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Master of Applied Science

[Occupational Health & Safety]

THESIS

**Malaysia and Singapore Occupational Health and Safety -
An Exploratory Study**

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ABSTRACT

This research project constitutes an exploratory study of the governmental approach to occupational health and safety (OH&S) management adopted in Malaysia and Singapore. A literature review was undertaken to identify the four key elements which underpin OH&S management at the national level. Resulting from this exercise, the research project was designed to undertake an exploratory study of the existing OH&S policy, OH&S legislation, OH&S education and training, and national OH&S co-ordinating agency in these countries. Methods used for the data collection include literature search, literature review, semi-structure interviews and a field trip.

The federal constitutions for Malaysia and Singapore did not contain any specific policy on OH&S of workers. OH&S was lumped together with a host of other more prominent labour issues. Likewise, OH&S legislation was found to cover less than 40% of the workforce and was fragmented (eight associated pieces of legislation). Administration of OH&S was distributed under a number of different ministries (six ministries for Malaysia and five for Singapore). In Malaysia, formal OH&S training and education were provided only to medical students and medical practitioners. The National Productivity Board in Singapore offered a 'Safety Officer' course for individuals wishing to be accredited as a competent person under the Factories Act, 1973.

From the research undertaken, it is concluded that OH&S management in Malaysia and Singapore is primarily government driven.

KEYWORDS:

Occupational health and/or safety, Industrial safety/health, Industrial injury/disease, Industrial accidents, Industrial laws/regulations/legislation, Public health, Education and training, Policy, Developing Countries, Malaysia, Singapore.

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1. INTRODUCTION

What is normally referred to collectively as the "Association of South-East Asia Nations" (ASEAN), comprises the separate and distinct nations of Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand [Richardson, 1993, p. 4]. McCawley [1991, p. 9] has identified the ASEAN region as one of the fastest developing parts of the world in economic terms. In the last ten years, industrialisation and modernisation of these countries have escalated at a pace similar to that experienced by Japan in the Sixties. Unfortunately, such rapid technological and economical advancement are not matched by corresponding developments in health care in general, and the health and safety of the working population in particular. As such, morbidity and mortality from diseases and accidents directly and indirectly related to working conditions are on the increase [Phoon, 1986, p. 1-12]. In particular, Chhokar [1987, p.169-177] observed that this deplorable trend is unique to developing countries in general, because of three compounding factors:

- (a) rapid growth of industrialisation and economical activity which expose more workers to new and greater occupational hazards;
- (b) high rates of unemployment and large labour surpluses which weaken the workers' right to oppose unsafe work conditions; and
- (c) inadequate implementation or total lack of safety-related laws.

In addition to the above, arguments are often offered that improvements to work conditions and implementation of occupational health and safety (OH&S) programmes are too costly for developing countries. Expenditure for social purposes are held by both local governments and industrialists to

threaten the competitive edge of industries which are counted upon to contribute to economical growth and new jobs creation [Kogi, Phoon & Thurman, 1989, p. 1-5].

Nonetheless, more and more sections of regional governments and enterprises are recognising that occupational accidents and diseases are costly [Andreoni, 1986, chap. 1; International Labour Office, 1983, chap. 1; International Labour Office, 1988, chap. 1; and General Secretariat of the International Social Security Association for Asia and Oceanic (ISSA), 1988, p. 15-23]. In addition, the economic effects of a poor or non-existent OH&S management in the workplace may not only manifest in the immediate future but also in the long term [ISSA, 1988, p. 17]. In this climate of change, many local OH&S practitioners like Phoon [1986], Kogi et. al. [1989] and Phua [1992, p. 125-137] have propounded the notion that the loss of and damage to human life and limb, property and waste of productive capacity in each ASEAN nation ought to be arrested without delay.

Accounting for the local values and expectations of these developing ASEAN nations, it is to be expected that a stronger and more robust argument will be required to convince both governments and private enterprises to adopt a more energetic and active commitment to OH&S management. Moral reasons alone will not suffice to convince the governments and private enterprises into action. As such, the need for the governments to vigorously enact and enforce OH&S rules and regulations is espoused by numerous authors like Phoon [1986, p. 2], Fuchs [1976, p. 27] and the International Labour Office [1983, p. 16].

Further impetus for governments and private enterprises to act can be based upon economic reasons. Wyatt and Oxenburgh [1988, Sect. 2-180] argued that the costs of accidents will both directly and indirectly affect the overall production costs. Subsequently, OH&S should not be viewed as something extra to be added on to the production system; it should be built into the production system. Likewise, OH&S management should be an integral part of the overall management functions of planning, organising, leading and controlling the production system.

This research project constitutes an exploratory study of the governmental approach to OH&S management in Malaysia and Singapore. Initially, a literature review was for the purposes of identifying four key elements that underpin OH&S management system at the national level. These key elements identified in the literature review are: OH&S policy, OH&S legislation, national co-ordinating agency for OH&S and OH&S education and training. Subsequently, the project was designed to undertake an exploratory study of these four key elements as found in Malaysia and Singapore. The next phase of the project was data collection which involved literature search, literature review, semi-structured interview and a field trip. Lastly, this research project seeks to analyse and report on the observations and findings.

2. AIMS and OBJECTIVES

This research project has been undertaken to finalise the requirements for the award of a Master of Applied Science (Occupational Health and Safety) at University of Ballarat, Victoria. The aims and objectives of this project are presented below.

2.1. Aims of the Project

- (a) To undertake an exploratory study of the governmental approach to OH&S management adopted in Malaysia and Singapore.
- (b) To determine the four key elements which underpin OH&S management at the national level.
- (c) To collect data on these key elements, analyse the collected data and report on the findings and observations.

2.2. Objectives of the Project

- (a) Review appropriate OH&S literature to identify the key variables that underpin effective OH&S management at the national level.
- (b) Design a research project to undertake an exploratory study of these key elements.
- (c) Undertake a literature search for publications on OH&S in Malaysia and Singapore.
- (d) Review the available OH&S literature identified through the literature search.
- (e) Correspond with relevant OH&S authorities, professional bodies and interest groups in Malaysia and Singapore.
- (f) Undertake field trip to Malaysia and Singapore for the purposes of interviewing relevant OH&S authorities and gathering further information.
- (g) Document field observations and findings.
- (h) Analyse and report on these observations and findings.

3. DEFINITIONS OF KEY TERMS

3.1. Is Work Hazardous to Health?

Work is an important part of society. The types of jobs that are available depict the social development of the nation, of the type of government that exists and of the citizens attitudes to themselves and to other nations [Coulton, McCulloch and Noble, 1990, p. 3-6]. For example, a workforce-orientated government which is committed to providing services to individuals may require a large number of public servants to fulfil this aim. On the other hand, a capital-enterprise orientated government (as with the Hawke-Keating Labour government in Australia) may be more orientated towards creating opportunities for growth in private enterprises who will then provide opportunities for their workers.

Work, or to be more precise, how it is done, becomes an important indicator of a country's wealth, its education, the resources it has - both physical and human, and overall social needs and desires [Fox, 1991]. The significance of this fact was aptly illustrated in Lamm's opening sentence in her recent article [1994, p. 57]: "Although Australian and New Zealand governments and industry have moved to streamline regulations, adopted new management practices and introduce labour market reforms to boost national productivity and maintain business competitiveness, their poor occupational health and safety record continues to undermine their micro-economic reforms...the direct cost to Australian and New Zealand industry of reported workers compensation claims is staggering."

Based upon the Australian experience, it is estimated that, on average, an Australian is killed at work every working day. Each week, over 3,000 workers receive an injury leading to compensation [De Cieri, 1991, p. 39]. Estimated cost of workers' compensation for the 1992-93 period is \$4.83 billion [Worksafe Australia, 1994, p. ix]. These set of statistics highlighted the urgent need to safeguard all workers for work should not be hazardous to health.

'Work' then, when considered as a system, comprised of the physical work environment, facilities, processes, machinery, materials, equipment and people [Wyatt & Oxenburgh, 1988, Section 2-020]. In addition, Wyatt and Oxenburgh deduced that OH&S is primarily concerned with the protection of the human element, people, within this system. This is a simple notion of OH&S in relation to 'work'. What then is "occupational health and safety"?

3.2. Occupational Health and Safety Defined

The term 'occupational health' was widely employed as a precursor to 'occupational health and safety'. In 1950 a joint committee of the International Labour Organisation and the World Health Organisation (ILO/WHO) defined 'occupational health' as [Parmeggiani, 1983, p. 1138]:

- * the promotion and maintenance of the highest degree of physical, mental and social well being of workers in all occupations;
- * the prevention among workers of departures from health caused by their working conditions;
- * the protection of workers in their employment from risks resulting from factors adverse to health;
- * the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological ability; and
- * to summarise: the adaptation of work to man and of each man to his job.

Clearly the above definition demonstrates that 'occupational health' encompasses a wide field. Consequently, it is important to define the boundaries of any broad definitions. In this case to distinguish 'occupational health' from 'public health'. The latter is defined as **"that which is concerned with health problems in relation to man and his general social, biological, chemical and physical environment."** [Forssman, 1983. p. 1491]. As such, 'occupational health' deals with the worker in relation to his/her work and working environment (both physically and mentally). On the other hand, 'public health' pertains to a person in relation to his/her environment in society, outside the workplace, and where factors such as air and water pollution, noise, nutrition and infections may influence his/her health [Forssman, 1983. p. 1491].

The ILO has since adopted the principle that 'occupational safety and health' are two aspects of one and the same problem [Parmeggiani, 1983. p. 1138]. The definition espoused by the joint ILO/WHO committee in 1950 is still the accepted standard. For example, Schuler, Dowling and Smart [1988, p. 340] defined 'occupational health and safety' as the "physiological, physical and socio-psychological conditions of an organisation's workforce resulting from the work environment."

3.2.1. OH&S Management

Daft [1991, p. 711] defined 'management' as "the attainment of organisational goals in an effective and efficient manner through planning, organizing, leading, and controlling organization resources." and a similar definition is provided by Bartol and Martin [1991, p. G-14], "management is the process of achieving organizational goals through engaging in the four major functions of planning, organizing, leading, and controlling." Hence, "OH&S management" can be viewed as utilising the management functions of planning, organising, leading and controlling to control health and safety at the workplace. Wyatt and Oxenburgh [1988, Section 2-180] advanced the notion that: "To be effective, health and safety activity must be built in to these management functions." Therefore, OH&S management should not be separated from mainstream management; it should be an integral part of the overall management of production, services, quality and cost-effectiveness.

What then are the key elements that underpin successful OH&S management at the national level? From the literature review these key elements were identified as [Robert, 1983, p. 1553-1557 and Emmett, 1992, p. 305-306]:

- (a) OH&S policy,
- (b) national co-ordinating organisation for OH&S,
- (c) OH&S legislation, and
- (d) OH&S education and training.

The definition for each of these key elements and the link between each of these elements to OH&S management are offered below (Section 3.3 to 3.6):

3.3. OH&S Policy

What is a policy? Although this term is used constantly, the concept of 'policy' is somewhat vague or loosely understood and without a single specific, universally accepted definition. A perusal of the more commonly used dictionaries provided the following definitions:

- (a) a definite course of action adopted as expedient or from other consideration [Macquarie Dictionary, 1981]
- (b) a course or line of action adopted and pursued by a government, ruler, political party, or the like [Macquarie Dictionary, 1981]

- (c) prudence, practical wisdom [Macquarie Dictionary, 1981]
- (d) prudence or sagacity in the conduct of affairs [Webster Comprehensive Dictionary, 1986]
- (e) a course or principle of action adopted or proposed by government, party, business or individual [The Concise Oxford Dictionary, 1990]

This clearly illustrates the point that there are a variety of definitions and understandings of the term, 'policy'. To clarify the matter for the purposes of this research, the following description propounded by Wyatt and Oxenburgh [1988, Section 21-500] serves both as an adequate and accurate definition, **"An occupational health and safety policy is a clear and concise written statement of management's commitment and intent regarding health and safety in the workplace"**. This definition introduces an important feature of policy - policies are formulated for the future and not for past actions [Plunkett & Attner, 1992, p.149].

3.3.1. Purpose and Contents of OH&S Policy

Why is it important to define and establish an OH&S policy? In the International Labour Office's Encyclopaedia of OH&S, the following advice is offered: **"Any orderly action must be based upon a clear, well defined policy."** [Robert, 1983, p. 1553]. Consequently, defining a government's

OH&S policy is fundamental since the definition sets the framework in which all OH&S activities in the country must be carried out. In addition, Wyatt and Oxenburgh [1988, Section 21-510] go so far as to affirm that: "The occupational health and safety policy is the first step in effectively managing health and safety in the workplace...". These authors proceeded to support their affirmation that an OH&S policy is beneficial to an organisation because it coerces management to:

- (a) confront issues related to OH&S;
- (b) make a public commitment to OH&S;
- (c) signal a planned approach to OH&S; and
- (d) identify OH&S priorities.

Four further benefits were attributed to OH&S policy for the policy [Wyatt & Oxenburgh, 1988, Section 21-510]:

- (a) sets out the responsibilities of all parties;
- (b) provides a reference point;
- (c) encourages co-operation; and
- (d) allows OH&S improvement to be integrated with the organisation's other objectives once articulated as a policy.

It is envisaged that when a country sets out to define and establish its national OH&S policy, similar benefits will positively affect its OH&S management

performance. In addition, the ILO Encyclopaedia of OH&S correctly pointed out that the relationship between private enterprises' and the government's OH&S policies should be of a complementary nature and not to duplicate or replace each other [Robert, 1983, p. 1553].

From the International Labour Conference held in June 1981, a resolution was passed that throughout the process of formulating, implementing and reviewing its national OH&S policy each member country should always account for the national conditions and practice peculiar to that country. Moreover, the entire process should be undertaken in-consultation with the most representative organisations of employers and workers [Robert, 1983, p. 1553]. As such, a country's OH&S policy is best understood as a system of interrelated elements. The system (or policy) establishes the form in which a government carries out its OH&S activities and programmes, and influences or controls the manner in which its people respond to OH&S issues at the workplace. Robert [1983, p. 1553] propounded that the elements that constitute a national OH&S policy are:

- (a) the statement of objective;
- (b) a body of legislation;
- (c) the structure and administration of governmental OH&S agency or agencies; and
- (d) the planning, budgeting and execution of programmes and associated activities of the governmental OH&S agency or agencies.

The ideal situation is to have a formal document covering all aspects of a country's OH&S policy. Nonetheless, this situation is rarely, if ever, achieved in the real world. Usually, certain elements of a country's OH&S policy may be formally declared in a written document while other components may have to be interpreted from legislation, plans and programmes. Consequently, the overall OH&S policy may constitute an aggregation of individual, interrelated policies, each of lesser scope, some written, others implicit, regarding numerous OH&S issues which may have accumulated over time.

