emphasis is placed on the setting out of duties and responsibilities of the various parts of the workplace. This normally requires that the employer develop effective methods to identify and control hazards.

The success of a management systems approach depends on both good management practices and active worker participation in the development and implementation of S & H systems.

An effective management systems approach for developing countries must be founded upon explicit national policies on OSH that: -

- Promotes S & H management as an integral component of the overall management of any enterprise
- Require enterprises establish collaborative and systematic methods to identify and control hazards
- Establishes worker participation in the S & H management systems in the enterprise
- Provide for input by relevant government agencies while avoiding high compliance costs and unnecessary bureaucracy
- Ensures the national policy framework is regularly evaluated to ensure it is appropriate and effective

Also a successful management systems approach to S & H depends on their being an active commitment by both managers and workers to the development and implementation of hazard identification methods. This means that managers and workers must be knowledgeable about the S & H issues in their workplace

and have access to information needed to develop control strategies for significant hazards. The necessary S & H competence requirements must be clearly defined and training arrangements established and maintained that ensures managers, supervisors and workers are competent to carry out their S & H duties and responsibilities.

The merit of a OSHMS approach is that it builds commitment and competence within each enterprise that allows S & H issues to be resolved. Third party oversight by government inspectors is still important but this should support and reinforce the safety culture within the enterprise rather than being the catalyst for action on S & H matters.

3.2.2 Prescriptive and industry specific safety and health legislation

Given the current stage of economic development in the Asian region an alternative approach could be for national laws to be developed as a precursor to a move to a management system approach. This case is based upon a number of observations and includes:

- The rapid pace of economic development has exceeded the capability of governments, employers and unions to adequately manage the growing array of safety and health issues in the countries throughout the region. This mean that it will take sometime to establish sufficient numbers of trained managers, inspectors and union representatives to effectively develop and apply management systems for safety and health.
- Prescriptive legislation provides certainty for employers and workers in that the minimum safety and health standards for the different classes of workplace are explicitly specified in a legislative enactment to which all parties have access.
- The prescribing of safety and health standards ensures that all employers engaged in a particular activity are required to meet the same safety and health standards.
- Government inspectors have clear and explicit standards against which workplaces can be assessed for safety and health compliance.
- Workers can refer to statutory standards when raising safety and health issues and can reasonably expect that where minimum standards are not being met action will be taken. (Box. 5)

Any development of safety and health law based upon this model must, of necessity, be industry specific. This is because the prescription of safety and health standards must reflect the conditions and work practices in specific industries.

There are a number of well-defined industry sectors within the Asian region where safety and health laws could be developed, and includes:

- ▲ Agriculture, fishing and forestry
- ▲ Manufacturing and industrial
- ▲ Mining and quarrying
- ▲ Construction

These industry specific laws should be developed so as to ensure they cover all of the workers employed or engaged in small-scale home-based work as well as workers employed or engaged in large-scale enterprises. Figure 2. is a schematic of a national framework.

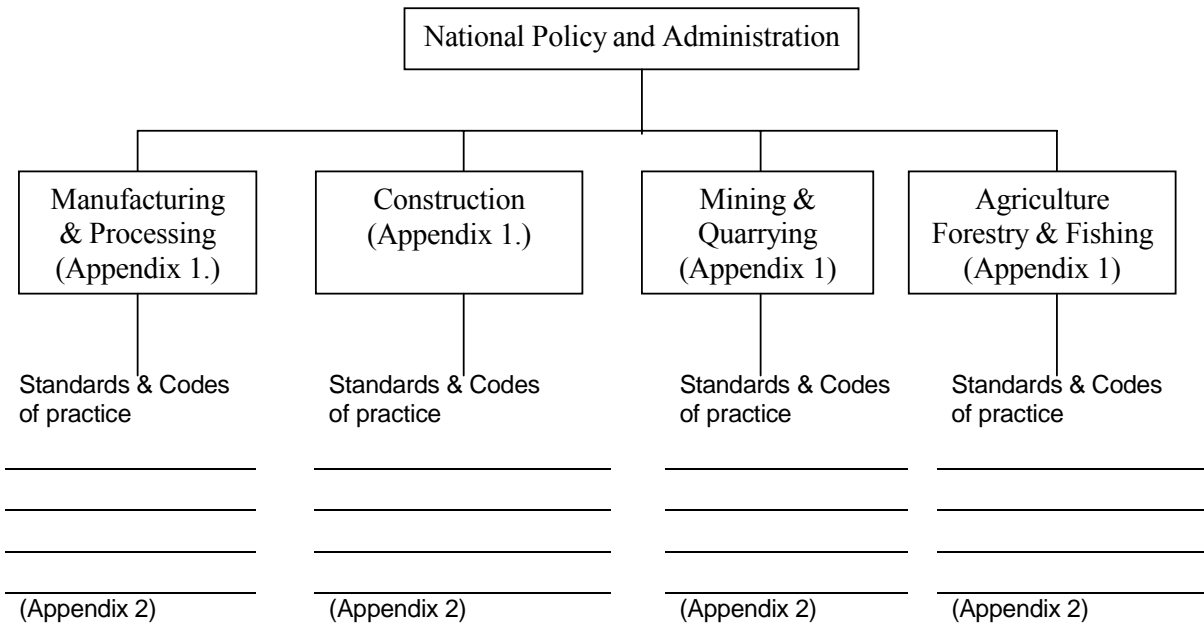
Box.5

Advantages and Disadvantages of Prescriptive OSH law (Thailand)

“Some OHS related regulations are prescriptive. This has advantages and disadvantages. The advantage is that it can be easily understood, particularly suitable for low educated workers and employers. They clearly know what to do in their workplace to implement the laws. However there are many weak points. First, the prescriptive laws can make the enterprises confused. Secondly the laws do not enhance the government inspection because there are too many safety aspects to check. Thirdly the techniques outlined in the laws can be out of date and not suitable for new production processes. Fourthly this approach does not encourage the OSH management system approach which is a key mechanism for continuous improvement of OSH in the workplace.”

Source: Chaikittiporn 2002

Figure 2. National Framework



Appendix 1. These are the ILO standards that fall into four categories – Guiding policies for action / Protection in given branches of economic activity/ protection against specific risks / measures of protection

Appendix 2 These are ILO codes of practice that deal with various sectors of economic activity and various types of dangerous equipment or agents.

3.2.3 National Policy in OSH

The development of a clear national policy on OSH is essential if OSH programmes are to be strengthened. In formulating their national policy each country will need to:

- Conduct in-depth analysis of existing data and information on OSH in different government authorities including, in particular, the data from ‘workers compensation’
- Review OSH programmes in the various Ministries
- Formulate a coordinated national policy on OSH with a concrete plan of activities to be undertaken by the various ministries, employer groups, workers organisations and other pertinent institutions
- Seek endorsement of the policy from government
- Review and evaluate the national policy as appropriate.

3.3 Actions

1. Development of occupational safety and health laws – A comprehensive framework of occupational safety and health legislation is required for all countries in the region. This should extend coverage to all workers in all sectors of the economy. These laws must be appropriate to the needs of each country and extend safety and health coverage to all industries including those currently not subject to legislation. In most countries in the region, larger “registered” enterprises in the “formal” sector of the economy are already subject to OSH legislative requirements and these should be reviewed to ensure the statutes are effective. Management system based legislation is likely to be most appropriate approach for these sectors. Workers in agriculture, forestry and fishing, home based workers and younger workers who currently lack statutory coverage, must be brought into a legislative framework that specifically address standards and hazards in those industries. It is likely that these immediate needs could be most expeditiously addressed through the development of industry specific codes of practice and standards that prescribe minimum OSH requirements for each sector.
2. Convene meeting of experts (Government, Industry and worker representatives) to determine scope and requirements of safety & health laws in each of the identified sectors.
3. Formulate comprehensive industry specific safety & health Acts and codes of practice to cover all workers employed or engaged in the defined industries

These new laws could specify:

- Minimum workplace conditions and standards for ensuring safety & health in the industries concerned
- Responsibility of employers to maintain the required standard and to protect workers from hazards through effective management action
- Rights and duties of workers
- Competency and safety & health training requirements for defined jobs
- Responsibility of manufacturers, importers and distributors of equipment and machinery to ensure that such plant is designed and manufactured to safe standards
- Responsibility of manufacturers, importers and distributors of hazardous substances to ensure that all such substances are properly contained clearly labeled and supplied with comprehensive Material Safety Data Sheets (MSDS) setting out comprehensive safety and health information
- Procedures for the recording, notification and investigation of occupational accidents and illness
- Requirements to extend the coverage of the law to contractors, self-employed and home based workers
- Designation, appointment, qualification and legal power of government inspection.

Each industry specific statute would be supplemented by codes of practice which would specify the safety and health standards required for defined classes of hazardous work, processes and activities.

4. Formulate national policies on OSH. These policies should cover the principles set out in ILO convention 155 and be effectively implemented through adequately resourced and competent government agencies.

Section 4. Effective Administration of Occupational Safety and Health Legislation

4.1 General

4.1.1 Appointment of Inspectors

In general entry into the factory inspectorate in the region is by university qualification in either medicine, science, engineering or general degree. There are few, if any instances of inspectors being appointed from the industries they will inspect. The majority have been appointed directly from university, with no experience in industry, and are expected to develop their skills through 'on the job' training. There is no evidence of inspectors being recruited from the various industrial sectors they will be required to inspect and hence specialist knowledge of the various work places does not exist.

Factory inspectors are appointed in one of a number of specialist areas which varies from country to country. All inspectorates come under the umbrella of the various Ministries of Labour. Each country has its own requirements in respect to entry qualifications with the majority of countries opting for a tertiary qualification in the sciences or arts.

For example, Bangladesh has three types of inspectors, Medical, Engineering and General. The entry level is either a medical science, engineering or general university degree.

4.1.2 Duties of Inspectors

Within the region the role of the labour inspector is varied and covers both general inspection (hours of work, rest time, holidays, wages, child labour, leave etc) and safety inspection (machine safety, chemical safety, working conditions etc).

The range of duties that inspectors are expected to undertake is such that effective enforcement of the occupational safety and health laws is extremely difficult. The situation which exists in Bangladesh shows the diversity of the inspectors activities and is typical for the region. (Box. 6)

Box.6 *Activities of Factory Inspector (Bangladesh)*

1. *Inspection of factories, shops, commercial establishment, tea plantations, ports, docks, railways, road transport, etc under relevant labour laws for enforcement of the provisions relating to safety, health, labour welfare, payment, payment of wages, regulations of hours of work, conditions and terms of employment, social security of workers.*
2. *Prosecution against the violations of labour laws in different courts*
3. *Approval of construction and extension of factories*
4. *Approval of layout plans of factories*
5. *Issue of registrations and license of factories and realization of fees for the purpose*
6. *Maintenance of liaison with different departments, employers' organisation and trade unions on enforcement of labour laws*
7. *Collection of the data for preparation of annual and other periodical reports under labour laws*
8. *Assistance to the government in formulation of policies about enforcement of labour laws and framing labour laws including amendment of various Acts and Rules*
9. *Preparation of replies to the ILO questionnaire to ratification of IL Conventions*
10. *Assistance to other international agencies in preparing survey reports relating to labour inspection, wages, administration, productivity etc.*
11. *Representing the government in national and international seminars, meetings, forums etc on labour inspection, labour administration productivity etc*
12. *Approval of service rules of the workers as and when applied for by the management of different establishments*
13. *Examination and checking of the certificates issued by the competent authority relating to safe operations of gears, derricks, winches and other accessories of ports ensuring safety, and inspection of ships touching the port for enforcement of safety and welfare provisions of relevant laws.*

Source: Barbhuiya 2002

In Thailand the role of the factory inspector extends to include organizing OSH training courses and the dissemination of safety information. The activities of the inspectorate in this country includes;

- Conducting safety inspections
- Provision of training courses for employers & workers
- Drafting OSH legislation
- Provision of information to high risk enterprises
- Carrying out workplace assessments, sampling and engineering testing
- Dissemination of safety information in the form of practice manuals, brochures, documents, posters etc

A problem that has been identified is the dual role of the inspectors – as both an enforcer and an advisor. Inspectors are reluctant to prosecute companies they have advised in respect to safety and health. Also inspectors need more powers so that they can freely enter all workplaces – there are many instances where inspectors have been refused entry into a premise. Other problems confronting the inspector is lack of transportation and the large distances they need to travel for effective coverage.

4.1.3 Training of Factory Inspector

The training of factory inspectors ranges from regular training on all aspects of safety and health to no training at all. In Thailand inspectors receive ongoing training on a regular basis. Areas covered in their training includes:

- ▲ Inspection techniques
- ▲ Accident investigation and analysis
- ▲ Inspection Standards
- ▲ New legislation
- ▲ Work environments measurements techniques

This training is provided by both central and local agencies. On the other hand, in Nepal, the inspector is expected to learn the techniques of factory inspection 'on the job', once appointed they receive no induction training on how to do the job nor is there any regular ongoing training on factory inspection. Any training that is provided comes from the activities of international agencies such as the ILO and WHO.

Training is vital if a country is to maintain a credible inspectorate. There is a certain minimum knowledge which an inspector needs if they are to be effective. To be effective inspectors should be trained in the following area:

- Principles of safety and health management systems (ILO – OSH 2001)
- Elementary principles of occupational health, anatomy, chemistry, epidemiology, ergonomics, first aid, hygiene, microbiology, physics & physiology
- Principles and prevention of occupational illness
- Safe use and storage of chemicals
- Use and maintenance of personal protective clothing and equipment, including equipment intended to protect hearing and equipment intended to enable safe respiration
- Audit, inspection and investigation for the purpose of ascertaining the extent of compliance with legislation
- Enforcement of legislation

4.1.4. Coverage of Workplaces

Inspection coverage is mainly confined to those establishments in the formal sector. This is due to safety and health legislation only covering those enterprises in the formal sector. In Thailand there are 335 general labour inspectors covering 343, 576 registered establishments (1 inspector per 1025 establishments) – it is worth noting here that agriculture, forestry and fishing sectors were not included as they are not covered by the Labour Protection Act. In Nepal there are 14 inspectors for 43,671 registered establishments (1 inspector per 3120 establishments). In the Philippines 1 inspector per 3200 establishments. The most frequently inspected industry is mining and quarrying, followed by construction and then manufacturing. In all countries there are insufficient inspectors for the number of workplaces. Also agriculture, forestry and fishing which provides the highest employment in the informal sector are generally not subject to safety and health inspection – in Thailand, for example only 10 labour inspections

were undertaken in this sector in the year 2000. Box 7. shows the distribution of workplace inspections in respect to workplace size for Thailand.

Box 7. Safety inspection activities by size in 2000 - Thailand

Size Workers	Inspected Establishment	Illegal		Safety Inspections Results			
		Establishments	%	Advice	Meeting notice	Implementation	Prosecution
1-4	4,536	429	9.45	325	87	16	1
5-9	3,638	578	15.88	448	88	39	3
10-19	2,917	686	23.51	530	72	80	4
20-49	3,434	1,095	31.88	860	141	84	10
50-99	1,542	897	58.17	682	149	61	5
100-299	1,468	806	54.90	557	183	62	4
300-499	352	171	48.57	114	40	15	2
500-999	189	92	48.67	58	25	8	1
1000+	106	40	37.73	27	8	5	0
Total	18,182	4,794	26.36	3,601	793	370	30

Source: DOLE

The enforcement of legal requirements has a number of facets. These begin with competent inspectors physically visiting workplaces to determine compliance with legal standards and taking appropriate action to ensure that instances of non-compliance are expeditiously remedied.