3.4. National OH&S Co-ordinating Agency

Traditionally, government has been the sole agent undertaking all aspects of OH&S activities, ranging from promotion to prosecution. As a whole, industry has been reluctant to recognise the importance of championing OH&S. This unfortunate scenario was commented on by Robert [1983, p. 1553]: "There is little evidence before the turn of the century of efforts by individual employers to prevent accidents at work..."

For the English speaking world, what has been instrumental in changing the belief that the major contribution towards the prevention of occupational accidents was to be made by governments has been the report handed down by Lord Robens in 1972. The Robens Committee on Safety and Health at Work

in the United Kingdom [1972, p. 5] concluded that: "The primary responsibility for doing something about the present levels of health and occupational accidents and disease lies with those who create the risks and those who work with them..." The Robens Report espoused the view that accidents occur at individual workplaces and that control measures must therefore be initiated at this level by the employer, managers and workers directly concerned if they are to have their full impact.

This by no means suggests that governments do not have an important role in OH&S management. The same is true of employers' and employees' organisation, and of medical, scientific and technical bodies. For effective management of OH&S, all activities must be pursued and undertaken at the national level; they must, however, seek to complement, and not to replace or duplicate efforts expanded at the level of undertaking. As such, orderly actions must be based upon a clear, well defined OH&S policy administered by a central agency. Moreover, Articles 6 and 7 of the ILO Convention No. 155-1981 [Robert, 1983, p.1554] proceeded with the recommendation of establishing a national co-ordinating agency. The national co-ordinating agency is to provide a forum for co-operating and collaboration between public authorities, representative employers' and employees' organisation, and other concerned bodies. The functions of this agency were designated as [Robert, 1983]:

- (a) enactment of laws and regulations (including the administrative framework for their enforcement),

- (b) education and training of personnel (managers, safety officers, supervisors, employees' safety representatives, etc...),
- (c) undertaking of studies and research into OH&S issues, and
- (d) dissemination of information.

3.5. OH&S Legislation

Legislation is held by Derham, Maher and Waller [1987, p. 27] as "**the most flexible method of law-making.**" Legislation consists of the aggregation of laws enacted by the legislative authorities of a country over time, plus the common law and customary law which have accumulated respectively through juridical or tradition practice. These laws try to ensure that the population acts or conducts itself in accordance with the body or rules and requirements contained in them [Food and Agricultural Organisation of the United Nations, 1987, p. 44].

Legislation provides the legal framework which is necessary to put into effect many of the objectives of an OH&S policy. It allows for the objectives of a policy to be translated into specific legal provisions to prevent industrial injuries and diseases and to compensate those who suffer industrial injuries or contract industrial diseases.

In addition, it should be highlighted that legislation is but one, and not always the most important, means through which OH&S policy is implemented [Phoon, 1986, ILO, 1988 and Wyatt & Oxenburgh, 1988]. Policy objectives change and evolve with the passage of time and hence, new laws must be enacted or older ones revised or repealed to be consistent with these changes.

Laws may be enacted by a legislature consisting of representatives elected by the population, appointed by a supreme government or some combination of the two forming a legislative body. Under some authoritarian governments legislation may be decreed by the higher authorities, possibly assisted by some form of advisory group but without a freely elected legislature representing the general populace [Derham, Maher & Waller, 1987, p. 4-8]. A legislative body has no means of enforcing laws. This responsibility is assigned by law to an existing executive government agency or to one specifically created for that purpose. However, the legislative body can indirectly control the actions of these governmental agencies as it has the power to grant or withhold financial appropriations [Food and Agricultural Organisation of the United Nations, 1987, p.44].

At the national level, OH&S legislation is influenced by a myriad of factors, such as the social and economical situation of the country and the political tendencies of government and law makers [Brooks, 1993, p.1]. The thrust of such legislation is threefold. First, it sets compulsory minimum standards of health and safety at work in the form of workers' protection acts, health and

safety acts. Implementation and enforcement of the safety standards is the responsibility of a governmental body such as OH&S executive, labour inspectorate or factory inspectorate [Gunningham, 1984, p. 11; and Forssman, 1983, p. 1492]. Secondly, it compensates the employee when injury or disease occurs. Thirdly, it attempts to rehabilitate those victims of work-related injury and disease [Gunningham, 1984, p. 11].

3.6. Education and Training

Education and training are complementary and overlapping aspects of the same fundamental effort to equip individuals with the knowledge and skills required for the successful exercise of their profession and their smooth transition to working life [Robert, 1983, p. 1556].

Numerous authors [Phoon, 1986; ILO, 1976; ILO, 1983 and ILO, 1988] held that even if the organisation of OH&S management is made compulsory by law, it would be a mistake to imagine that accidents will be effectively curtailed. Consequently, all concerned (that is, workers and their representatives, management and the government) are to be properly informed and should thoroughly understand the role of OH&S. As such, OH&S education must be introduced at both secondary and tertiary levels.

In particular, when accounting for the fact that occupational hazards are potentially present in almost every human activity, the ILO/WHO joint committee advocated for a multi-disciplinary approach to hazard control. As such, the ILO/WHO joint committee recognised the need to integrate OH&S training in the curricula and teaching materials of all trades and professions. This need was articulated in Article 14 of Convention No. 155: **"Measures shall be taken with a view to promoting, in a manner appropriate to the national conditions and practice, the inclusion of questions of occupational safety and health and the working environment at all levels of education and training, including higher technical, medical and professional education, in a manner meeting the needs of all workers."** [Robert, 1983, p. 1556].

Although recognising the complementary role and functions of both public authorities and industry in OH&S training, Robert [1983] highlighted that the role of the public authorities ceased once an individual enters industry. He espoused the view that at the workplace, it is the responsibility of the employer to train its employees to undertake all tasks in a safe manner. Nonetheless, the public authorities have to monitor that the provision of appropriate OH&S training is satisfactorily undertaken by the employer. Moreover, the public authorities should assist industry in the delivery of OH&S training (in terms of both trainers and teaching materials) in specialised fields. Such support will be essential in the developing countries where few OH&S specialists are employed by industry.

4. METHODOLOGY

4.1. An Overview

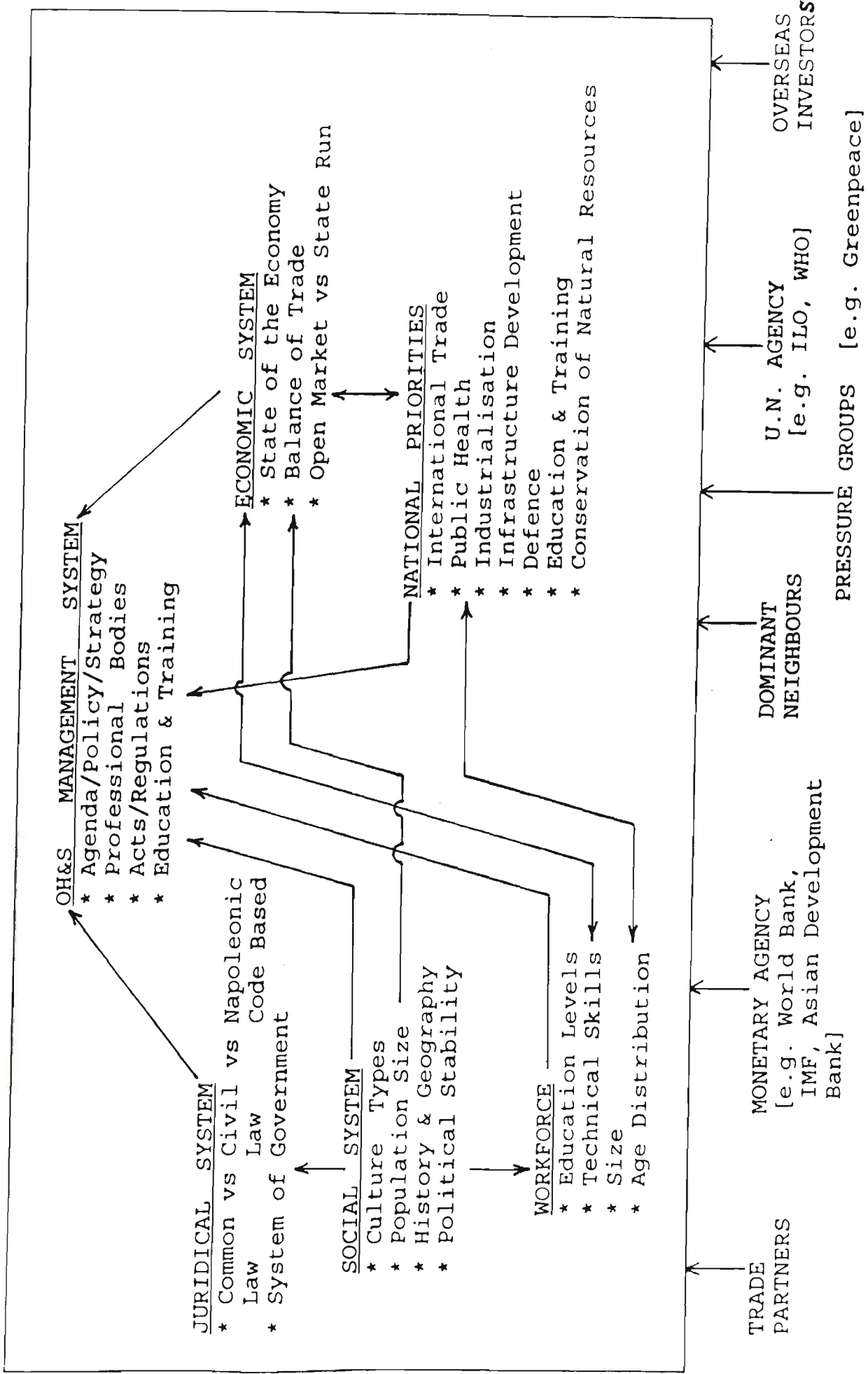
The design of this research project constituted an exploratory study into the existing OH&S management framework in Malaysia and Singapore. The methods utilised in this exploratory study are:

- (a) literature search,
- (b) literature review,
- (c) semi-structured interview, and
- (d) field trip.

The initial phase of the research project had the objective of identifying both dependent and independent 'variables' affecting the framework of the OH&S management system in Malaysia and Singapore. In addition, a system diagram as depicted in Figure 1 was constructed to assist in the investigation of the inter-relationships between these key variables. Following this, an exercise was undertaken to determine which were the key elements underpinning the overall OH&S management system.

Concurrent to the above activity, a literature search was instigated to locate the availability of information relevant to the research topic. Subsequently, reviews of the information retrieved through the literature search were undertaken to refine the scope of research and to finalise the aims and objectives for the research project.

FIGURE 1. System Diagram Illustrating the Variables Affecting the OH&S Management Framework and the Relationships between these Variables.



Collection of data was initiated by corresponding with the relevant OH&S authorities in Malaysia and Singapore. This culminated in a field trip to the two countries whereby semi-structured interviews with the local OH&S officials were employed to clarify and expand on the data collected through the literature reviews and initial correspondence. Moreover, the field trip enabled the author to evaluate the OH&S management practices at various public and private organisations.

4.2. Literature Search

A literature search for documents/articles pertaining to or related in some aspects to the area of research interest was instigated. The search proceeded using the medium listed below and centring on these keywords:

Safety Regulations, Safety Policy, Safety Rules, Occupational Health and Safety, Occupational Injuries, Occupational Diseases, Occupational Mortality, Industrial Safety, Industrial Health, Industrial Injuries, Industrial Diseases, Industrial Laws, Industrial Regulations, Industrial Accidents, Public Health, Developing Countries, Association of South-East Asia Nations (ASEAN), Malaysia, Singapore and International Labour Office.

(i) CD-ROM Databases

Computerised information services are available "on-line" and on compact disc read-only memory (CD-DISC). Searches of the following CD-DISC were undertaken:

- (a) CCINFOdisc [Source: Canadian Centre for Occupational Health and Safety] providing the CISOLO-ENGLISH, CISDOC and NIOSHTIC databases.
- (b) OSH-ROM [Source: Silver Platter Information Ltd.] providing the HSELINE and MEDLINE databases.
- (c) WILSONDICS [Source: H.W. Wilson Co.] - providing the Social Science Index, Applied Science & Technology Index and General Science Index databases.
- (d) AUSTROM [Source: Australian Social Science and Education].

(ii) On-Line Library/Information Centre Catalogue

- * Vic. Institute of Occ. Safety and Health (VIOH) - Inmagic.
- * Deakin University - Library Catalogue and Kool-Kat.
- * University of Ballarat - E.J. Barker Library Catalogue.

(iii) Print

- * Safety and Health at Work, ILO-CIS Bulletin - last 3 years.
- * International Labour Review - last 3 years.
- * Risk Management Journal - last 3 years.
- * Journal of Industrial Lost Prevention - last 5 years.
- * Professional Safety - last 5 years.
- * Yearly Index for the Annals of Occupational Hygiene - last 10 years.
- * Far Eastern Economical Review - last 8 months.
- * Safety and Health at Work, ILO-CIS Bulletin - which is updated quarterly - last 5 years.
- * Accident Analysis and Prevention - last 5 years.
- * Journal of Occupational Accidents- last 3 years.
- * Work and People - last 3 years.

(iv) Personal Communication

SINGAPORE

- (a) Department of Industrial Safety
- (b) Department of Industrial Health

MALAYSIA

- (a) Factories and Machinery Department

4.3. Literature Reviews

Relevant articles and publications identified through the literature search were procured for the purposes of undertaking a literature review to determine the key elements that underpin successful OH&S management at the national level. These key elements were identified below:

- (a) OH&S policy,
- (b) national OH&S co-ordinating agency,
- (c) OH&S legislation, and
- (d) OH&S education and training.

4.4. Semi-structured Interviews

Semi-structured interviews were conducted solely by the author and the respondents were:

SINGAPORE

(i) Department of Industrial Safety

Mr. Ammerali Abdeali
Head of Occupational and Safety [Training and Promotion]

(ii) Department of Industrial Health

Dr. Phoon Wai Hoong
Director

Dr. Magdalene Chan
Deputy Director

Mr. Tan Kia Tang
Asst. Director, Hygiene Section

MALAYSIA

(i) Factories and Machinery Dept.

Mr. Anuar Mohammad Mokhtar
Deputy Director
Industrial Hygiene Section
Kuala Lumpur

Mr. Nasaruddin Alias
Deputy Director, Penang Branch

Mr. Daud bin Sulaiman
Director, Sarawak Branch

In order to ensure that the interviews were conducted along a semi-structured format and similar questions were asked each time, the following parameters were covered with all the respondents:

(i) OH&S Policy

- * Determine what is the country's national OH&S policy;
and
- * If a formal document does not exist, then there is a need to examine the legislation, plans and programmes pertaining to or associated with OH&S.

(ii) National OH&S Co-ordinating Agency

- * Establish the identity of the governmental agency or agencies co-ordinating OH&S activities at the national level;
- * Determine how these agencies are organised. In particular, establish the related organisation structure and lines of reporting;
- * Investigate the functional links between the various agencies; and
- * Determine the role and functions of each agency.

(iii) OH&S Legislation

- * Establish the kind of juridical system in place;
- * Determine what legislation are in place and the authorities responsible for the enforcement of these legislation;
- * Examine the process and framework for the formulation and implementation of OH&S legislation; and
- * Investigate the likelihood of authorities actually prosecuting negligent employers and the severity of the penalties handed-out.

(iv) OH&S Education and Training

- * Determine what OH&S syllabus are in place in tertiary institutions and colleges and the qualifications of staff conducting these courses;
- * Determine who is responsible for the accreditation of OH&S courses;
- * Investigate the framework for collection and dissemination of OH&S information; including, the availability of local OH&S newsletters, periodicals and journals;
- * Determine the level of commitment to OH&S promotion and how this issue is addressed; and
- * Examine the level of support given by both the government and private industries to research work in OH&S.

The link between variables identified in Section 3 and the topics covered in the aforementioned semi-structured interviews is depicted in Table 1.

TABLE 1. Link between Variables Identified in Section 3 and the Semi-structured Interview Topics.

<u>VARIABLE</u>	<u>INTERVIEW TOPIC</u>
Written statement for OH&S.	Specific OH&S policy stated in federal constitution.
Public Commitment made to OH&S.	OH&S addressed in governmental edicts and publications.
Goals (present and future) defined.	OH&S incorporated into federal development plan(s) for the nation.
Clear priorities in OH&S.	Resources (human and monetary) allocated for national OH&S activities and programmes.
OH&S integrated into other government activities.	Review OH&S policy.
Legislative back up to policy.	Establish the juridical system in place, determine what OH&S legislation are in place and the authorities responsible for enforcement of OH&S legislation.
Responsibilities of all parties to OH&S are clearly defined.	Examine the style of OH&S legislation that is in place, number of prosecution cases and severity of penalties handed out.
Statutory bodies administering OH&S in the country.	Establish identity of governmental agencies.
Responsibilities and functions of these agencies clearly defined.	Determine organisation structure and lines of reporting.

TABLE 1 (cont.). Link between Variables Identified in Section 3 and the Semi-structured Interview Topics.

<u>VARIABLE</u>	<u>INTERVIEW TOPIC</u>
Central co-ordination of all OH&S activities and programmes.	Identify the national co-ordinating agency and its role and functions.
Co-operation between government agencies, employer groups, employee groups and others.	Availability of a forum for interaction between all interested parties.
OH&S issues defined and confronted systematically and effectively.	National co-ordinating agency setting the agenda for all OH&S activities.
Availability of OH&S training and education.	Determine what OH&S syllabus are in place in tertiary institutes and colleges, who is responsible for accreditation of such courses and the courses' objective(s).
Published OH&S information.	Framework for collection and dissemination of OH&S information, including, the availability of local OH&S newsletters, periodicals and information sheets.
Public awareness of OH&S issues.	Promotion of OH&S through mass media.
Collaboration in research work in OH&S.	Support given by both public and private sectors to OH&S research.

4.5. Design Of The Research Project

From the system diagram of Figure 1, one derived an appreciation of the interrelation and interdependence of both internal and external variables which contribute to the shaping of a country's OH&S management system. For example, the setting of national priorities by the government of the day will determine the level of attention given to OH&S in that country. This decision process will have to account for such internal factors as:

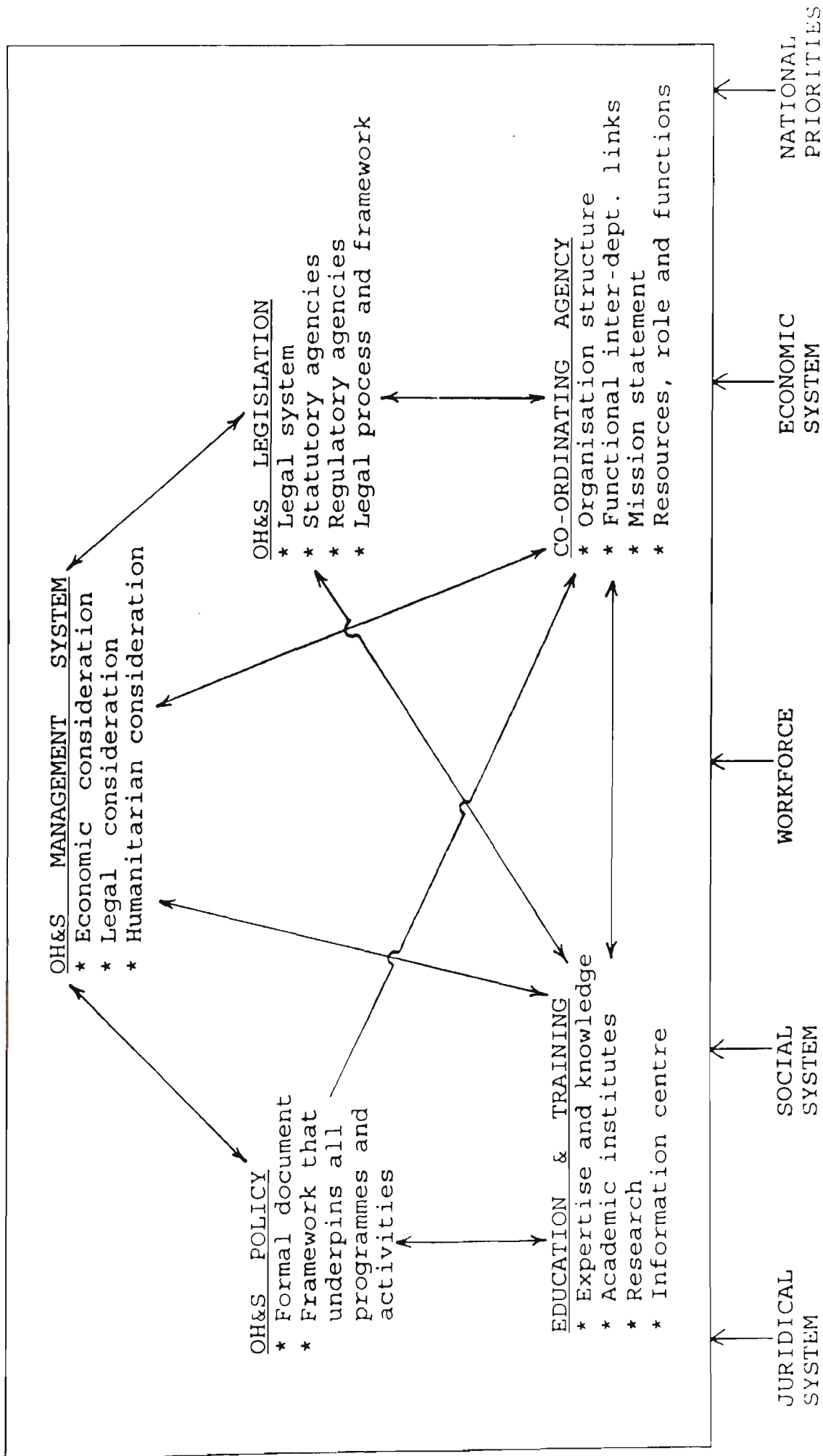
- (a) expectation of organisations of employers and workers;
- (b) state of the country's economy; and
- (c) social factors [e.g. politics].

Likewise, factors external to the country will also have bearing on the determination of its national priorities. These external factors will include:

- (a) overseas investors which comprises a significant large proportion of the manufacturing sector employers;
- (b) trade partners affecting the nation's economic system;
- (c) monetary agencies with the power to either provide or withhold funds for nation wide development projects;
- (d) dominant neighbours which can force the country to focus its attention and resources on national defence rather than development; and
- (e) overseas pressure groups, such as Greenpeace opposing the development of tropical forest in East Malaysia.

In view of the practical constraints faced by the author, a conscious decision was made to restrict the scope of the research project to an exploratory study of the "internal" variables. Consequently, the system diagram had to be modified and the outcome of this modification is presented in Figure 2. From the modified system diagram, the "independent" variables were found to be located outside the "boundary" of the system. A variable is deemed to be "independent" if the events in it always lead to events in another variable. The latter is considered to be a "dependent" variable [Victorian Institute of Occupational Safety and Health (VIOSH), 1991].

FIGURE 2. Modified System Diagram Illustrating the Variables Affecting the OH&S Management Framework and the Relationships between these Variables.



4.6. Design and Scope of Data Collection

This research project constituted an exploratory study of the governmental approach to OH&S management adopted in Malaysia and Singapore. In general, OH&S management comprises three major components - prevention, compensation and rehabilitation [Wyatt & Oxenburgh, 1988, Section 21-510]. The scope of this project focused solely on the 'prevention' component as it is recognised as the primary component of OH&S management [CCH Australia, 1983, p. 13; Gunningham, 1984, p. 11 and Victoria, 1989].

Data was collected on the four key elements identified as underpinning OH&S management at the national level; that being, policy, national co-ordinating agency, legislation and education and training. Data on these four key elements were initially collected through review of the available literature and correspondence with relevant OH&S statutory authorities, professional groups and trade unions. A field trip was undertaken to clarify and verify the data previously collected. Semi-structured interviews were held with the officials representing the local OH&S statutory authorities. Both representatives of the professional groups and trade unions had declined to be interviewed. Employers' groups were not solicited for the interviews due to time limitation.

Since Malaysia consists of a federation of thirteen states a decision had to be made as to the number of state agencies that have to be included in the interviews to provide a representative sample. For the interviews, governmental officials from the following state agencies were selected:

- (a) **Penang.** This agency has jurisdiction over the three northern states of Penang, Kedah and Perlis. Penang may be described as a manufacturing-based state, ranging from microelectronics manufacturing to steel and tin production. Both Kedah and Perlis are agricultural states.

- (b) **Kuching.** The agency is located in the capital of Sarawak, East Malaysia. Sarawak is dominated by the logging, petroleum and agriculture sectors.

- (c) **Kuala Lumpur.** The head office of the Factories and Machinery Department is located here. Kuala Lumpur is the capital of both the country and the central state of Selangor. Selangor is mainly driven by its manufacturing and mining sectors [The Economist Intelligence Unit, 1990, p. 15-29].

These three state agencies provided a good cross-sectional coverage of the major work activities undertaken throughout Malaysia. Likewise, most parts of Malaysia are geographically represented by this selection, as seen in the map of Figure 3.



- 1. Johore
- 2. Kedah
- 3. Kelantan
- 4. Melaka (Malacca)
- 5. Negeri Sembilan
- 6. Pahang
- 7. Penang
- 8. Perak
- 9. Perlis
- 10. Sabah
- 11. Sarawak
- 12. Selangor
- 13. Trengganu
- 14. Federal Territory

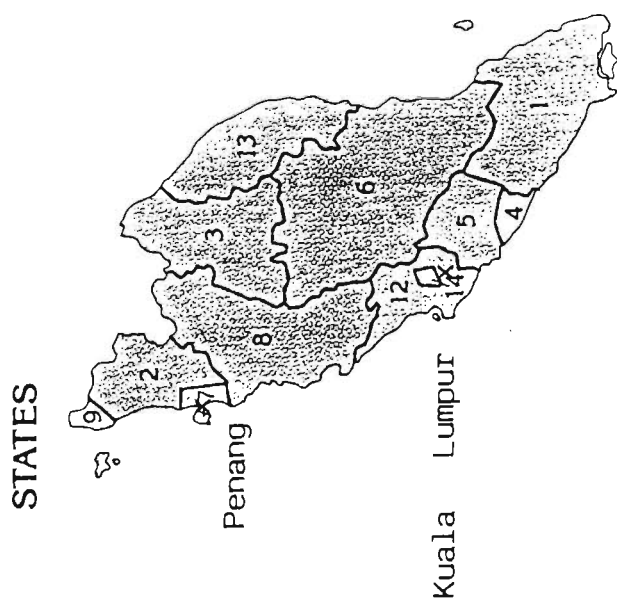


Figure 3. Map of Malaysia showing the location of the 3 state agencies in Penang, Kuala Lumpur and Kuching which were selected for the semi-structured interviews. [Source: Ulack, R. & Pauer, G. (1989). Atlas of South-East Asia (pp. 79). London: Macmillan Publishing.]

5. FINDINGS

The findings from the literature review and interviews conducted during the field trip to Malaysia and Singapore are summarized below. Notes taken during the interviews are summarized in Appendix 1.

5.1. A Shared History

Prior to 1957, both Singapore and Malaysia were part of the vast and powerful British Empire of that era. Independence was declared on the 31st of August 1957 - joining the nine Federated Malay States with the three Straits Settlements [that being, Penang, Malacca and Singapore]. A new nation known as "The Federation of Malaya" or "Malaya" in short, was thus born. However, amidst political manoeuvre and personal ambitions, the Federation was soon dissolved with the formation of two separate nations - Singapore and Malaysia, which is an amalgamation of the eleven states in Peninsular Malaya with the states of Sabah and Sarawak in Borneo [Lewis and Sager, 1992, p. 168 & 260].

Singapore is a democracy with a single chamber parliament consisting of seventy-five (75) members. There is full suffrage for all people of twenty-one (21) years or over. In contrast Malaysia is a constitutional monarchy with a Supreme Head of State known as the "Yang Di Pertuan Agong", who is elected from the rulers of the nine (9) Malay States. The non-Malay States are Penang,

Malacca, Sabah and Sarawak which are headed by a governor appointed by the Supreme Head of State. Parliament is bi-cameral with a Senate (Dewan Negara) and House of Representatives (Dewan Rakyat). The Dewan Rakyat has 154 members elected every four year in the general elections [Lewis and Sager, 1992, p. 168 & 260].

Both the Malaysian and Singaporean governments have traditionally accepted the need for some intervention by the state in the area of OH&S. The governments have relied heavily on other countries, particularly the United Kingdom, to provide their legislative framework for OH&S [ILO, 1991a and ILO, 1991b]. As a result, they share many common OH&S issues although they do so under different conditions. Hence, an exploratory study of OH&S in Malaysia and Singapore is best initiated by first acquainting oneself with the history of OH&S.

5.2. Status Of OH&S In National Policies

The federal constitutions for Singapore and Malaysia do not contain any specific policy on OH&S of workers. However, both constitutions empower their respective Parliament to make legislation on labour welfare which includes issues pertaining to OH&S. A more comprehensive discussion of the OH&S legislation and the formulation process is detailed in Section 5.3.