An equally important role for inspectors is the provision and dissemination of information on legal requirements to employers and workers and providing support and advice to employers to ensure the law is understood. While the allocation of a dual enforcement and advisory roles to inspectors has the potential to compromise the equitable administration of the law, it is important that inspectors are able to explain legal requirements to employers and others with legislative responsibilities. The extent of this "advisory" role will need to be carefully considered in each country, having regard to the availability of other sources of OSH expertise.

4.1.6 Competent Inspectorate

The development of a competent inspectorate, knowledgeable about the hazards faced by workers in different industries, is a significant challenge for the region. It cannot be over emphasized that it is essential to have capable and effective inspectorates in each country. These inspectorates could be established on an industry specific basis linked to the statutory framework discussed previously in this report.

While this approach would lead to the development of a number of distinct safety and health inspector groups, there are some clear advantages in specialization.

These include:

- Greater opportunities for inspectors to become fully trained and knowledgeable about the operation and OSH issues in a defined industry sector to a depth that might not be possible for inspectors with responsibility across all workplaces
- Inspector training that could focus on hazards and health issues arising in the industry to which the inspector is to be appointed
- Inspectors appointed to administer legislation could be drawn from the industry sector to which they are appointed bringing with them direct work experience within that industry
- Industry specific inspection could build strong links with employer and worker groups in that sector.

4.2 Strategies

The maintenance of a competent, independent and effective inspectorate to administer safety and health laws is an essential component of any programme to enhance workplace safety and health conditions. These administrative arrangements should be appropriate to the scale and range of enterprises in each

country. Generally, the administration of occupational safety and health laws will be most effective where these responsibilities are allocated to a single government agency with jurisdiction extending across all industry sectors. This concentrates safety and health expertise in one agency and promotes consistency of approach, ensuring that standards and requirements are equitably applied to all workers no matter the industry in which they are employed.

Inspectors must be both independent and competent. This can be achieved by recruiting and training systems that focus on the knowledge and experience required for capable industrial inspection in each country. In many countries in the region, economic growth has led to the development of an increasing diverse range of industries and processes and safety and health inspectors must be resourced at a level that provides adequate coverage of these new industries. At the same time, it is important that the safety and health risks faced by workers in the tradition sectors of agriculture, forestry, fishing and home based activities are not neglected. This might require the recruitment and training of “specialist” inspectors in some countries. These would be inspectors with specific knowledge and skills in the hazards posed by particular industries or processes. A large pool of “generalist” inspectors might be appointed to cover the broad range of issues in the traditional sectors of the economies and smaller enterprises.

The administration of legal requirements depends upon an effective inspectorate that:

- Is trained in all aspects of the law
- Is independent of employer/workers groups and is able to apply the law objectively and reasonably
- Is knowledgeable about safety and health principles and standards relevant to the inspectors area(s) of responsibility
- Is sufficiently resourced to provide adequate coverage of the workforce
- Is supported by technical staff who can provide expert advice to inspectors in carrying out their duties
- Have access to all necessary monitoring and other equipment to assess workplace conditions.

An important element in building effective safety and health inspection is establishing career structures for inspectors that provide them with the opportunity to develop skills and experience and to progress to more senior positions within their technical field. This will assist in the retention of trained inspectors for reasonable periods enhancing the experience and capability of law enforcement over time.

4.3 Actions

1. The development of comprehensive national enforcement policies in each country that:
 - ▲ makes effective use of existing inspection and technical staff
 - ▲ identifies those areas where additional resources and competence is required
2. Identify core competencies required for inspectors in each country based upon their jurisdiction and roles. These are likely to include:
 - ▲ comprehensive understanding of all legal requirements and administrative procedures to enforce the law
 - ▲ complete understanding of S & H principles, standards and codes of practice for the industry to which the inspector has been appointed
 - ▲ skilled in inspection techniques, accident investigation and interview methods
 - ▲ skilled in the use of all required monitoring equipment and in the analysis of data
3. Reviewing current training programmes for inspectors in each country and identifying the means by which these programmes can be developed, expanded and enhanced to ensure inspectors are competent in all aspects of safety and health including specific technical competencies.
4. Utilizing comprehensive analysis of accident/incident data from workers compensation authorities to enable inspections to be focused on priority hazardous industries and occupations.
5. Establishing career development plans for inspectors with the objective of developing skills and competencies and the retention of experienced inspectors.
6. Facilitating interaction and exchange of information and experience with other government agencies that have the ability to contribute to OSH inspection, planning and law enforcement.

Section 5 Employers' and Workers' Organisations

5.1 General

Employers' and workers' organisations in Asia are becoming active promoters of OSH for their members. Some of the larger organisations have established committees and units responsible for safety & health and the working environment. Steady progress is also being made in small and medium enterprises but there is still a long way to go before a significant impact is made on working conditions. This involvement is an essential element in any programme aimed at improving OSH standards.

This involvement can occur at different levels from national organisations to individual workplace safety and health committees.

At a national level employer and worker organisations should be involved in tripartite discussions with government agencies on the scope, development and administration of safety and health laws.

At industry specific levels the same dialogue should occur in the formulation of specific standards, codes of practice and regulations for different industries, processes or activities.

At the workplace level employer and worker organisations should contribute to safety and health initiatives through the provision of support to their respective members in the implementation of practical safety and health measures.

The inclusion and active involvement of employer and worker representatives at all levels of the safety and health programme will have benefits in ensuring that the views of both groups are expressed at national and industrial forums. These organisations then have a role in informing their members on safety and health developments and in providing support.

5.1.1 Employer Organisations

Some employer organisations within the region are well organised in respect to safety and health while others are not. In Thailand the Employers Confederation of Thailand (ECOT) has established a committee on OSH and the environment, and a unit on OSH and the environment. The staff responsible for the unit have completed safety officer training courses. In 1998 ECOT carried out a study on OSH and environmental protection in establishments in Samutpraken. The objectives of the study were to systematically compile information on the OSH and environmental protection situation and activities in the establishments involved, particularly in the Bang Poo Industrial Estate. The study identified the strengths and weaknesses of the OSH and environmental programmes operating in the surveyed area. The taskforce which directed the study is working on future action plans.

The Employers Confederation of Thai Trade and Industry (ECONTHAI) has been active in providing OSH training to its members. During 1998-99, it organised a series of training courses for safety offices to provide them with the expertise required by legislation, and trained 261 managers and 402 supervisors. ECONTHAI would like to see a stronger government programme on OSH including the establishment of a separate OSH department, a new distinct OSH Act and an OSH support programme for small enterprises.

ECONTHAI has several members in the newly established Occupational safety and health and Working Environment Committee – a tripartite national advisory body on OSH created under the Labour Protection Act (1998). ECONTHAI is expected to actively participate in national tripartite dialogue on the promotion of OSH, and will continue to organize OSH training courses for its members.

Employer associations in the Philippines are also developing specific OSH programmes in specific industries for their members. These are found in 'Codes of Conduct' in specific industry sectors such as garment and textiles. These sectors have stepped up efforts in social protection particularly in the areas of safety and health, gender and child labour concerns. The pressures of consumer markets as well as local and international unions have added to such social accountability and compliance, enabling companies to develop, maintain and enforce policies and programmes on OSH.

A recent survey of 10 medium sized companies (60-200 workers) from the Garment, Metal and Plastics sectors carried out in Thailand showed that OSH issues are being addressed albeit at a fairly basic level. (Box 8.)

This survey did however highlight an area of concern in respect to fire safety. The region has experienced a number of catastrophic fires in recent years, which have received international attention. The surveys carried out in small to medium enterprises show that little or no training on fire protection equipment was provided nor was there an adequate fire evacuation plan in any of the enterprises surveyed.