Under the Malaysian Government's fifth development plan greater emphasis is placed on OH&S. Within the chapter on 'Health Services', both the public and private sectors were recommended to increase their roles in promoting and maintaining the health of workers by strengthening OH&S services through the following processes:

- (a) identification of major work-related health problems;
- (b) provision of training for relevant OH&S personnel;
- (c) establishing OH&S standards; and
- (d) establishing a national Institute on OH&S [ILO, 1991a, p. 1].

The philosophy of the Singapore Government and its programmes are outlined in the Presidential Address at the opening of each new session of the Parliament. The thrust of the Singapore Government's effort in OH&S is set out in the Labour addendum to the Presidential Address.

In the Presidential Address delivered on the 22nd February 1991, the addendum for Labour stated that workers' health would be protected by preventing and controlling occupational health hazards and diseases. An additional thrust was to encourage firms to adopt self-regulatory measures and conduct safety orientation courses to prevent accidents [ILO, 1991b, p.1]. These were to be achieved through a step-up campaign spearheaded by the Training and Promotion Unit, Department of Industrial Safety [A. Abdeali, personal communication, December 11, 1992].

5.3. OH&S Legislation

5.3.1. Historical Perspective

The OH&S legislation for both countries has its roots in the first law on industrial safety in Malaysia, which was the Perak Boiler Enactment, 1903 [ILO, 1991a, p. 1]. The Perak Boiler Enactment stipulated requirements for the safe operation of boilers in the tin mining industry. Not surprisingly, tin mining was the first form of industrial activity carried out in Malaysia with the discovery of substantial tin deposits in the state of Perak and Selangor. In tin mining, boilers were required to generate power for operating gravel pumps. Ancillary industries, such as engineering workshops and foundries, sprang-up to support the tin mining activities. Unfortunately development of such industries introduced additional safety problems in the workplace and hence

new sets of legislation had to be enacted to deal with the newly arisen safety issues [ILO, 1991a, p. 2].

The Machinery Ordinance was enacted in 1921 and provided for the inspection of boilers, pressure vessels, engines and other machinery and the control, regulation and operation of such machinery. Nonetheless, there were no provisions relating to electrical and portable machinery. In 1939, the Protection of Workers Ordinance was proclaimed to provide protection to workers in dangerous occupations against diseases and accidents. It was however never made operative [ILO, 1991a, p. 3].

Both the Machinery Ordinance and Protection of Workers Ordinance were repealed and replaced by the Factories Ordinance in 1958, which first came into effect on the 1st. June 1960. The Factories Ordinance was mirrored along the framework of the Factories Act, 1937 and 1948 of the United Kingdom [ILO, 1991a, p. 3]. The term "**factory**" was defined for the first time and remains unchanged to this day. The Factories Ordinance required occupiers of factories to register their premises with the Chief Inspector of Factories and has the overall objective of providing a minimum standard of safety, health and welfare to factory employees. Provisions were stipulated for both the safe operation and maintenance of machineries in factories as well as requiring the factory occupier to ensure cleanliness of the factories, to keep passageways and access free from obstructions, and to provide appropriate fire-fighting facilities [Legal Research Board of Malaysia, 1994].

Rapid industrialisation in Malaysia and Singapore occurred in the early 1960s. Newer and more complex machinery and equipment were introduced with the resulting sharp escalation of accidents at the workplace. In Singapore itself, the number of industrial accidents were reported to rise from eighty-five cases in 1960 to 1217 cases in 1969 [ILO, 1991b, p. 4]. A common trend during this period was the rapid escalation of accidents in the construction sector. Consequently, the need for more stringent laws was recognised. Malaysia decreed the Factories and Machinery Act in 1967 [ILO, 1991a, p.4] and the Factories Act was proclaimed in Singapore three years later, in 1970 [ILO, 1991b, p.4]. Both pieces of legislation were structured along the British Factories Act of 1961. The Factories Act, 1970 was repealed in 1973 and replaced by the Factories Act, 1973.

Other than for some minor amendments, both Acts were retained in their original form until this day [ILO, 1991a, p.2 and ILO, 1991b, p.3]. Not surprisingly then, both the Malaysian Factories and Machinery Act, 1967 and the Singaporean Factories Act, 1973 remain a prescriptive form of legislation stipulating a set of minimum health and safety standards for factories.

5.3.2. OH&S Legislation in Malaysia

Legislation pertaining to the safety, health and welfare of the working population is administered by several government agencies. The main OH&S legislation is the Factories and Machineries Act (hereafter, referred to as the 'Act') enacted in 1967 as Act No. 64 of 1967. The model for the Act is the British Act, 1961. This Act was revised on the 1st April 1974 as Laws of Malaysia Act No. 139 [Legal Research Board of Malaysia, 1994, p. 1].

Primary purpose of enacting this Act is to protect workers in the relative high risk industrial sectors, namely, the manufacturing (factories), mining, quarrying and construction. The Act also regulates the use of heavy machinery such as pressure vessels, boilers, elevators and cranes which may harm members of the public [ILO, 1991a; and Legal Research Board of Malaysia, 1994].

Enforcement of the Act takes form by requiring individuals who intend to use any premises as a factory or who undertake any building operations or works of engineering construction to have prior written approval from the Chief Inspector of the FMD. As such, such premises will comply with the minimum standards stipulated under the Act, as well as ensuring that such premises are registered with the FMD for subsequent inspection. Certificates of fitness are issued prior to the operation of boilers, pressure vessels and hoisting equipment. This requirement regulates for the proper design, construction, operation and maintenance of the certified machinery.

Other provisions of the Act include general duties of employers and employees, role of the FMD (in particular, the duties and authority of the inspectors), notification of accidents, dangerous occurrences and dangerous diseases, personal protective clothing and equipment, and penalties for non-compliance with the legislation. Employers are required to conduct training and supervision of inexperienced workers working with machinery or processes which may cause grievous bodily harm. Young persons of less than 16 years of age are prohibited to manage or attend or work near any machinery [Legal Research Board of Malaysia, 1994].

Regulations that have been made under the Act are:

- (a) The Factories and Machinery (Safety, Health and Welfare) Regulations, 1970,
- (b) The Factories and Machinery (Fencing of Machinery and Safety) Regulations, 1970,
- (c) The Factories and Machinery (Steam Boilers and Unfired Pressure Vessels) Regulations, 1970,
- (d) The Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations, 1970,
- (e) The Factories and Machinery (Electrical Passenger and Goods Lift) Regulations, 1970,
- (f) The Factories and Machinery (Certificates of Competency Examination) Regulations, 1970,
- (g) The Factories and Machinery (Administration) Regulations, 1970,
- (h) The Factories and Machinery (Compoundable Offences) Regulations, 1970,
- (i) The Factories and Machinery (Lead) Regulations, 1984,
- (j) The Factories and Machinery (Asbestos Process) Regulations 1986,

- (k) The Factories and Machinery (Building Operations and Works of Engineering Construction Safety) Regulations, 1986,
- (l) The Factories and Machinery (Noise Exposure) Regulations, 1989, and
- (m) The Factories and Machinery (Mineral Dust) Regulations, 1989 [Legal Research Board of Malaysia, 1994].

5.3.3. Other Related OH&S Laws in Malaysia

From Section 5.3.2., it is obvious that coverage of the Factories and Machinery Act, 1967 is limited to the prevention of industrial accidents and diseases in factories and the construction sector, as well as with the use of heavy machinery. Other related legislation related to safeguarding of the workers' health, welfare and safety (especially in the agriculture, mining, quarrying sectors) are [Ch'ng, 1989, p. 4; and ILO, 1991a, p. 5]:

(a) The Rump Labour Code, 1933

The Code stipulates provisions for accommodation, sanitary facilities, health requirements and medical care services for workers in estates and mines.

(b) The Workmen's Compensation Ordinance, 1952

The Ordinance provides for compensation to workmen for injury and diseases in the course for employment. It however, excludes workers who work under a direct contract of services, casual labour, domestic servants and those whose income exceeds \$500/month.

(c) The Employees Social Security Act, 1969

This Act provides for benefits to employees in case of invalidity and employment injury including occupational diseases. However it excludes all workers earning more than \$500/month, agricultural workers and also all enterprises employing less than 5 workers.

(d) The Pesticides Act 1974

This Act provides for the control of importation, manufacture, sale and storage of pesticides. In addition, it provides for making regulations for the protection, safety and well-being of workers engaged in the manufacture of handling of pesticides. The regulatory agency is the Pesticide Board under the Ministry of Agriculture.

(e) The Mining Enactment FMS Cap. 147, 1926

This Enactment controls mining activities and practices. Several revisions of this Enactment have taken place and is currently administered by the Department of Mines under the Ministry of Primary Industry.

(f) The Atomic Energy Licensing Act, 1984

Regulates the use of radioactive substances by both industry and medical practices. The agency responsible for this Act is the Atomic Energy Licensing Board under the Ministry of Health.

(g) The Petroleum (Safety Measures) Act, 1984

The discovery of petroleum in the early 1970s and the increase of petroleum-related activities necessitated the enactment of this Act. The purposes of this Act is to ensure safe storage, transportation and

handling of petroleum and petroleum products. Regulatory agencies include the FMD, Fire Authorities, Marine Department and the Department of Transport.

(h) The Electricity Supply Act, 1990

This Act superseded the Electrical Inspection Act, 1983. The objective of this Act is to safeguard all personnel involved with electrical installations, power stations and sub-stations, transformers, generators and electrical equipment. The regulating body is the Electricity Supply Department under the Ministry of Energy, Telecommunication and Post.

5.3.4. OH&S Legislation in Singapore

Singapore's economy up to the 1960s was mainly driven by entrepot trading. The early industries concentrated on the processing of local raw materials, such as rubber, timber, copra and spices, for export to the world markets. After the Second World War, flour mills, textile mills, biscuit-making factories, garment factories and other light manufacturing began to flourish [Asia Pacific Centre Ltd., 1981b, p. 1-3, 8]

The Machine Ordinance enacted in 1921 was the first OH&S legislation enforced in Singapore. The Ordinance stipulated conditions governing the

safe operation of machinery in factories and provided for the examination of steam boilers, engines, gas holders and other mechanically-driven machineries. However, safety standards were not stipulated for electric and portable equipment. The Protection of Workers Ordinance was proclaimed in 1939 for protection of workers in hazardous occupations. Nonetheless, this Ordinance was never made operative [ILO, 1991b]. Both Ordinances were repealed and replaced by the Factories Ordinance in 1958. The Factories Ordinance was brought into effect on the 1st June 1960 [ILO, 1991b].

Eighty-five cases of industrial accidents were reported in 1960. The ILO [1991b, p. 4] reported that **“this figure soon swelled to 1,217 by 1969 due to the rapid industrialisation of Singapore.”** The majority of accidents were traced to the construction sector. Following this, the Factory Act was enacted in 1970 to enable the Minister of Labour to introduce the Building Operations and Works of Engineering Construction Regulations in the following year. The objective of these Regulations is to stipulate special OH&S provisions for construction work [ILO, 1991b].

The Factories Act was revised in 1973. This Act, with some subsequent amendments, is the present major OH&S legislation in Singapore. As its name suggests, the Factories Act, 1973 covers only workers employed in factories, including the building construction sector. In general, features of the Factories Act are similar to that of the Malaysian Factories and Machinery Act, 1970 [ILO, 1991b]. The major differences are the requirements to engage a competent person as a safety officer and the formation of safety

committees for all factories employing 50 employees or more, and the provision of pre-employment and periodic medical examination for those exposed to specific occupational health hazards [ILO, 1991b].

5.3.5. Other Related OH&S Laws in Singapore

The health, welfare and safety of workers employed in industrial workplaces and activities outside the coverage of the Factories Act are catered for in other legislation specific to these industries or activities. Examples of these activities are dock work, land transportation of goods, sand and granite quarries and workers exposed to ionising radiation. The associated regulations include [ILO, 1991b, p.4]:

- (a) Radiation Protection Regulations, 1974 and Radiation Protection (Transport of Radioactive Materials) Regulations, 1974
Requirements on the storage, transportation and handling of radioactive substances. Regulated by the Radiation Protection Inspectorate under the Ministry of Health.

- (b) Port of Singapore Authority (Dangerous Goods, Petroleum and Explosives) Regulations, 1977

Regulates the loading and unloading of dangerous goods (including explosives), petroleum and petroleum products, tank cleaning and ballasting operations.

- (c) Public Utilities (Licences to Use or Operate Electric Supply or Installations) Regulations, 1974 and Electrical Workers and Contractors Licensing Regulations, 1974

Governs the issue and renewal of licences for electrical installations and supply installations. Both Regulations are administered by the Public Utilities Board.

- (d) Singapore Port Regulations, 1977

Provides for the protection of workers engaged to repair, load and unload on board vessels, break up vessels, and lay, repair and inspect submarine cable or pipelines.

- (e) Sand and Granite Quarries Regulations, 1977

Administered by the Public Works Department of the Ministry of National Development for control of airborne dust concentrations, annual chest x-ray examination and provision of personal protective equipment.

- (f) Building Control (Dangerous Trades) Regulations, 1983

Enforced by the Fire Safety Bureau covering premises where dangerous trades are conducted.

(g) Hydrogen Cyanide (Fumigation) Regulations, 1974

Aims to protect fumigation workers and members of the public in the vicinity of the fumigation process.

(h) Water Pollution Control and Drainage Act, 1975; Clean Air Act, 1971 and Environmental Public Health Act, 1987

The regulatory agency for these Acts is the Pollution Control Department under the Ministry of Environment. The Water Pollution Control and Drainage Act and associated regulations control and regulate the discharge of trade effluent into sewers or watercourses. Emission of airborne pollutants is regulated by the Clean Air Act, 1971. Hazardous waste management is prescribed by the Environmental Public Health Act.

5.4. National Co-ordinating Agency

OH&S management for both countries belongs under the portfolio of the Ministry of Labour. In Malaysia, the Ministry of Labour was renamed as the Ministry of Human Resources in 1992 [A. M. Mokhtar, personal communication, December 14, 1992]. Within the Ministry of Labour, the main statutory body responsible for the formulation and enforcement of OH&S regulations is respectively the Department of Industrial Safety (DIS) in Singapore and the Factories and Machinery Department (FMD) in Malaysia.

Overall, the OH&S efforts in Singapore and Malaysia are still very much government driven. OH&S management for both countries belongs under the portfolio of the Ministry of Labour. Within the Ministry of Labour, the main statutory body responsible for the formulation and enforcement of OH&S regulations is respectively the Department of Industrial Safety in Singapore and the Factories and Machinery Department in Malaysia.