Legislation throughout the region emphasises the bi-partite approach to safety and health however in practice much needs to be done for positive improvement. Recent surveys undertaken throughout the region show that while most of the medium to large enterprises have safety committees the small enterprises (< 50 workers) did not. Also the surveys showed that those enterprises with safety committees were not very effective and met infrequently.

Box. 8

Employer survey of 10 medium sized enterprises from Garment, Metal and Plastics Sectors (Thailand)

In medium sized enterprises (60-200 workers) a survey of 10 companies found:

- *most enterprises had an OSH policy*
- *safety and health rules and procedures were developed*
- *there was reasonable level of consultation with workers on safety and health matters*
- *most enterprises had safety and health committees but met infrequently*
- *employers had poor to average understanding of OSH laws*
- *only a few employers provided PPE to workers*
- *annual health checks rarely occurred*
- *no effective fire response plan*
- *fire extinguishers were rarely checked and not training on use was provided to workers*
- *infrequent inspection by factory inspector*

Source: Chaikittiporn 2002

Discussions held with employer associations in the poorer countries in the region (e.g. Nepal and Bangladesh) emphasised that OSH was not a top priority – of major interest was gaining market share in the global markets through increased production efficiency.

A survey of 13 small enterprises in the Garment, Metal and Plastics sector indicate that employers in this sector had very few, if any, OSH systems in place (Box 9.)

Box.9

Employer Survey of 13 small enterprises from Garment, Metal and Plastics sectors (Thailand)

In small enterprises (< 50 workers) a survey of 13 Companies found:

- *no enterprise had OSH policy or OSH committee*
- *safety and health rules and procedures were rarely developed*
- *there was some consultation with workers on safety and health legislation*
- *most employers did not provide PPE to workers*
- *annual health checks of workers had never been undertaken*
- *accidents occurring in the workplace were not recorded*
- *there was no fire response plan*
- *fire extinguishers were rarely checked and workers were not trained in their use*
- *visits by factory inspectors were very frequent*

These responses were typical of the other surveys carried out in the region.

Source: Chaikittiporn 2002

Globalization

Employers in the region realize they must adapt and change if they are to survive within the globalization process. In respect to OSH one of the most important impacts has been the harmonization of standards. There are two distinct types of OSH standards:

- Labour Standards – These define the general conditions for OSH in the workplace. The objective of these standards is to prevent the comparative advantages that are obtained from lower production costs at the expense of poor working conditions in enterprises. Economic growth should be achieved through economic integration and liberalization accompanied by social responsibility.
- Product Safety Standards – These define product safety. As tariffs are eliminated or reduced, non-tariff barriers acquire more significance in international trade. Technical standards relating to product safety (i.e. BS8800 and SA 8000) can act as a trade barrier.

Harmonization of product safety standards is already having a positive impact on OSH in many countries. Because markets are becoming more transparent, enterprises are forced to continuously improve their competitiveness through increased production efficiency. This can be achieved by minimizing loss and preventing accidents in workplaces. Thus employers and employer organisations are encouraging better OSH standards. Many countries have developed their own voluntary standards (SA 8000 in the U.S. and BS8800 in the U.K.) Thailand has developed TIS18000 for occupational safety and health management. Also the ILO has recently adopted guidelines on occupational safety and health management systems (ILO – OSH 2001).

The growth in consumer actions against enterprises that do not have adequate environmental and social protection is increasing. Many customers are demanding that enterprises meet ISO 9000, ISO14000 or other equivalent standards. This is seen as having a positive impact on safety and health standards. The impact of globalization is felt throughout the whole range of enterprises – from the very biggest to those working in the informal sector. Contracting and sub-contracting arrangement for export goods requires certain standards are met.

Negative effects of globalization

Technology is sometimes misused resulting in hazards to the safety and health of workers. An example of this is the increased use of pesticides without adequate controls.

Some substances which are banned in developing countries sometimes continue to be manufactured and used in developing countries. Apart from safety and health issues there are social issues. There has been substantial movement of migrant workers across national boundaries and movement of workers from the rural to the urban environment. This brings social problems where there are long separation times from families. Also children are forced to work in poor conditions and are exploited especially in small enterprises and the informal sector.

5.1.2 Trade Unions

Countries throughout the region have legislation allowing for the formation of unions in workplaces. There are however often restrictions to union membership and this affects mainly the self-employed, those working in small enterprises and those working in the informal sector.

In recent years there has been an increase in the number of unions organizing OSH training courses funded by their budgets – also in a number of countries the ‘workers compensation fund’ has also given financial support to these initiatives. The trade union movement’s action on OSH has in some part been initiated by catastrophic events occurring within their country. In Thailand the Kader fire in 1993 resulting in the deaths of 188 workers was the catalyst to initiate action. Trade unions together with NGO’s proposed shifting the dates of national safety week in May to commemorate the Kader tragedy.

Trade unions have also been actively working in Thailand to establish an autonomous OSH institution which combines NICE (National Institute for the Improvement of Working Conditions and Environment) and the Workmens Compensation Office and takes care of prevention, compensation and rehabilitation in an integrated manner. Progress has been slow.

Although the trade union movement in the region has had an impact on OSH issues at the national level, work by individual unions is still patchy. Most of their activities are centered on workers rights, wages and effective negotiation with employers.

Micro studies undertaken in the region tell the same story. Workers in small enterprises (< 50 workers) receive little, if any information, from their unions in respect to safety and health (Box 10).

Box.10

Worker survey of 13 small enterprises from Garment, Metal and Plastics sectors (Thailand)

In small enterprises (< 50 workers) a survey of 13 Companies found:

- workers received little, if any, information about hazardous substances
- workers exposed to high levels of noise had never had audiograms performed on them
- no training given on the use of PPE
- little, if any, information was provided by the employer or unions on hazards in the workplace
- no training given on how to do their work safely – workers were expected to teach themselves
- first aid equipment was provided in most workplaces

These responses were typical of the other surveys carried out in the region.

Source: Chaikittiporn 2002

A similar situation exists in medium sized enterprises (60 – 200 workers) (Box.11).

Box.11 Worker survey of 13 medium enterprises from Garment, Metal & Plastics sectors (Thailand)

In medium sized companies (60-200 workers) a survey of 10 companies found:

- Workers exposed to high levels of noise in the metal industry were provided with PPE
- No audiometric tests had been carried out
- No proper training in the use of PPE
- Little, if any, information was provided by the employer or unions on hazards
- No training on how to do their work safely – workers were expected to teach themselves
- First aid equipment was provided in most workplaces.

These responses were typical of the other surveys carried out in the region.

Source: Chaikittiporn 2002

In principle, trade union organisations and employer associations are committed to improving conditions in the workplace. Globalization will play a part however it will not provide the whole answer – what is required is effective legislation and lot of goodwill between union and employer groups.

5.1.3 Information to Employers and Workers

Survey results in the region show that safety and health information is not being provided to either the employer or the workers in small to medium enterprises. The situation that exists in the region is well represented by the findings of the surveys in 23 small to medium enterprises undertaken in Thailand. The results show:

- workers are exposed to a variety of hazards including: physical, chemical, biological and ergonomic hazards
- major fire hazards exist in the garment industry and exposure to toxic chemicals in the plastics industry
- workers are poorly protected from workplace hazards. Even basic safety facilities such as emergency exits, safety signs and first aid equipment are in poor condition
- personal protective equipment is rarely provided and if it is no appropriate instruction is given on its use and maintenance
- both employers and workers have little knowledge of occupational safety and health. They have received no instruction on hazard identification. Information on hazards from external sources (i.e. labour unions, governmental agencies and other enterprises in the same industry) is rarely received
- the enforcement of safety and health legislation is ineffective

5.2 Strategies

It is important that the roles of employer and worker organisations in safety and health be recognised and acknowledged by both the organisations themselves and national agencies at national and regional levels. This can be achieved at national level, by a tripartite forum that provides a formal mechanism for consultation between employer, workers and government representatives. These types of arrangement can be mirrored at regional and industry levels.

In individual workplaces employer and worker organisations have a role in supporting and training their members to participate in such things as enterprise safety and health committees. This will help strengthen the overall safety and health effort and ensure that the different parties with an interest in the field have an opportunity of input into policy and developments at all levels.

5.3 Actions

1. Consideration of the formation of national consultative forums on safety and health that include government, employer and worker representatives. These forums would have the primary purpose of ensuring consultation with and input from employer and worker groups to the development of national safety and health policies and legislation.
2. Development of the capacity of employer and worker organisations to contribute to the development of OSH policies and programmes at national and regional levels, through the provision of information and training and support to those organisations.
3. Establishment of procedures and structures within employer and worker organisations to promote the implementation of OSH programmes, committees and other consultative information systems.
4. Promotion of safety and health consultative mechanisms at industry and workplace levels. This could be achieved through legislative prescription or through the promulgation of voluntary codes of practice
5. Encouraging organisations to develop training and advisory services for their members.

Section 6 Safety and Health Training and Education

6.1 General

The provision of safety and health training and education is the most critical single element in any programme to develop an OSH capacity in the region. In Thailand there is a legal requirement to appoint a qualified safety officer and to provide adequate training so they can carry out their work effectively. In Bangladesh and Nepal no such legal provisions exist and it is the role of NGOs and international agencies such as the ILO to develop training initiatives within the region. Thailand has by far the most sophisticated training programmes, covering all sizes of enterprise. (Box. 12)

Box. 12 Safety officer training in Thailand

Enterprises employing 100 or more workers are required by law to appoint a qualified safety officer, who has completed one of the six-week training courses offered by the NICE (National Institute for the Improvement of Working Conditions and Environment) and provincial labour and welfare offices. More than 1000 safety officers have been trained annually during the past decade.

The requirements governing safety officer appointments were expanded in 1997 by a new regulation of the Ministry of Labour and Social Welfare. Under the terms of the new regulation, safety officers should be appointed at different levels including:

- *Safety officer at the professional level (6 weeks): establishments with 50 or more workers*
- *Safety officer at the Management level (12 hours): any sized establishment*
- *Safety officer at the Supervisor level (12 hours): any sized establishment.*

With the introduction of this regulation, the number of training courses dramatically increased. The Ministry of Labour and Social Welfare also introduced a new system of training provision, allowing for the delivery of these courses by authorized training institutions. By the end of 1997 in excess of 100,000 people had received training.

Source: Cahikittiporn 2002

In addition to the OSH training requirements for safety officers in Thailand employers must provide OSH training for newly employed workers. Further, the provision of training on OSH to workers is also required by the OSH notifications of the Ministry of Labour and Social Welfare in relation to:

- ▲ electrical hazards
- ▲ diving
- ▲ hazardous chemicals
- ▲ operation of cranes or derricks
- ▲ piling; and
- ▲ temporary lifts at construction sites.

However, although these requirements stipulate that providing this training is the general responsibility of employers, they do not specify what the content of the training should be, nor the qualifications that trainers should have. These training requirements should be reviewed based on the in-depth analysis of prevailing accidents and diseases.

Even though legislation exists for the appointment of safety officers, in Thailand, SME's are still not complying with the law. Statistics on the numbers of safety officers trained and the number required show that 9.47% of establishment with more than 50 workers and 98.7% of establishments employing less than 50 workers do not have qualified safety officers.

At the other end of spectrum is the OSH training and education in Nepal. A National Training Institute on OSH has been developed with the support of the ILO and DANIDA. This project has just been completed. The objectives for the Institute are:

- To work towards identifying hazardous industries and prominent sources of hazards in industrial establishments in the country.
- To work towards creating awareness among employers and employees on identifying hazards in the workplace and the concept of occupational health
- Provide advisory service on hazard prevention and workplace improvements and facilitate the introduction of OSH management systems to industry
- To develop the Institute as an Occupational Safety and health Training Center
- Establish the Institute as a national occupational safety and health database and information centre.

For this Institute to thrive it must receive an adequate budget from the Nepalese Government and be adequately staffed by suitably qualified personnel.

Safety and health education is essential in ensuring that government OSH inspectors have the capability to carry out their duties to an effective standard. Similarly safety and health education is essential in developing the capacity of industry groups, employers and workers. A regional initiative for OSH training aimed at SME's has been developed in the Philippines (Box. 13).

Box.13 *Regional Initiative for OSH Training aimed at SMEs (Philippines)*

A regional initiative for OSH training has been developed by the Government of the Republic of the Philippines through the Occupational Safety and health Centre (OSHC). It is supported by the Technical Cooperation Scheme of the Government of Japan through the Japan International Cooperation Agency (JICA)

A third Country Training Programme (TCTP) on the improvement of occupational safety and health standards in small to medium sized enterprises (SMEs) in selected ASEAN and Asia-Pacific countries has been developed.

These courses, run by the OSHC, are for participants coming from governments, employers and workers organisations throughout the region. This initiative has been running since 1997 and to date 107 participants have gone through the programme. Participants have come from a variety of countries including; Bangladesh, China, Indonesia, Malaysia, Pakistan, Philippines, Sri-Lanka, Thailand, Vietnam, Myanmar, LaoPDR and Cambodia.

The course is designed to provide participants from asian countries with an opportunity to upgrade their knowledge and techniques in occupational safety and health in SMEs.

Source : Estrella-Gust 2002

Countries like the Philippines and Thailand have well structured OSH training regimes in place provided by the private sector, NGO's and tertiary institutions. In Thailand Mahidol, Chulalongkorn, Sukhothai, Chiang Mai and Burapha all offer occupational safety and health programmes and courses. Also most universities with medical, science and nursing facilities in the region have incorporated OSH element into their teaching curricula.

In most countries in the region scientists medical and engineering staff in academic institutions have extensive knowledge and skills that can be used to promote OSH. The effective mobilization of this technical capacity is vital for the promotion of OSH in the region. Networking between the various training institutions (i.e. NGOs, Private Providers and Universities) active in the OSH field and sharing teaching materials and experience would greatly enhance the quality of all programmes. Also the participation of university staff in the OSH programmes of the Government and employers' and workers' organisations should be encouraged.

Over recent years the ILO/FINNIDA ASIA OSH programme has been active throughout the region and has been working with selected universities in developing directories of OSH activities, capabilities and interests in academic institutions, which will provide a tool for future OSH planning management and research

cooperation. These directories will allow more efficient use of the OSH capacity of academic institutions, especially by government agencies.

6.2 Strategies

Safety and health education and training spans the spectrum from tertiary level training for specialist practitioners to job specific training for individual workers in their places of work. The range of institutions and training providers in each country will need to accommodate these diverse educational needs.

In countries where educational institutions already exist to provide safety and health courses, these should be encouraged and supported. In countries where such courses do not exist an autonomous public safety and health institution might need to be established to provide educational and advisory services. Such technical institutes could also provide specialist health & environmental surveillance services. Employer and worker organisations will have a basic role to play in providing training to their members and in establishing networks of trainers in different industries and regions.

Safety and health training and education must ensure that the capability is developed to effectively manage hazards and risks at all levels of the economy. This will range from industry based training for workers in the hazards associated with their jobs and the steps they should take to protect themselves from harm, to tertiary level education for safety and health practitioners. Line managers and supervisors must also be trained in the skills they need to manage the hazards in their areas of responsibility. These training and educational systems will be based on the infrastructures and requirements of each country, but will generally range from workplace training to specialist technical courses and tertiary programmes.