5.4.1. Administrative Framework in Malaysia

Labour administration in Malaysia falls under the portfolio of the Ministry of Human Resources. Prior to early 1992, this Ministry was known as the Ministry of Labour [A. M. Mokhtar, personal communication, December 14, 1992]. The various departments belonging under the umbrella of the Ministry of Human Resources are depicted in the organisation chart of Figure 4.

The Ministry was formed in 1904 and is responsible for protecting the interest of workers through enforcement of the various laws on labour standards, OH&S, social security and industrial relations [ILO, 1991a, p. 6]. In 1986, the Ministry was assigned a further responsibility to plan for manpower requirements in the private sector. Subsequently, this new responsibility entailed producing and upgrading skilled and semi-skilled workforce to cater for the needs of industries.

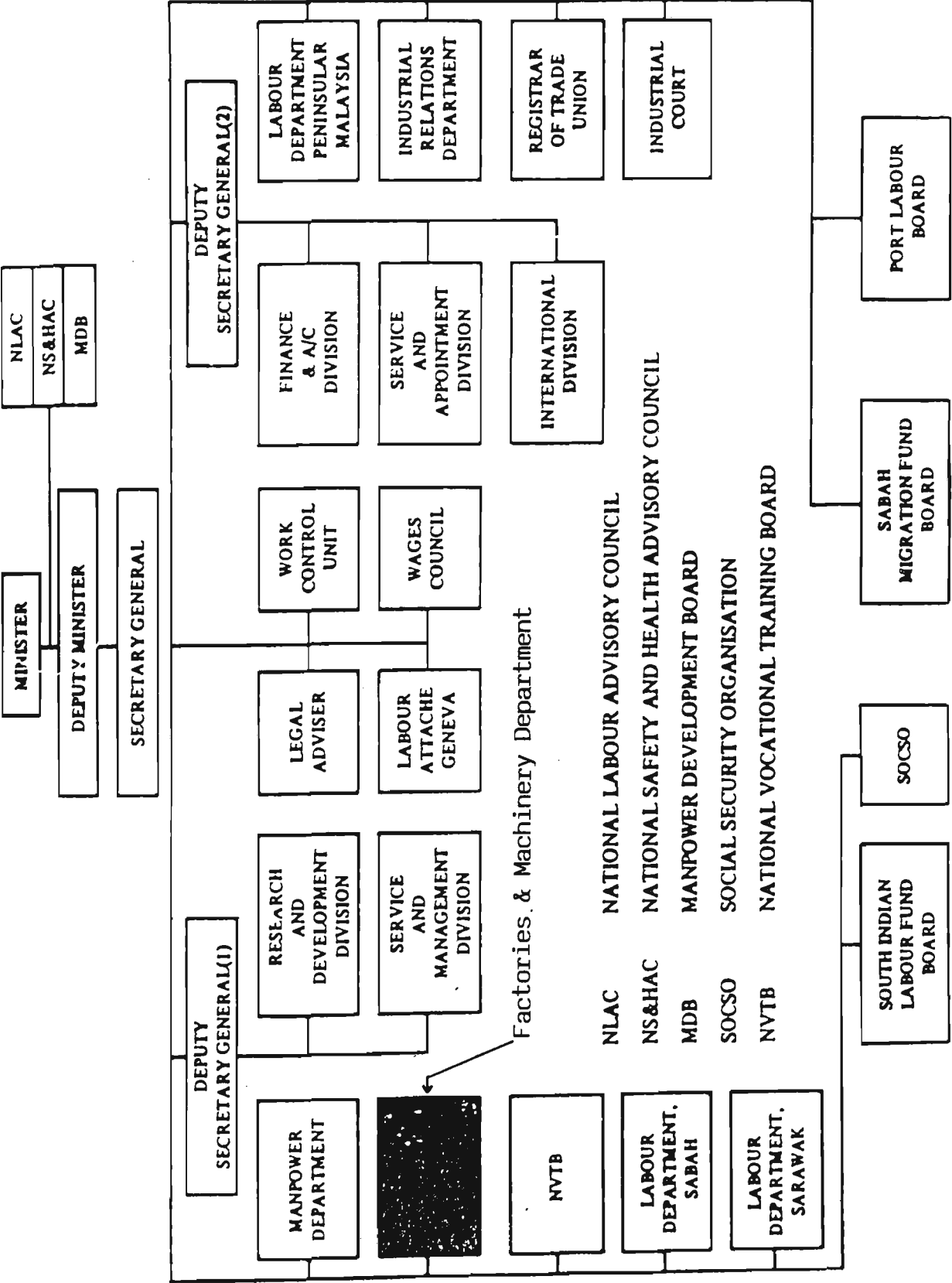


Figure 4. Organisation Chart for the Ministry of Human Resources in Malaysia [Source: ILO, 1991a, p. 21].

The Ministry of Human Resources is headed by a Minister and assisted by a Deputy Minister. The Secretary-General of the Ministry is assisted by two Deputy Secretaries General. Overall, the organisation structure of the Ministry, as illustrated in Figure 4, comprises of the Ministry proper, seven departments and four statutory bodies. Each of these departments is headed by a Director General and is served by both administrative personnel as well as enforcement officers or labour standard inspectors [A. M. Mokhtar, personal communication, December 14, 1992 and ILO, 1991a, p. 6]. The Ministry has a total of 2,280 employees in 1992, of which 532 are labour standards inspectors.

From the organisation structure it is seen that the Factories and Machinery Department (FMD) is responsible for enforcing laws on OH&S and the promotion of OH&S in Malaysia. The department conducts six main activities, namely, industrial safety, industrial hygiene, promotion and training, consultation to other government agencies and major industrial accident hazards [ILO, 1991a, p. 7]. The objective and primary functions of the six units with the FMD are expounded below [A. M. Mokhtar, personal communication, December 14, 1992 and ILO, 1991a, p. 7-8]:

(a) Industrial Safety Unit

This Unit has the objective of preventing industrial accidents and the activities conducted to achieve this objective were:

- review and approve of the design of boilers, pressure vessels, lifts and hoisting machinery;

- inspection during construction of bodies, pressure vessels and LPG tanks;
- regular, additional and surprise inspections of factories, installation and certified machinery;
- inspection of building operations and works of engineering construction;
- examination for the issuing of certificate of competency;
- welding tests as required by various design codes; and
- investigation of accidents or major breakdowns of certified machinery.

(b) Industrial Hygiene Unit

This Unit has the objective to prevent industrial diseases. In order to achieve the objective, the following activities were carried out:-

- industrial hygiene inspection in factories;
- industrial hygiene monitoring to evaluate the exposure of workers to various air contaminants and stresses;
- biological monitoring, such as audiometry and lung function test of high risk workers;
- investigation of accidents and complaints; and
- enforcement of regulations on industrial hygiene.

(c) Promotion and Training Unit

The Unit has the objective to create awareness and to provide basic knowledge to employers, workers and others, so that, they can co-operate on all matters pertaining to safety and health of workers. The activities carried out are:-

- provision of training courses for the inspectors, industrial personnel, and workers;
- loan of safety films and videos to factory owners;
- production and distribution of safety news and pamphlets; and
- management of National Centre of Industrial Safety for dissemination of information on OH&S.

(d) Petroleum Safety Unit

This unit has the objective to ensure safety during transportation, storage and utilisation of petroleum and petroleum products. Among the activities conducted are:-

- design approval, inspection and testing of petroleum pipelines carrying petroleum and petroleum products;
- review of design, inspection and testing of reticulation system of petroleum products to houses and industries;
- approval, inspection and testing of LPG storage tanks and the related distribution system; and
- approval of all equipment used in conjunction with any petroleum installations.

(e) Internal Consultation Unit

The purpose of this unit was to assist other government agencies to implement their various functions. Technical personnel of the department are involved with various committees set up by government agencies to promulgate standards, to control the environment, issue licences and identify industrial training courses.

(f) Major Industrial Accident Hazards Unit

This unit was established in 1991 with the objective to prevent major accidents relating to the accidental release of toxic substances, fire or explosion. Activities conducted by this Unit are:

- identification of major hazards installations;
- review of safety reports and conducting inspection; and
- preparation of mitigation measures to reduce the consequences of such accidents.

In addition to these six units there are eleven state offices as illustrated in the chart of Figure 5. Each of the state offices is headed by a State Director. Under the Act, the Directors of Selangor and Perak are appointed as the Senior Factory Inspectors of Malaysia. The state Directors are assisted by a team of inspectors consisting of engineers and technicians. In implementing the aforementioned activities, the FMD divides the duties and responsibilities of enforcement between the head office in Kuala Lumpur and the various state offices.

Generally, the head office is responsible for policy formulation and issuing directives to the state offices for the implementation of the policies and associated activities [A. M. Mokhtar, personal communication, December 14, 1992 and ILO, 1991a, p. 8]. The state offices have a primary responsibility to register factories and machinery and conduct regular, additional and spot inspections.

Other functions of the state offices include accident investigation within their area of jurisdiction, education and training, promotion of OH&S practices and issuing and renewal of licences for pressure vessels and boilers.

The inspectors are vested with the powers to enter, inspect and examine premises at all times, to request for records, certificates, notices and any document deemed to be relevant to the safety and health of workers in the premises, conduct examinations and enquires. Furthermore, the two Senior Inspectors carry the authority of a magistrate during inquiry sessions [A. M. Mokhtar, personal communication, December 14, 1992 and ILO, 1991a].

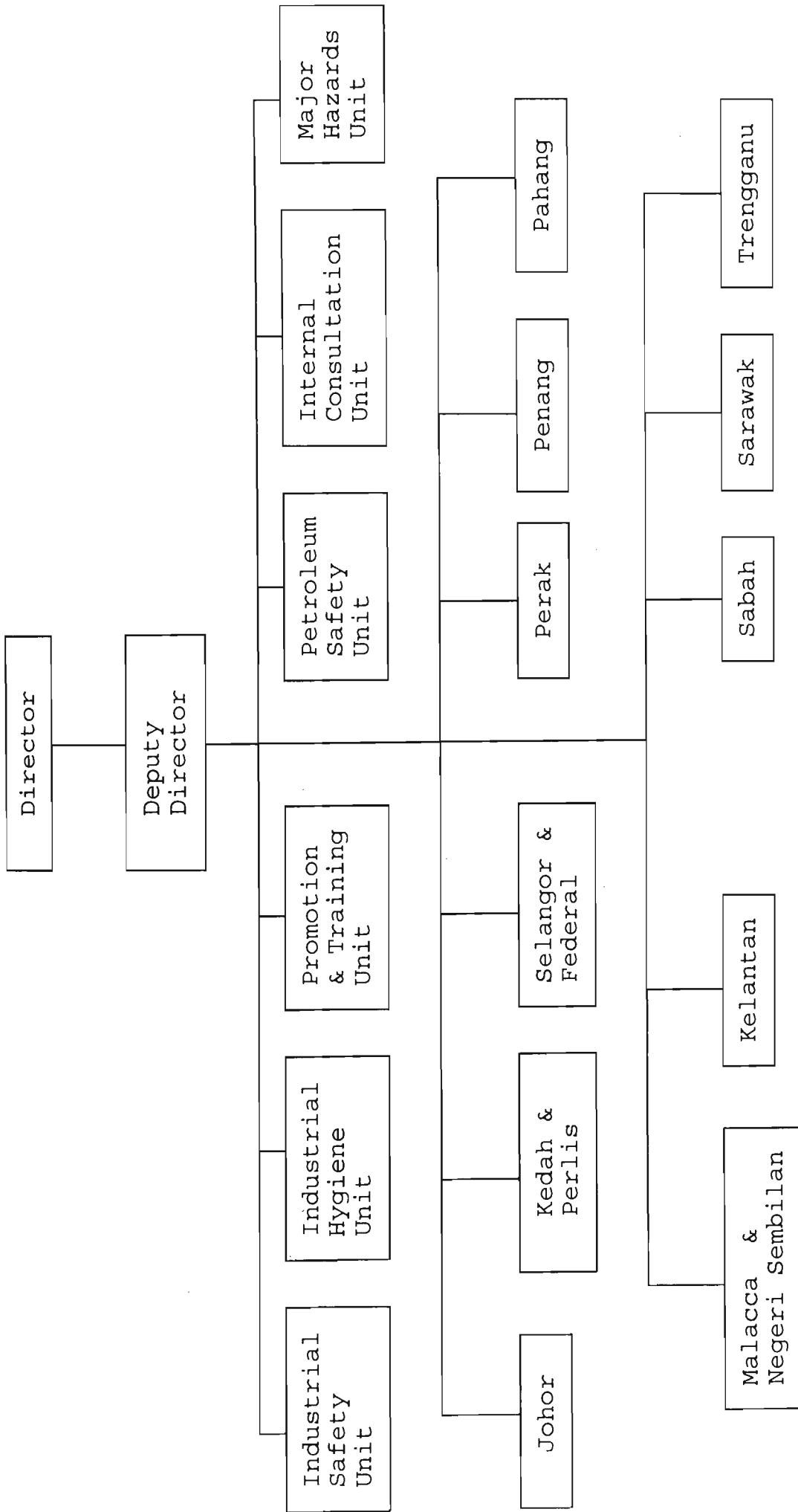


Figure 5. Organisation Chart for the Factories and Machinery Department in Malaysia
[Source: ILO, 1991a, p. 22].

5.4.2. Administrative Framework in Singapore

The authority for OH&S in Singapore is the Ministry of Labour. Unlike the larger countries where there are often a central government and many local governments, Singapore has only a central government. All operational matters pertaining to the portfolio of the Ministry are thus directly handled by the Ministry's departments [W. H. Phoon, personal communication, December 12, 1992 and ILO, 1991b, p. 6].

The Ministry of Labour is divided into four divisions, namely, the Labour Welfare Division, the Labour Relations Division, the Labour Policy Division and the Corporate Services Division. The organisation chart of the Ministry is illustrated in Figure 6. Each division is headed by a Divisional Director who reports to the Permanent Secretary. Under the Divisions are the operational departments and sections [W. H. Phoon, personal communication, December 12, 1992 and ILO, 1991b, p. 6].

The major departments are the Labour Relations Department, the Department of Industrial Safety, the Department of Industrial Health, the Workmen's Compensation Department, the Research and Statistics Department, the Work Permit and Employment Department, the Labour Inspectorate and the Computer Information Systems Department. The Central Provident Fund Board is a statutory board under the Ministry of Labour. Each of the operational departments is headed by a Department Director [W. H. Phoon, personal communication, December 12, 1992 and ILO, 1991b, p. 6].