Funding for the establishment of new training institutions should be drawn from the government workers compensation funds and relevant industry organisations. These initiatives could be supported by international agencies such as the ADB or ILO.

6.3 Actions

1. The identification of the broad range of safety and health training needs of each country within the region through an analysis of current OSH capacity in:
 - ▲ Relevant government agencies
 - ▲ Relevant NGOs
 - ▲ Industry associations and groups
 - ▲ Employer and worker organisations
 - ▲ Enterprise level requirements for professional safety officers
 - ▲ Medical institutions with a role in OSH and industrial hygiene
2. Where appropriate, the initiation of a process to establish autonomous public OSH institutions to provide safety and health training and technical services.
3. Encouraging and promoting OSH courses at universities and other academic institutions.
4. Promoting and encouraging the establishment of OSH training and advisory services provided by employer and worker organisations.
5. Encouraging the development of industry specific competency training by industry groups and enterprises.
6. Developing and expanding inspector training programmes within the government agencies responsible for industrial inspection services.

Section 7 Worker Compensation and Accident and Injury Statistics

7.1 General

7.1.1 Statistics

In all countries there is a legal requirement to report all workplace accidents and incidents of occupational diseases. Standard reporting forms have been developed and these, in the majority of countries, provide useful information on the types of accidents and accident trends. The accuracy of the statistical data will depend upon the coverage of the labour laws and the efforts of the factory inspector to collect the data. In Nepal, for example, the labour law covers only those establishments employing 10 or more workers. Thailand's law, on the other hand, covers all workplaces. In all countries there is underreporting of workplace accidents and occupational disease which is due in part to the employer not providing this data but also in part to the factory inspector not gathering this information. In Bangladesh, for example, there has never been any reported cases of occupational diseases in the manufacturing sector of the economy. However a number of case studies have shown that there are a number of industries with high incidents of occupational disease. These include:

- Case 1. A study carried out to assess the extent of chronic obstructive lung disease among workers of a jute mill revealed a prevalence rate of 12.7%
- Case 2. A study to assess prevalence of occupational diseases among textile mill workers revealed that byssinosis, bronchitis, Monday fever, heat cramps and low back pain was prevalent among 12.2%, 4.2%, 2.2%, 1.1% and 3.9% of the workers respectively
- Case 3. A study on bidi factory workers revealed that 19.1% of the workers had some form of respiratory problem. Amongst them 79% had bronchitis, 26.5% asthma and 10.5% tuberculosis.

Apart from underreporting another confounding element is the changes in reporting requirements introduced by individual government agencies. The main source of accurate accident statistics comes from those countries with comprehensive workers compensation funds. An innovative approach to improve the accuracy of workplace accidents was undertaken in the Philippines. A household survey was carried out in 2000 by the National Statistics Office (NSO) and the ILO. This survey used three instruments which were attached to regular household surveys of the labour force, identifying household members injured in occupational accidents during the previous 12 months, fatalities due to work related causes during the previous five years, and other cases of injury. This survey provided for the first time an overview of occupational injuries covering all workers and all economic activities throughout the country. The results are shown in Box. 14.

Box 14 Household Survey, NSO / ILO Year 2000 (Philippines)

- For every 100,000 workers, 666 received injuries that stopped them working for at least one day; a further 330 were injured but carried on working with "restricted activity", and 11 died as a result of work-related injuries or illnesses
 - Non-fatal injury rates increase with age
 - Skilled agriculture and fishery workers had the highest rates of injury
 - More than half of non-fatal occupational injuries were incurred by the self-employed
 - About 2.5 million days were lost in a year, mostly by men
 - Most injuries occurred in small establishments with less than 20 workers
 - Over 3,000 workers per year died as a result of occupational injuries or work related illnesses.
- Source: National Statistics Office, 2001*

Accident statistics from Nepal are very basic and make no attempt to record nature of injury nor establishment size in which the injury occurred. Statistics of this nature will be of little use in determining strategies to reduce workplace accidents. Nepal accident statistics for 1996 – 2001 are given in Table (1).

Table (1) Nepal Accident Statistics

Fiscal year	1996/97	1997/98	1998/99	1999/00	2000/01
No. of establishments	4195	4192	4284	4274	4296
No. of workers	382,845	385,960	397,200	392,421	394,541
No. of Accidents	37	39	42	55	37
Fatal	2	21	7	15	6
Serious	12	2	18	23	17
Minor	23	16	17	17	14
Man-day loss	191	190	632	613	282

Statistics produced in Thailand however give a more detailed account of accidents and occupational disease in the workplace. This is due in part to the figures coming from two sources – the ‘workers compensation fund’ and the factory inspectorate.

Tables 2, 3, 4 and 5 are accident statistics for Thailand for the year 2000.

Table (2) Number and Rate of work Injuries Covered by the Workmen’s Compensation Fund. (Thailand)

Year	Total Employees covered by Workmens’ Compensation	Number of work injuries	Rate of work injuries	Number of fatalities	Rate of work fatalities (per 100,000)
1994	4,248,414	186,053	43.79	816	19.21
1995	4,903,736	216,335	44.12	940	19.16
1996	5,425,422	245,616	45.27	962	17.73
1997	5,825,821	237,376	39.54	1,033	17.73
1998	5,145,835	186,498	36.24	790	15.35
1999	5,321,872	171,997	32.32	611	11.48
2000	5,417,041	179,556	33.15	620	11.44

Table 3 **First ten occupational injuries by degree of loss and its nature: (Thailand)**

Nature of injuries	Degree of loss				
	Death	Permanent Disability	Temporary Disability (>3 days)	Temporary Disability (≤ 3 days)	Total
Cut or wounded by sharp material	4	826	12,479	29,936	43,245
Injured by falling object	37	1,065	11,296	17,305	29,703
Foreign material in eye injury	-	26	1,329	27,989	29,344
Injured by thrown	25	646	7,669	18,217	26,557
Being pressed or pulled by object	13	793	4,834	5,352	10,992
Fell from a height	66	30	2,586	3,280	5,962
Burns from exposure to hot object	12	20	1,653	2,816	4,501
Fell over or slipped	3	8	1,337	3,040	4,388
Car accidents	333	69	2,281	1,673	4,356
Injuries by exposure to light (other than radiation)	-	1	89	2,728	2,818

Table 4 **Occupational injuries or disease classified by size of establishment: (Thailand)**

Size of establishments (Number of employees)	Degree of loss				
	Death	Permanent Partial Disability	Temporary Disability (>3 days)	Temporary Disability (≤ 3 days)	Total
1-9	20	64	663	1,193	1,940
10-19	77	285	3,211	6,792	10,365
20-49	135	607	7,469	18,590	26,801
50-99	107	481	6,376	17,229	24,193
100-199	103	609	8,226	22,893	31,831
200-499	101	748	10,864	30,324	42,037
500-999	32	394	5,451	14,643	20,520
>1,000	45	344	6,078	15,412	21,879
Total	620	3,516	48,338	127,076	179,666*

*including 16 cases of permanent total disability

To get an accurate picture of what is happening in the work environment in both the formal and informal sector statistics need to be gathered from a variety of sources. The statistics from Thailand show this where data has come from; the 'Workmans Compensation Fund'; the Department of Labour and the Epidemiology Division of the Ministry of Public Health. The pesticide poisoning cases in Table (5) highlight the problems in the Agriculture sector

Table 5 Occupational diseases reported to the Epidemiology Division, Minister of Public Health (Number of cases, deaths shown in brackets) (Thailand)

Year	1993	1994	1995	1996	1997	1998	1999
Pesticide poisoning	3,299(44)	3,143(41)	3,398(21)	3,196(31)	3,297(27)	4,398(15)	4,169 (31)
Lead poisoning	17(2)	19	28	29(1)	28	49	60
Heavy metal poisoning	16	1	36(1)	54	24	63	38
Petroleum poisoning	52	52	65(1)	73	115(1)	93	151
Gas & vapor poisoning	26	21(1)	32	44	44	113(1)	115
Caisson's disease	138	172(5)	8	8	8(1)	1(1)	1
Silicosis	24	10	11	32	21	86	82
Total	3,572(47)	3,433(47)	3,436(32)	3,537(28)	4,803(17)	4,803(17)	4,619(31)

7.1.2 Workmens Compensation Fund

Accident data compiled from 'Workers Compensation Offices' provide valuable information that can be used to formulate sound OSH programmes. More effective OSH programmes will also contribute to the effective operation of any 'Workers Compensation Fund' through the eventual reduction of compensation payments resulting from a reduced accident rate. Close collaboration between the 'Workers Compensation Office' and the government departments responsible for safety and health is critical for the improvement of OSH programmes and effective use of funds.

Compensation provisions to injured workers varies throughout the region with some countries providing little or no coverage and other providing comprehensive coverage. Thailand's Workmen's Compensation Scheme in 1993 provided coverage to those enterprises employing 20 or more workers, it now provides coverage in all registered workplaces. Injury data provided on the accident compensation claims forms is most important if it is to be used to direct the OSH effort. An ILO advisory report from 1996, *Design of a Database on Occupational Injuries and Diseases for the Workmen's Compensation Fund*, provides useful guidance in this regard.

7.2 Strategies

The three essential areas in which workers compensation can support safety and health initiatives are all integral elements of a complete safety and health programme.

The **first** of these is the provision and analysis of accident and illness statistics. Across the region workers compensation programmes are likely to be the most reliable source of accident data. While this information will vary in detail and scope from country to country the analysis of the accident and occupational disease data that is available should be vigorously pursued.

This information will enable high-risk industries to be identified for particular attention and can also identify under performing employers with higher than average accident rates. Access to this information allows government agencies and other organisations to focus their resources in those areas where the greatest impact can be achieved.

The **second** core area is the provision of financial support from the workers compensation fund to support OSH programmes. The workers compensation fund can derive tangible benefit from supporting OSH programmes through the reduction in claims rates. Support for OSH programmes could include:

- ▲ Financing the establishment of new training or research centers
- ▲ Funding seminars and training courses by government, employer and worker organisations and universities

- ▲ Support for specific government or industry initiative focused on particular hazards or categories of workplace.

The **third** major area in which workers compensation can help is in the provision of financial incentives for employers with good safety records and penalties for those employers with higher than average claims rates. The potential viability of these initiatives will vary from country to country. Where workers compensation is funded from levies paid by employers, upward or downward adjustments of those levies could be made based upon each employers claims performance.

This has the disadvantage of discouraging the reporting of injuries and the lodgment of claims.

Another approach is for accident compensation levies to be assessed on the basis of an enterprises demonstrated safety and health systems and performance assessed through an active audit. These audits should be conducted against clearly defined standards that objectively measure the enterprises safety and health capability and performance.

Audits would cover all aspects of safety and health including;

- ▲ Hazard management
- ▲ Information and training for workers
- ▲ Accident recording, investigation and rehabilitation
- ▲ Emergency Planning
- ▲ Managing Contractors
- ▲ Commitment and Planning

This approach would promote good safety and health practice by providing enterprises with objective assessments of their systems. These assessments would then be used to determine each enterprises "risk profile" which would be used to calculate workmens' compensation levies.

7.3 Actions

1. Conduct analysis of existing data gathered by workers compensation agencies to establish the quality and value of the information, key issues will be to determine whether enterprise or industry accident rates can be determined and whether the data is sufficiently detailed to identify causal elements or specific hazards.
2. Publish and disseminate all useful data for reference by government agencies and other organisations.
3. Where appropriate promote improvements to 'accident compensation claims forms' taking into account the ILO report – *'Design of a data base on occupational injuries and diseases for the workers compensation fund. Geneva 1996'*.
4. Promote the carrying out of detailed analysis of compensation claims at a local level for use by the relevant authorities and industries.
5. Investigate the availability of funding from workers compensation funds to support OSH initiatives.
6. Investigate the potential for worker compensation fund levies to be adjusted to recognise good or poor safety and health performance.
7. Investigate the potential for the workers compensation fund to introduce an employer safety audit system (i.e. workplace safety management practices audit).

REFERENCES

1. Country Report Philippines – Occupational Safety and Health – Dr Dulce P. Estrella – Gust (2002)
2. Strengthening the role of labour standards in selected DMC
- Dr Chalermchai Chaikittiporn (2002)
3. Occupational Safety & Health in Bangladesh – Prof Abdul Khaliq Barbhuiya (2002)
4. Profile of Occupational Safety & Health in Nepal – S.N. Vaidya (2002)
5. Information note on Women Workers and Gender issues on Occupational Safety & Health
- Valentina Forastieri (ILO –2000)
6. Guidelines on occupational safety & health management systems – ILO – OSH (2001)
7. Program of action for occupational safety & health in Thailand towards the 21st century:
An advisory report – Seiji Machida (ILO – 2000)
8. Suthammasa S, Occupational health & safety management in Thailand, the Office of Thailand's
Research Fund, Bangkok 1999.
9. Panprasit W, Yoosuk W et al, A study to identify an occupational safety and health management model
for Thailand, the Office of Workmen's Compensation fund, Bangkok, 1999.
10. Phoon W, Impact of globalization on small enterprises and the informal sector, Asian-Pacific Newsletter
on Occupational Health & Safety 2001; 8: 64-65.
11. The Office of Workmen's Compensation Fund, Annual performance report of the Workmen's
Compensation Fund 2000, the office of workmen's compensation Fund, Bangkok 2001.
12. ILO East Asia Multidisciplinary Advisory Team, Preventing major industrial accidents in Asia: A guide,
ILO Regional Office for Asia and the Pacific, Bangkok 1994.
13. Manuaba A, Impacts of globalization on working conditions and the environment – an Asia perspective,
Asian – Pacific Newsletter on Occupational Health & safety 2001; 8 : 62-64.
14. The International Labour organization, the informal sector, ILO Regional Department for Asia and the
Pacific, Bangkok, 1998.
15. The National Institute for the Improvement of Working Conditions and environment, A study and
development of safety in small enterprises and home based workers, Department of Labour Protection
& welfare, Bangkok, 2000.
16. Rantanen J, Kanppinen T et al, Country profiles and national surveillance indicators in occupational
health & safety, Finnish Institute of occupational Health, Helsinki 2000.
17. The Occupational Health & Safety Standards, Department of Labour & Employment, Philippines, 1999.
18. Biennial Report of the Occupational Safety & Health center (OSHC) Department of Labour and
Employment (DOLE) Philippines, 1998-1999.
19. Current Labour Statistics – Bureau of Labor and Employment statistics – Bureau of Labor and
Employment Statistics – Manila, Fourth Quarter 2000.
20. Higher Productivity and a Better Place to work, ILO Geneva 1988 Thurman J.E.; Louzine A.E.; Kogi K
21. World of work, people on the move: globalization impact on migration, ILO no 34 April/May 2000.
22. Primer on the Occupational Safety & Health Standards – DOL Manila 1999.

23. Preventive measures in hazardous occupations in Asia; A guide ILO. Bangkok 1994
24. Annual Report 1990-1999 Department of Inspection for Factories & Establishments Dhaka – Bangladesh 2000.
25. Fifth Five Year Plan 1997-2002 Planning Commission, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

Appendix 1.