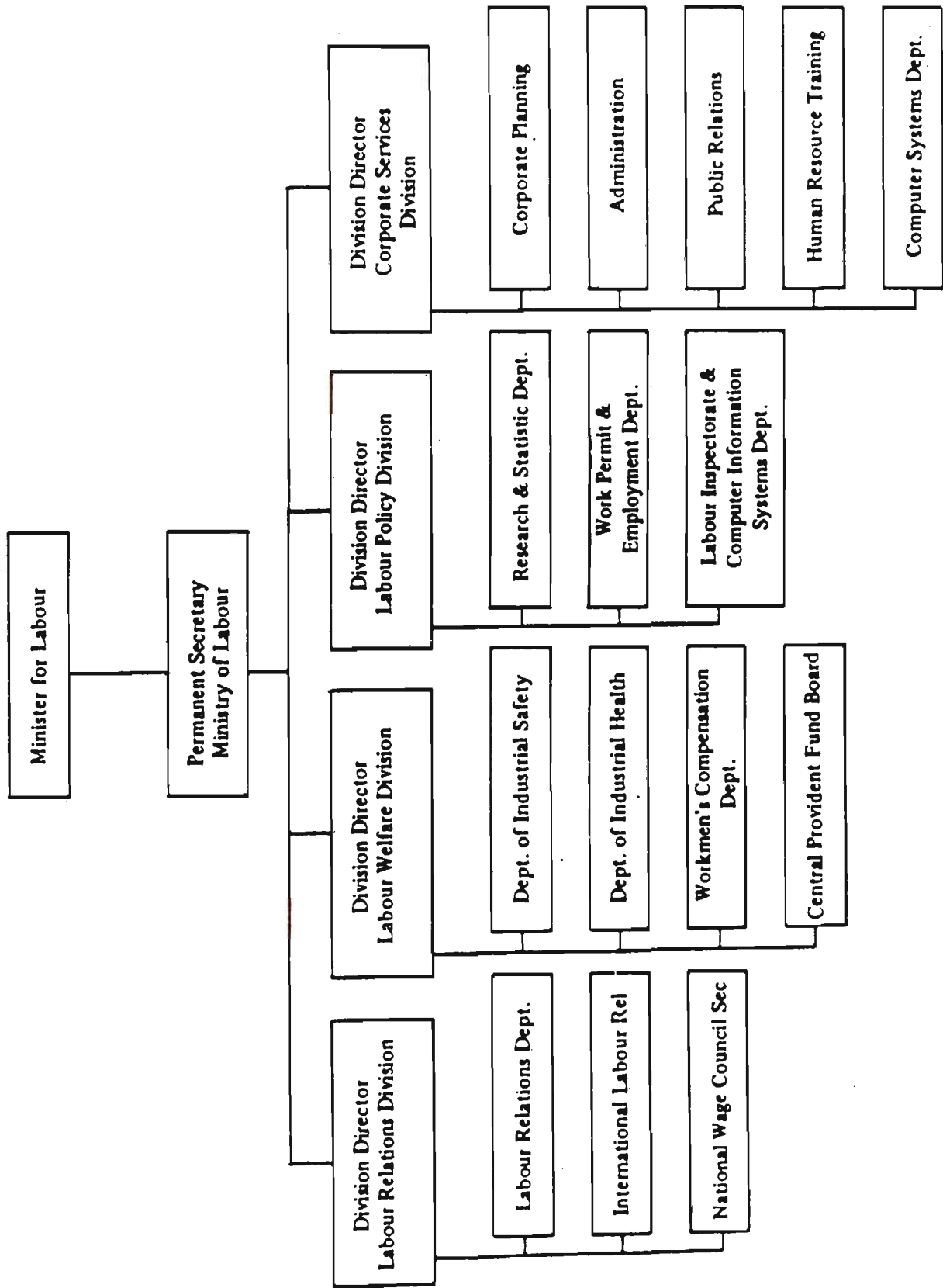


Figure 6. Organisation Chart for the Ministry of Labour in Singapore
[Source: ILO, 1991b, p. 21].

The Ministry has a total staff strength of about 600. Beside clerical officers and office services staff, which make up the bulk of the junior staff, the personnel of the Ministry are made up of officers from the administration service, the labour service and the professional and technical services like the engineering, medical, scientific, technical and nursing services [W. H. Phoon, personal communication, December 12, 1992 and ILO, 1991b, p. 6].

Labour officers are employed mainly in labour conciliation, labour inspection (wages and other conditions of work) and employment services work (including the regulation of foreign labour employment). Professional and technical services offices are employed largely in occupational safety and health enforcement, training and promotion work [ILO, 1991b, p. 6].

The Department of Industrial Safety (DIS) and Department of Industrial Health (DIH) are specifically charged with the administration of the Factories Act. The DIS is headed by a Director who is also the Chief Inspector of Factories. The DIS has an engineering branch, a training and promotion centre, an administration branch and three enforcement branches, namely, the Construction Branch the Shipyards Branch and the General Factories Branch [ILO, 1991b, p. 6 and A. Abdeali, personal communication, December 11, 1992]. The organisation charts of the DIS and DIH are shown in Figures 7 and 8 respectively.

The Construction Branch and the Shipyards Branch of the DIS are responsible for enforcement activities in the construction and the shipbuilding and repairing industries respectively. These two branches were specially set up to concentrate on curbing the high accident rates in construction worksites and shipyards in the 1970s. The other factories come under the responsibility of the General Factories Branch. The Engineering branch is responsible for all regulatory policies and activities relating to lifting equipment and pressure vessels which are controlled by the Factories Act. The Occupational Safety and Health Training Centre conducts safety and health courses and other promotional activities. The Administration Branch provides the administrative support. The inspection and training staff of the DIS are made up of professional and technical services officers. The Department has twenty-four engineers, two scientific officers and forty-one technical officers out of a total strength of ninety-eight [ILO, 1991b, p. 7 and A. Abdeali, personal communication, December 11, 1992].

The DIH is headed by a Director and is divided into 5 sections. These are the Medical Section, the Industrial Hygiene Section, the Nursing Section, the Inspection Section and the Administration Section. The Department is staffed by six medical officers, two engineers, three scientific officers, seven nurses, five public health inspectors, three technical officers and nine officers of other grades [W. H. Phoon, personal communication, December 12, 1992].

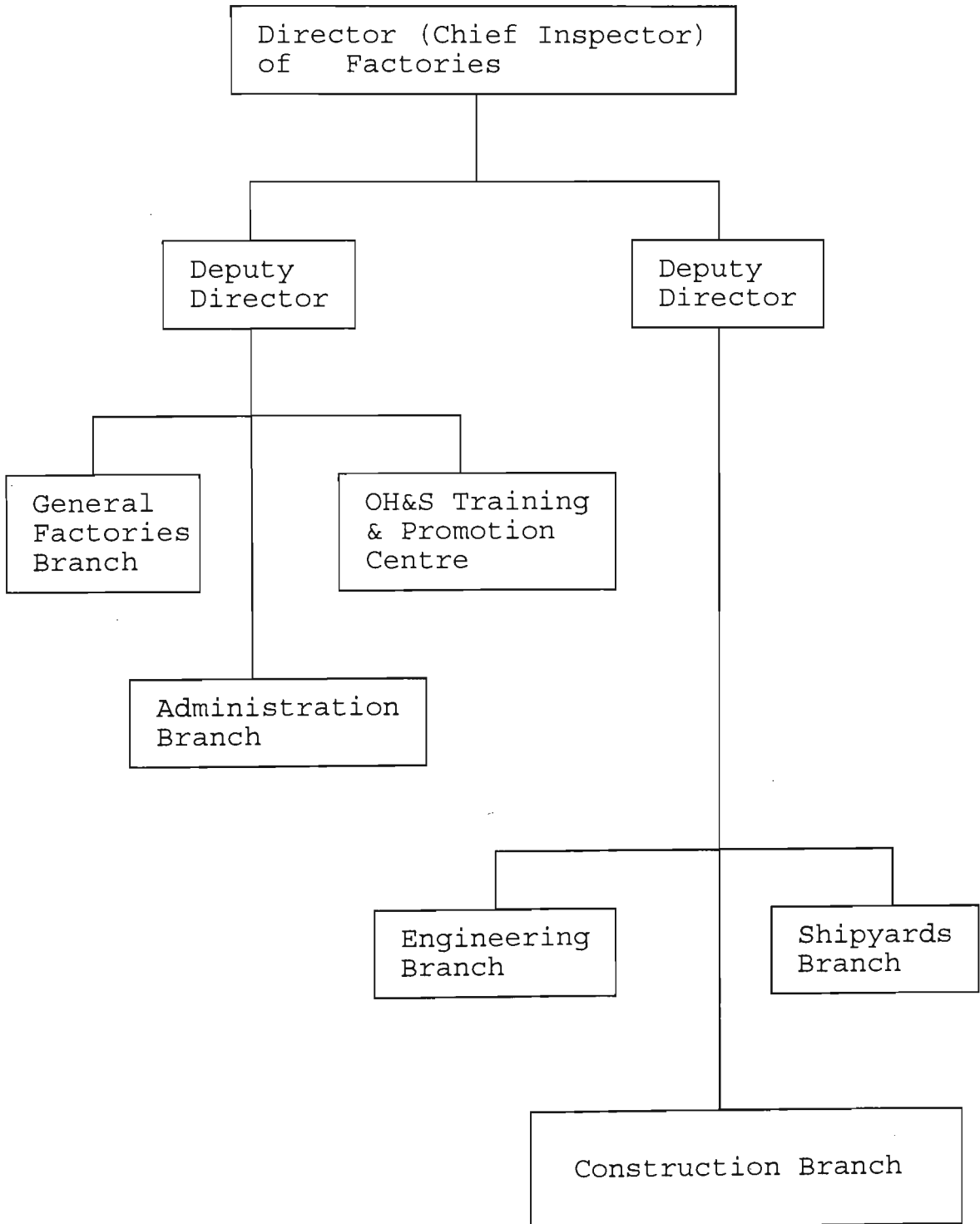


FIGURE 7. Organisation Chart of the Department of Industrial Safety, Singapore [Source: ILO, 1991b, p. 22]

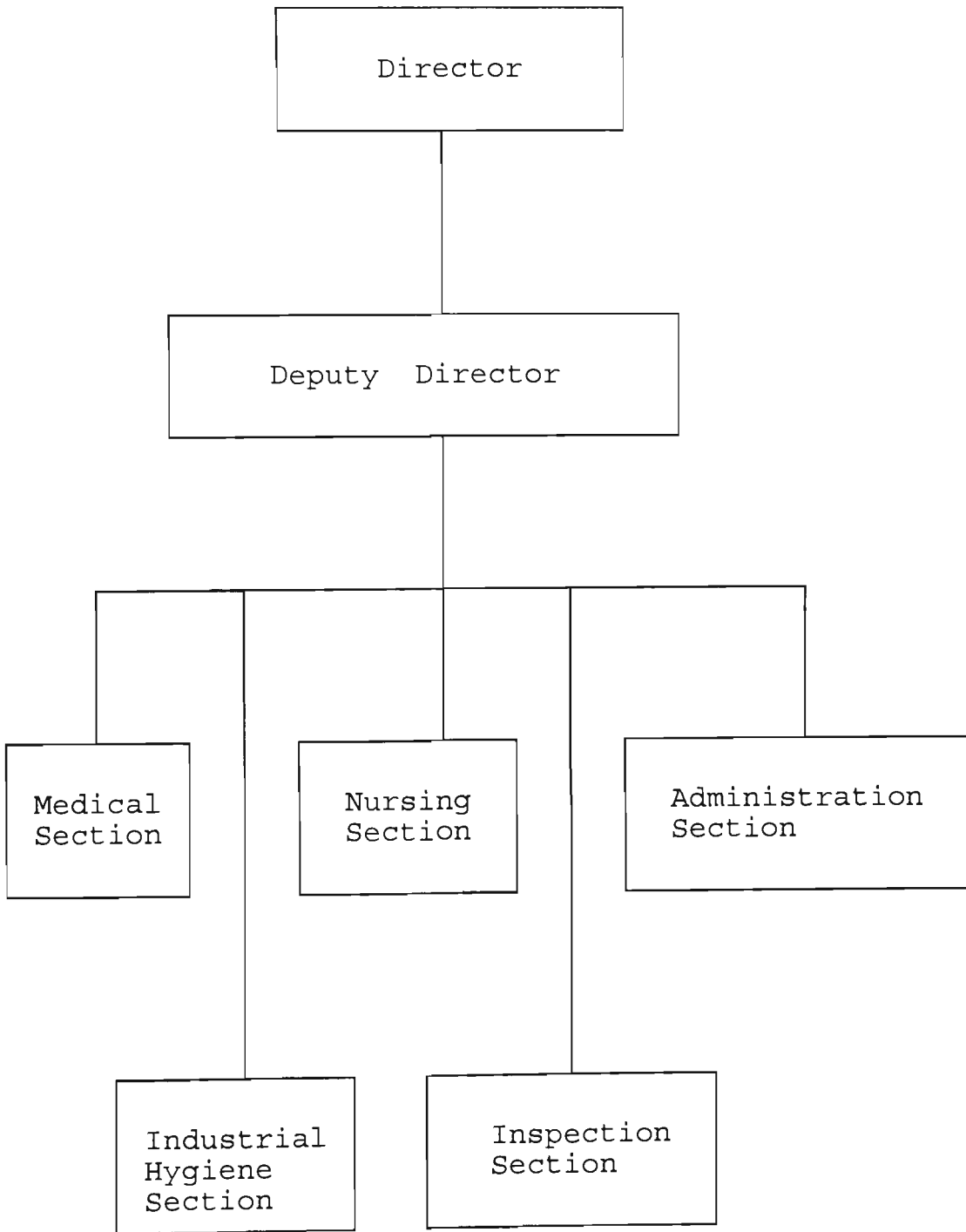


FIGURE 8. Organisation Chart of the Department of Industrial Health, Singapore [Source: ILO, 1991b, p. 22]

5.5. Education and Training

W. O. Phoon [1992, p. 413] viewed education and training as the 'cornerstones' in the development of occupational health programmes in all countries. In developing countries like Malaysia and Singapore, both undergraduate and postgraduate educational programmes in occupational health for the medical courses have made significant progress in recent years. Nonetheless, the same cannot be said for integration of OH&S materials into the other tertiary courses. Consequently, the education and training of medical students and doctors have progressed more than that of nurses, engineers, scientists and managers.