Conventions and Recommendations

A. Guiding policies for action

- ▲ The Occupational Safety and Health Convention, 1981 No. 155 and its accompanying Recommendation (No. 164). These standards prescribe the progressive application of comprehensive preventive measures and the adoption of a coherent national policy on occupational safety and health, while establishing the responsibility of employers for making work and equipment safe and without risk to health, as well as the duties and rights of workers.
- ▲ The Occupational Health Services Convention, 1985 (No. 161) and its accompanying Recommendation (No. 171). These standards stress that occupational health services are entrusted essentially with preventive functions and responsible for advising employers, workers and their representatives on maintaining a safe and health working environment, as well as on the adaptation of work to the capabilities of workers. The emphasis of these instruments are on roles, best use of resources and cooperation rather than on administrative structures that are not always flexible.
- ▲ Working Environment Convention, 1977 (No. 148) and its accompanying Recommendation, 1977 (No. 156).

B. Protection in given branches of economic activity

- ▲ The Safety and Health in Agriculture Convention, 2001 (No. 184) and its accompanying Recommendation (No. 192).
- ▲ The Safety and Health in Construction Convention, 1988 (No. 167) and its accompanying Recommendation (No. 175) which lay down the basic principles and measures to promote safety and health of workers in construction.
- ▲ The Safety and Health in Mines Convention, 1995 (No. 176) and its accompanying Recommendation (No. 183) address the risks unique to mining and applies to all mining activities whether on the surface or underground, as well as to the preparation of extracted material.
- ▲ Hygiene (Commerce and Offices) Convention, 1964 No. 120
- ▲ Safety Provisions (Building) convention, 1937 No. 62 and Safety provisions (Building) Recommendation, 1937 No. 53.
- ▲ Marking of Weight (packages Transported by Vessels) Convention, 1929 No.27.
- ▲ Protection against Accidents (Dockers) Convention, 1929 No. 28 and Protection against Accidents (Dockers Convention (Revised), 1932 No.32.
- ▲ Occupational Safety and Health (Dock Work) Convention, 1979 No.160.
- ▲ Plantations Convention, 1958 No.110.

C. Protection against specific risks

- ▲ The Chemicals Convention, 1990 No. 170 and its accompanying Recommendation (No. 177) represent international efforts to upgrade the national measures and harmonize regulatory

standards. They emphasise the need to establish a coherent national policy of chemical safety ranging from the classification and labeling of chemicals to the control in all aspects of the use of chemicals. Particular emphasis would thus be placed on roles and responsibility of the competent authority, suppliers and employers, as well as duties and rights of workers.

- ▲ The Prevention of Major Industrial Accidents Convention, 1993 (No. 174) and its accompanying Recommendation 1993 (No. 181) aims to protect workers, the public and the environment from major industrial accidents, in particular through the prevention of major accidents involving hazardous substances and the limitation of the consequences of such accidents. It applies to major hazard installations with the exception of nuclear installation and radioactive materials processing, military installations and transport outside the site of an installation other than pipeline.
- ▲ The Asbestos Convention, 1986 (No. 162) and its accompanying Recommendation (No. 172) advances organizational, technical and medical measures to protect workers against hazardous asbestos dust.
- ▲ Anthrax Prevention Recommendation, 1919 No.3.
- ▲ White Lead (Painting) Convention, 1921 No. 13
- ▲ Radiation Protection Convention, 1960 No. 115 and Radiation Protection Recommendation, 1960 No. 114.
- ▲ Benzene Convention, 1971 No. 136 and Benzene Recommendation, 1971 No. 144.
- ▲ Occupational Cancer Convention, 1974 No. 139 and Occupational Cancer Recommendation, 1974 No. 147.
- ▲ Guarding of Machinery Convention, 1963 No. 119 and Guarding of Machinery Recommendation, 1963 No.118.

D. Labour Inspection

- ▲ Labour Inspection (Health Services) Recommendation, 1919, No.5
- ▲ Labour Inspection Recommendation, 1923, No. 20
- ▲ Labour Inspection (Seamen) Recommendation, 1926, No.28
- ▲ Labour Inspection Convention, 1947, No.81 and Protocol of 1995 to the Labour Inspection Convention, 1947, No. 81 and Labour Inspection Recommendation, 1947, No.81
- ▲ Labour Inspection (Mining and Transport) Recommendation, 1947, No.82
- ▲ Labour Inspection (Agriculture) convention, 1969, No.129 and Labour Inspection (Agriculture) Recommendation, 1969, No. 133
- ▲ Labour Inspection (Seafarers) Convention, 1996, No. 178 and Labour Inspection (Seafarers) Recommendation, 1996, No. 185.

E. Measures of protection

- ▲ Maximum Weight Convention, 1967 No.127 and Maximum Weight Recommendation, 1967 No. 128.

- ▲ Maternity Protection Convention, 1919 No. 3.
Maternity Protection Convention (Revised), 1952 No. 103,
Maternity Protection Convention, 2000 No. 183,
Maternity Protection Recommendation, 2000 No. 191,
Night Work (Women) Protocol, 1990,
Underground Work (Women) Convention, 1935 No.45.

- ▲ Minimum age convention 1973 No. 138,
Night Work of Young Persons (Non-Industrial Occupations) convention, 1946 No. 79,
Night Work of Young Persons (Industry) Convention (Revised), 1948 No.90,
Medical Examination of Young Persons (Industry) Convention, 1946 No. 77,
Medical Examination of Young Persons (Non-Industrial Occupations) Convention, 1946 No. 78,
Medical Examination of Young Persons (Underground Work) Convention, 1965 No. 124.

- ▲ Migrant Workers (Supplementary Provisions) convention, 1975 No. 143.

Appendix 2.

ILO Codes of Practice

- ▲ Model code of safety regulations for underground work in coal mines for the guidance of governments and of the coal-mining industry, 1950
- ▲ Prevention of accidents due to electricity underground in coal mines, 1959
- ▲ Prevention of accidents due to fires underground in coal mines, 1959
- ▲ Guide to the prevention and suppression of dust in mining, tunneling and quarrying, 1965
- ▲ Safety and health in agricultural work, 1965
- ▲ Code of practice for the safe construction and installation of electric passenger, goods and service lights, 1972
- ▲ Safety and health in building and civil engineering work, 1972
- ▲ Safe construction and installation of escalators. Recommendations adopted by the International Committee and installation of escalators. Recommendations adopted by the International committee for Lift Regulations (CIRA) on 6 June 1972, 1976
- ▲ Safety and health in shipbuilding and ship repairing, 1974
- ▲ Prevention of accidents due to explosions underground in coal mines, 1974
- ▲ Safe construction and operation of tractors, 1976
- ▲ Protection of workers against noise and vibration in the working environment, 1977
- ▲ Safety and health in dock work. Revised edition, 1977
- ▲ Safe design and use of chain saws, 1978
- ▲ Guide to health and hygiene in agricultural work, 1979
- ▲ Occupational exposure to airborne substances harmful to health, 1980
- ▲ Safety and health in the construction of fixed offshore installations in the petroleum industry, 1982
- ▲ Occupational Safety and Health in the Iron and Steel Industry, 1983
- ▲ Safety in the Use of Asbestos, 1984
- ▲ Safety and Health in Coal Mines, 1986
- ▲ Radiation Protection of Workers (Ionising Radiations), 1987
- ▲ Safety, Health and Working Conditions in the Transfer of Technology to Developing Countries, 1988
- ▲ Prevention of Major Industrial Accidents, 1991
- ▲ Safety and Health in Opencase Mines, 1991
- ▲ Safety and Health in Construction, 1992
- ▲ Safety in the Use of Chemicals at Work, 1993
- ▲ Recording and notification of Occupation Accidents and Diseases, 1995
- ▲ Accident prevention on board ship at sea and in port, 2nd ed. 1996
- ▲ Safety and Health in Forestry Work, 1st. ed. 1998
- ▲ Use of synthetic vitreous fibre insulation wools (glass wool, rock wool, slag wool), 2000
- ▲ An ILO code of practice on HIV/AIDS and the world of work, 2001