A. M. Mokhtar [personal communication, December 14, 1992] informed that for Malaysia, OH&S education commenced at tertiary level and was restricted to those pursuing a qualification in medicine. He advised that the OH&S component in the medical faculty's undergraduate programme for the local universities consisted of:

- (a) a 2-hour segment for the third year medical student at the University Sains Malaysia in Penang. This segment was conducted by staff members from the FMD's state office in Penang,
- (b) the Malaya University in Kuala Lumpur in-corporated a total of 10 hours into its course spread across three years. The FMD provided the resources for these OH&S lectures, and

- (c) four hours of OH&S lectures were allocated in the final two years of the medical course at the University Kebangsaan Malaysia in Selangor. Likewise, the FMD was responsible for the actual delivery of the OH&S course material.

At the postgraduate level, the curriculum for the Master of Public Health ran by the Malaya University incorporated a total of eighteen hours of instruction in OH&S [A. M. Mokhtar, personal communication, December 14, 1992].

At the University of Singapore, the undergraduate medical programme incorporated a total of fifteen hours of OH&S lectures spread over five years. In addition, final year students were required to undertake a field trip. Eighteen hours of lectures and a worksite visitation constituted part of the core syllabus for the Master of Science in Public Health course. An elective unit in occupational health was also offered [W.H. Phoon, personal communication, December 12, 1992]. General practitioners who wished to specialise as “Designated Factory Doctors” were required to undertake a part-time course totalling 82½ hours [W.O. Phoon, 1992, p. 415].

Before 1969, no specialist training in OH&S existed in Malaysia and Singapore. The Master of Science in Occupational Medicine was established at the University of Singapore in 1973. This course was conducted at full-time basis and lasted for one academic year. Entrance requirements included a minimum of three years professional experience, with at least one year working in the public health or occupational health area [W.O. Phoon, 1992, p. 415].

The industrial engineering undergraduate programme in Singapore has two hours of lectures in ergonomics as part of its core syllabus. Ergonomics was offered as both a core and elective subject for the Master of Science in Industrial Engineering. This ergonomics component (core and elective) amounted to a total of forty-five hours [W.O. Phoon, 1992, p. 421]. Ergonomics was not taught at any of the Malaysian tertiary institutions.

Prior to 1991, the National Productivity Board in Singapore offered a Safety Officer course for individuals who wish to be accredited as a competent person under the Factories Act, 1973 [W.H. Phoon, personal communication, December 12, 1992]. Since 1991, this role is being fulfilled by the OH&S Training and Promotion Centre of the DIS [A. Abdeali, personal communication, December 11, 1992]. The Safety Officers Training Course is being conducted over an 8-month duration at three half-day per week. A much simplified and shorter course is offered to members of Safety Committees formed under the Factories Act, 1973. A. M. Mokhtar [personal communication, December 14, 1992] advised that no such courses are presently available in Malaysia.

Practical OH&S training for managers, supervisors and workers was found to be well organised and established in Singapore. The DIS training programme for 1992/93, which is attached in Appendix 2, listed not only the different OH&S topics being offered, but also the specific group of participants being targeted [A. Abdeali, personal communication, December 11, 1992]. The available literature indicated that Malaysia has no formal arrangements for the

provision of such regular OH&S training. Employers' groups, such as the Federation of Malaysian Manufacturers, have organised for OH&S training on specific subjects which were topical and current. This particular style of training arrangement is exemplified by the series of training on "Hearing Conservation" held in 1988 just before the enactment of the Factories and Machinery (Noise Exposure) Regulations in the following year. The researcher's "Certificate of Attendance" is attached in Appendix 3 to verify this point.

6. DISCUSSION

The findings of this exploratory study should be discussed within the context of the methodology and its limitation.

6.1. Limitations of Methods

An exploratory study should cover a large number of variables [VIOOSH, 1991, p. 16]. By comparison, this research project only looked at four variables. The literature review highlighted that additional key elements underpinning OH&S management at the national level to include:

- (a) OH&S professional bodies [Phoon, 1986, p.3],
- (b) interest groups [Fuchs, 1976, p.27],
- (c) accident/injury statistics [Chew, 1988],
- (d) OH&S services [Robert, 1983], and
- (e) compensation and rehabilitation [Wyatt & Oxenburgh, 1988],
- (f) OH&S programmes [Phoon, 1986], and
- (g) OH&S promotion [Robert, 1983].

The literature search was based on databases developed and maintaining in either Australia, Europe or North America. Consequently, these databases may only list a limited number of Asian publications. Likewise, only a limited

number and range of both literature published in and about Asia were available in Australia. For this very reason, relevant publications identified in the literature search or referenced by various authors were not readily available. Hence, important findings and background information could have been unwittingly omitted.

The researcher was neither an experienced nor skilful interviewer. Thus, important cues, such as body language, were easily over-looked during the interviews.

The Master of Applied Science (OH&S) is offered as a programme by course work. As such, this research project does not constitute the entire course requirement.

The data collection had to be restricted to what was feasible within the time and resources available.

Accounting the afore mentioned difficulties, certain limitations arose for the research project.

6.2. Limitations of Sample

The available literature on OH&S in Malaysia and Singapore were written largely by officials from or sponsored by the ILO on short visits to these countries. On the other hand, the local authors were predominantly medical practitioners, such as Prof. Phoon Wai On, his brother, Dr. Phoon Wai Hoong, Dr. J. Jeyaratnam and Dr. K. S. Chia. Subsequently, the data collected reflects broadly the perspective of either the ILO or the local medical profession.

Since interviews of both the employers' groups and trade unions were not possible, the information were collected entirely from governmental officials attached to the various OH&S statutory bodies. Thus, there was no avenue to compare the actual approaches and practices adopted in Malaysia and Singapore with that of the official pronouncement.

Interviews were limited to the state offices in Penang and Kuching and the Industrial Hygiene Unit. As such a large proportion of the state offices (nine in all) and units (a total of five) were excluded.

6.3. Interpretation of the Data

6.3.1. Policy

Traditionally, policies on OH&S are delivered in the Malaysian development plans and in the Singapore's Presidential Address as subsets of the broader area of "Labour". With this approach, the likelihood of OH&S being overlooked in face of more pressing labour issues, such as industrial relations, unemployment and wage accord, is very high.

In the interviews with the various governmental officials in Malaysia, they provided conflicting information on what constituted the single most pressing OH&S issue faced in Malaysia. A. M. Mokhtar [personal communication, December 14, 1992] advised that the enactment of the proposed OH&S Act (which had been drafted in-line with the recommendations of the Robens Report) was the most critical and pressing OH&S issue; whereas, the Sarawak state deputy director viewed the need of a national database on accident statistics as a key issue. The State Director in Penang deliberated for a while before offering education and training as Malaysia's most pressing OH&S need. A clear, concise national OH&S policy would have accounted for the diverse and conflicting issues faced by the different state offices and units and consolidated these issues into a list of national priorities.

In Singapore, the absence of a written policy documenting the list of national priorities resulted in a spirit of rivalry between the DIS and the DIH. During

the interviews, the interviewees from both camps were vocal as to which department was the major OH&S statutory authority in the country. Emphasis were placed on staffing levels, professional qualifications of staff, publications produced by staff, and the achievements of the department.

6.3.2. Legislation

The most obvious weakness of the OH&S legislation in Malaysia and Singapore is the limited coverage of occupations. In Malaysia, the Act covered about 24% of the total workforce [ILO, 1991a, p.16] and the coverage for Singapore was about 40% [ILO, 1991b, p. 17]. It is anticipated that the actual number of workers covered by legislation will further decrease with the expansion of the service sector [ILO, 1991b].

Since the legislation were mirrored along the outmoded British Factories Act, the style is of a highly prescriptive nature necessitating the intervention of government in all cases. The ILO [1991a, p. 17] correctly deduced that this style of legislation will created the misconception among employers, employees and the general public that the responsibility of OH&S rests solely on the government.

Rapid industrialisation involved massive importation of new technology, processes and materials from overseas. The existing legislation were not flexible enough to cope with these development. It was reported that the FMD in Malaysia had been stretched to its limit in coping with the large numbers of premises and machinery requiring registration and certification with this statutory body [ILO, 1991a, p. 17]

There is also a need for the provision of codes of practice especially for the use of highly toxic substances and the control of high risk occupations. These should include exposure limits, both threshold limit values and maximum permissible limits with specific medical or health based surveillance programmes including safety standards and procedure. Singapore has recognised this need and has published five codes of practice and guidance notes. Unfortunately, Malaysia is still a long behind and has yet to initiate a strategy to address this deficiency.

All the above deficiencies and inadequacies in the existing laws can be rectified by promulgation a new enabling legislation which is comprehensive and in most developed countries, is called the Occupational Health and Safety Act. This act should contain a clear statement of the general principles of responsibility for safety and health. This should be supported by a combination of regulations, standards and have the provision for non statutory codes. The existing laws and regulations need to be rationalised and regulation made simple restricting to the prescription of general requirements only. Detailed specification and guidance on the implementation should be by

other approved non-statutory codes or standards. Once such a legislation is drafted, then the administration of OH&S should be unified either under a new authority or as a Ministry. This would mean bringing the existing inspectorate or agencies together in more or less their present form but under a single management. The ultimate aim should be to achieve integration at all levels with an entirely new organisational structure. A. M. Mokhtar [personal communication, December 14, 1992] advised that the relevant OH&S authorities in Malaysia has recognised these issue and has taken the following remedial steps:

- (a) the Institute of OH&S was official launched by the Minister for Human Resources, Dr. Lim Ah Lek on the 1st December 1992. Encik Abdul Jalid Makmud had been appointed as it's pioneering chairperson. It is envisaged that the Institute will be the co-ordinator for all OH&S matters in Malaysia, and
- (b) a national OH&S Act has been drafted and awaits approval from the Parliament.

Surprisingly, the Singaporean OH&S authorities [A. Abdeali, personal communication, December 11, 1992 and W. H. Phoon, personal communication, December 12, 1992] advised the author that they do not anticipated any changes to either the legislative framework or the OH&S administrative framework in the foreseeable future.

6.3.3. National Co-ordinating Agency

The related OH&S legislation in Malaysia numbered about eight and administered under five different Ministries (see Section 5.3.2). For Singapore, the number of related OH&S legislation was about seven and the corresponding number of Ministries regulating these legislation was four (see Section 5.3.4). As such, the administration of OH&S legislation were found to be grossly fragmented. This will inevitably cause great confusion among employers, employees and the general public, for whom, these Ministries and the associated Departments are formed to serve.

More importantly, the absence of a national co-ordinating agency in both countries have resulted in the lack of a forum for co-operation and collaboration between government, employers' groups, trade unions and other concerned bodies. In particular, the absence of workers' participation in the formulation of policies, agendas and laws is a disturbing trend. As established in Sections 3.1 and 3.2, OH&S is primarily concerned with the protection of workers within the 'work' system. In Malaysia and Singapore, these workers (or their representatives) were left out of the decision making process due to the absence of a forum.

It was reported that the DIS in Singapore experienced staff shortages because of the tight labour market [ILO, 1991b, p. 17]. In view of the constraint on human resources, the existence of a national co-ordinating agency will ensure that duplication of activities are kept to a minimum and that the optimum number of relevant experts are allocated to projects with the highest level of national priority.

6.3.4. Education and Training

In the provision of education, especially in the area of OH&S, there is a fundamental attitude that should be vigorously adhered to if OH&S education is to be effective. As stated by Freire [1972, p. 30]: "**Education must be for liberation.**" This should be the yardstick by which the relevant authorities in Malaysia and Singapore utilise to measure the effectiveness of its OH&S education programmes at the various academic institutions and not by the amount of lecture hours allocated to the teaching of OH&S.

The absence of specialist training in ergonomics, occupational hygiene, risk/hazard management, risk engineering and toxicology may be overcome by sending individuals to overseas courses. For a relatively small country like Singapore (population of 3 million people), it well may be an economical advantage to sponsor promising OH&S practitioners at overseas courses rather than attempt to develop and resource its own specialist courses. Nonetheless, it may be a financially viable proposition if Singapore can market such courses to its ASEAN neighbours.

OH&S information or the 'workers' right to know' should be an inherent right of all employees. Legge [1934] made this point many years ago: "**All workmen should be told something of the danger of the material with which they come into contact and not be left to find out for themselves - sometimes at the cost to their lives.**" As such, Malaysia should step up its effort to establish the kind of OH&S training provided by DIS to employers, employees and interested parties in Singapore.

The education levels of both Malaysians and Singaporeans will continue to rise. A better educated workforce will be more aware of their rights to a safe and healthy work environment. Subsequently, there will be greater demand for OH&S information and the right to participate in the decision making process concerning OH&S. By the same token, a better educated workforce will also result in facilitating OH&S training. It will also be easier to provide training for both the operators and their supervisors involved with hazardous processes. The end result will be an OH&S conscious workforce that will be able to contribute in solving OH&S problems in the workplace [ILO, 1991b. p. 17].

CONCLUSION

This research project has attempted to provide information on the governmental approach to OH&S management in Malaysia and Singapore by focusing the investigation on four key elements - OH&S policy, OH&S legislation, national co-ordinating agency for OH&S and OH&S education and training.

From the research undertaken, it was obvious that generally in OH&S management there was a definite lack of a national policy for the implementation of OH&S activities. Moreover, it was found that the Malaysian and Singaporean governments did not treat OH&S as a major issue of its own right and did not view OH&S as an integral part of the process for achieving economical success

In Malaysia and Singapore, OH&S has, for almost a hundred years, been treated as a matter for legal intervention. Most of the original OH&S legislation in both countries were derived from the British Factories Act. The nineteenth century imperial British legislative model continued to be influential in both countries, so much so that the title, scope and objectives of the Factories and Machinery Act have been retained.

What was apparent then is that the OH&S legislation in Malaysia and Singapore was inadequate, fragmented, and distributed under the portfolio of a number of ministries. The major OH&S legislation (i.e. Malaysian Factories

and Machinery Act, 1967 and Singapore's Factories Act 1973) by themselves were outdated, vague in the powers of enforcement, lack the necessary standards of levels for guidance thus leading to ineffective enforcement which at times is weak and cannot stand in a court of law. Moreover, these OH&S legislation covered only about 24% of the workforce in Malaysia and roughly 40% in Singapore.

The relatively large numbers of related OH&S legislation regulated by different statutory bodies was raised as a matter for concern. It was propounded that the consolidation of the related legislation under fewer will not only result in few regulating agencies, but that the average worker will have a better grasp of the OH&S legislation which are relevant to his or her work.

To cope with the transfer of new technology, processes, plants and equipment and materials (especially, chemical) the Singapore OH&S authorities has initiated the use of industry standards and codes of practice. Such measures are deemed to be more flexible and can be expeditiously implemented [ILO, 1991b, p.17].

The research found that the absence of a national co-ordinating agency was an obstacle towards better co-operation and collaboration between government, employers, employees and other concerned bodies. Likewise, for developing countries where OH&S expertise are scarce, the establishment of a national co-ordinating agency was viewed as a vehicle for minimising the duplication of

activities and facilitating the optimum use of available resources. Ideally, a national co-ordinating agency should incorporate representation from both employers' and employees' groups. Workers non-participation in the decision making process was similarly identified as a key area of concern. Hence, the inclusion of employees' representatives in the membership of such national co-ordinating agency will address this short-coming.

The provision of short training courses modelled on the Singapore's example was recommended for Malaysia. This measure was identified by the ILO {1991a, p. 17]: **"Generally, the occupational safety and health in Malaysia could be improved by undertaking certain measures like training and education of employers and workers,..."**.

Lastly, the need to train OH&S specialists and to provide for a continual upgrading of their skills remains an unresolved issue for Malaysia and Singapore.

REFERENCES

- Andreoni, D. (1986). The cost of occupational accidents and diseases. Geneva 22, Switzerland: International Labour Organisation.
- Asia Pacific Centre Limited. (1981a). The markets of Asia/Pacific: Malaysia. England: Gower Publishing.
- Asia Pacific Centre Limited. (1981b). The markets of Asia/Pacific: Singapore. England: Gower Publishing.
- Bartol, K.M., & Martin, D.C. (1991). Management. United States of America: McGraw-Hill.
- Brooks, A. (1993). Occupational health and safety law in Australia (4th. ed.). North Ryde, New South Wales: CCH Australia.
- CCH Australia Limited. (1983). Planning occupational health and safety. New South Wales: Author.
- Chew, D.C.E. (1988). Effective occupational safety activities: Findings in three Asian developing countries. International Labour Review, 27(1), 11-124.
- Chhokar, J.S. (1987). Safety at the workplace: A behavioural approach. International Labour Review, 126(2), 169-177.
- Ch'ng, T.H. (1989, April). Industrial hygiene in chemical handling. Paper presented at the Bayan Lepas Free Trade Zone Safety Council's seminar on 'Chemical Hazards Control' held on the 27th April 1989, Penang, Malaysia.
- Concise Oxford Dictionary (8th. ed.). (1990). New York: Oxford University Press.
- Coulton, R., McCulloch, A., & Noble, R. (1990). The social dimensions of occupational health and safety. New South Wales: Social Science Press.

- Daft, R.L. (1991). Management (2nd. ed.). United States of America: Dryden Press.
- De Cieri, H. (1991). Occupational health and safety - progress and problems. Asia Pacific Journal of Human Resources, 29(1), 39-54.
- Derham, D.P., Maher, F.K.H., & Waller, P.L. (1990). An introduction to law (5th. ed.). Melbourne, Victoria: Law Book Company.
- Economist Intelligence Unit (1990). Malaysia, Brunei - Country profile 1990-91 annual survey of politics and economic background. London: Business International.
- Economist Intelligence Unit (1991). Singapore - Country profile 1991-92 annual survey of politics and economic background. London: Business International.
- Emmett, E.A. (1992). New directions for occupational health and safety in Australia. The Journal of Occupational Health and Safety - Australia and New Zealand, 8(4), 293-308.
- Food and Agriculture Organisation of the United Nations. (1987). Guidelines for forest policy formulation. Rome, Italy: Author.
- Forssman, S. (1983). Occupational health. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1491-1493). Geneva 22, Switzerland: International Labour Organisation.
- Fox, A. (1991). The meaning of work. In: Wilson, T. (Ed.). HS463 Risk Sociology - Selected Readings (pp. 51-77). Ballarat: Ballarat University College, Victorian Institute of Occupational Safety and Health.
- Freire, P. (1972). Pedagogy of the oppressed. Harmondsworth, England: Penguin Books.

Fuchs, S. (1976). Scope for occupational health services in developing countries. In Organisation of Occupational Health Services in Developing Countries (pp. 18-46). Geneva 22, Switzerland: International Labour Organisation,.

General Secretariat of the International Social Security Association for Asia and Oceanic. (1988). Introductory report on social protection against occupational diseases. In Report of the Asian Regional Round Table Meeting on Social Protection Against Occupational Diseases (pp. 15-23). New Delhi, India: Author.

Gunningham, N. (1984). Safeguarding the worker. New South Wales: The Law Book Company.

International Labour Office. (1983). Working conditions and environment. Geneva 22, Switzerland: Author.

International Labour Office (1988). Safety, health and working conditions in the transfer of technology to developing countries. Geneva 22, Switzerland: Author.

International Labour Office (1991a). Profile on occupational safety and health in Malaysia. Geneva 22, Switzerland: Author.

International Labour Office (1991b). Profile on occupational safety and health in Singapore. Geneva 22, Switzerland: Author.

Kogi, K., Phoon, W.O., & Thurman, J.E. (1989). Low-cost ways of improving working conditions: 100 examples from Asia. Geneva 22, Switzerland: International Labour Organisation.

Krause, L.B. (1987). Thinking about Singapore. In L. B. Krause, A.T. Koh & T.Y. Lee (Eds.), The Singapore economy reconsidered (pp. 1-20). Singapore: Institute of Southeast Asian Studies.

- Lamm, F. (1994). Australia and New Zealand occupational health and safety - a comparative analysis. Asia Pacific Journal of Human Resources, 32(2), 57-77.
- Legal Research Board of Malaysia (1994). Factories and Machinery Act, 1967 (Act 139) & Regulations and Rules. Kuala Lumpur, Malaysia: International Law Book Services.
- Legge, T. (1934). Industrial maladies. England: Oxford University Press.
- Lewis, D.S., & Sagar, D.J. (eds.) (1992). Political parties of Asia and the Pacific. United Kingdom: Longman Group UK.
- Macquarie Dictionary. (1981). New South Wales: Macquarie Library.
- Mathew, T.I. (1981). Occupational accident prevention and compensation: The activities of the ILO. In: Report of the Asian Regional Working Meeting on Occupational Risks (pp. 35-40). New Delhi, India: International Social Security Association for Asia and Oceanic.
- McCawley, P. (1991). Asian growth in the 1990s: Can development co-operation help? Canberra: Australian International Development Assistance.
- Parmeggiani, L. (1983). Occupational health legislation. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1498-1503). Geneva 22, Switzerland: International Labour Organisation.
- Phoon, W.O. (November, 1986). Occupational health towards the year 2000: South-East Asia. Paper presented at the Asia-Pacific Congress on Occupational Health and Safety held at the Massey University, New Zealand
- Phoon, W.O. (1992). Education and training in occupational health in developing countries. In J. Jeyaratnam (Ed.), Occupational health in developing countries (pp.413-431). New York: Oxford University Press.

- Phua, K.H. (1992). The economics of occupational health services. In J. Jeyaratnam (Ed.), Occupational health in developing countries (pp.125-137). New York: Oxford University Press.
- Plunkett, W.R., & Attner, R.F. (1992). Introduction to Management (4th ed.) PWS-KENT Publishing Co., Massachusetts. p. 149-152.
- Rantanen, J. (1983). Occupational health institutes. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1495-1498). Geneva 22, Switzerland: International Labour Organisation.
- Richardson, M. (1993, December). ASEAN group concerned by integration push. The Australian Business Asia. pp. 4.
- Robens Committee on Safety and Health at Work. (1972). Report of the Committee on safety and health at work 1970-72 (Chairman: Lord Robens). London: HMSO.
- Robert, M. (1983). National policies of occupational safety. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1553-1557). Geneva 22, Switzerland: International Labour Organisation.
- Schuler, R.S., Dowling, P.J., & Smart, J.P. (1988). Personnel/Human Resource Management in Australia. Sydney: Harper & Row
- Sedlak, J. (1983). Occupational health organisation. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1503-1508). Geneva 22, Switzerland: International Labour Organisation.
- Thacker, P.V. (1983). Occupational health in developing countries. In Encyclopaedia of Occupational Health and Safety: Vol. 2 (3rd. rev. ed.) (pp. 1493-1495). Geneva 22, Switzerland: International Labour Organisation.
- Victoria. Department of Labour (1989). Time for Change - OHS Prevention Strategies for the 90's.

Victorian Institute of Occupational Safety and Health. (1991). Manual on research methodology (1991 ed.). Ballarat: Ballarat University College, Victorian Institute of Occupational Safety and Health.

Webster Comprehensive Dictionary (encyclopedic ed.). (1986). Chicago: J. G. Ferguson Publishing.

Worksafe Australia. (1994). The cost of work-related injury and disease. Canberra: Australian Government Publishing Service.

Wyatt, A., & Oxenburgh, M. (Eds.) (1988). Integrating health and safety management. In: Workplace Health and Safety Manual (sect. 2-180 to 2-240). Sydney: CCH Australia.

APPENDIX

1

Summary of interview with Mr. Anuar Mohammad Mokhtar, Deputy Director of the Industrial Hygiene Unit, Factories and Machinery Department, Malaysia

1. OH&S Policy

- * No specific statement in constitution.
- * Incorporated into the 'Labour and Manpower' topic under the development plans for the nation.
- * Not usually addressed in governmental edicts and publications.
- * Goals are not clearly defined.
- * Funds are allocated to the FMD for each financial year.

2. OH&S Legislation

- * Based on British system - common law - Factories Act.
- * Don't prosecute companies except in cases where fatalities occur. Prefer the 'carrot' approach and not the 'stick'.
- * Other associated legislation are in place.
- * Only cover workers in 'factory' and working with 'machinery'.

3. National OH&S Co-ordinating Agency

- * Not current in place. FMD runs most things except for radiation, public health, agriculture, mining and petroleum.
- * No formal arrangements for employers' and employees' groups to have input.

4. OH&S Education

- * Only commence at university level for undergraduate medical students.
- * Master of Public Health at Malaya University offers minor post-graduate studies in OH&S.

Summary of interview with Mr. Ammerali Abdeali, Head of OH&S (Training and Promotion), Department of Industrial Safety, Singapore.

1. OH&S Policy

- * No specific statement in constitution.
- * Incorporated in the annual Presidential address under 'Labour' issues.
- * Not usually addressed in governmental edicts and publications.
- * Goals are not clearly defined.
- * Funds are allocated to the DIS and DIH for each financial year.

2. OH&S Legislation

- * Based on British system - common law - Factories Act.
- * Don't prosecute companies except in cases where fatalities occur. Prefer the education and consultative approach.
- * Other associated legislation are in place.
- * Only cover workers in 'factory' and those working with 'heavy machinery'.

3. National OH&S Co-ordinating Agency

- * Not current in place. Most OH&S issues covered by either DIS or DIH.
- * No formal arrangements for employers' and employees' groups to have input.

4. OH&S Education

- * Only commence at university level for undergraduate medical students.
- * Master of Public Health is offered at post-graduate level.
- * Safety Officer accreditation course run by DIS.

Summary of interview with Dr. Phoon Wai Hoong, Director of the Department of Industrial Health, Singapore.

Dr. Phoon offered the same comments as Mr. Abdeali except for:

- * Codes of practice are established for various topical issues and on a 'per need basis'.
- * Ergonomics for engineering students is offered.

APPENDIX

2

TRAINING PROGRAMMES 1992/1993
OCCUPATIONAL SAFETY & HEALTH (Training & Promotion) CENTRE

COURSES	FOR WHOM	DATES/TIME	FEES
Safety Officers Training Course	Safety Personnel for registration as Safety Officer	5 Apr 93 - 8 Oct 93 Mon - Wed - Fri [9am - 12noon]	\$2,170 (50% SDF)
Safety Management Course	Chairman of Safety Committees, Managers, Engineers & Others Supervisory staff	9 Feb to 18 Mar 93 (Tuc/Thu = 9am-12noon)	\$270
Training Course for Safety Committee Members	Safety Committee Members	30 Nov - 28 Dec 92 4 Jan - 3 Feb 93 [M/W/F = 9am - 12noon]	\$270 (50% SDF)
Building Construction Safety Supervisor Course	Building Construction Foremen and Supervisors Clerk-of-Work	1 - 3 Jun 93 (mond) 1 - 3 July 93 (T/T/S) [9am - 12noon]	\$250 (70% SDF)
Shipyard Safety Instruction Course for Managers	Manager level	9 - 30 Mar 93 (T/T/S) [9 am - 12noon]	\$175
Shipyard Safety Instruction Course for Supervisors	Supervisory level	9 to 23 Feb 93 (T/T/S) [9am - 12noon]	\$150
Basic Industrial Safety and Health for Supervisors	Supervisory Personnel	1 - 19 Dec 92 (T/T/S) [9am - 12noon]	\$220 (70% SDF)
Industrial First Aid Course	Employees in industries especially safety and supervisory personnel	19 Feb - 8 Mar 93 10 Mar - 31 Mar 93 (M/W/F) [2 - 5pm]	\$75
Industrial First Aid Refresher Course	Trained First Aiders	5 - 21 Jan 93 2 - 31 Mar 93 (Tue/Thu) [2 - 5pm]	\$65
SIC (Manhole) for Supervisors	Supervisors	30 Dec 92 20 Jan 93 (9.00 am - 5.00 pm)	\$50
SIC (Oil/Petrochemical) Industry - for Supervisors	Contractors', Site/Safety Supervisors/Managers	17 Dec 92 21 Jan 93 (9am - 5pm)	\$30
Industrial Hygiene Course	Managers, Supervisors, Safety & Health Personnel	30 Nov - 11 Dec 92 (M/W/F) [2 - 5pm]	\$180
Industrial Noise	Safety & Health Personnel, Safety Committee Members & Supervisors	14 - 15 Dec 92 16 - 17 Mar 93 (9.00 am - 5.00 pm)	\$110
Industrial Ventilation	Safety & Health Personnel, Safety Committee Members & Supervisors	26 - 27 Jan 93 (9.00 am - 5.00 pm)	\$110
Recognition Evaluation & Control of Chemical Hazards	Safety & Health Personnel, Safety Committee Members & Supervisors	23 - 24 Feb 93 (9.00 am - 5.00 pm)	\$110
Power Press Safety Course for Supervisors	Foremen, Chargehands, Supervisors and Safety Officers	14 Apr 93 (9.00 am - 5.00 pm)	\$50

APPENDIX 3



CERTIFICATE OF ATTENDANCE

TRAINING COURSE ON HEARING CONSERVATION, STAGE I

This is to certify that

CH'NG THEAN HOCK

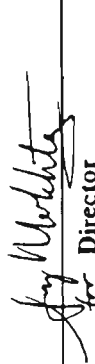
From

INTEL MALAYSIA SDN BHD

attended the Training Course On Hearing Conservation, Stage I,
organized by the Federation of Malaysian Manufacturers, with the support
and cooperation of the Factories & Machinery Department, Penang,
from August 17—19, 1988 in Penang.

Presented this 19th day of August 1988


Chairman
Federation of Malaysian Manufacturers
Northern Branch


Director
Factories & Machinery Department
Penang.