Report of the Asian Regional Round Table Meeting on Social Protection Against Occupational Diseases

NEW DELHI, INDIA (26 - 28 October 1987)
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Chapter I

Introduction

Topicality

The region of Asia and the Pacific is developing at a fast pace accompanied inevitably by the introduction of new industrial processes and technologies which are bringing in their wake a gradual but progressive shift from agriculture to industry. The resultant changes and the concomitant hazards and risks, some of them hitherto little known have brought to light new problems or added to the dimensions of the existing problems in the area of occupational diseases and necessitated the formulation of appropriate preventive strategies designed to ensure the protection of the working population against such diseases. The development of such strategies is not always easy in several ways, which further accentuates the need for the social security institutions to assume a more active role in devising methods within their control to foster and promote measures at the level of the industry and in other spheres to combat the risk of occupational diseases and the multiplicity of exposures faced by many workers. The number and severity of occupational diseases in the agricultural sector is also showing an increase in Asia and the Pacific as a result of the more extensive use of pesticides, herbicides and insecticides. And yet, for various reasons, there is generally a tendency of underplaying the importance of measures for the prevention and treatment of occupational diseases and minimising the exposure of the workers to the causative factors.

An Asian Regional Round Table Meeting on Social Protection against Occupational Diseases was organised by the International Social Security Association (ISSA), in collaboration with the Employees' State Insurance Corporation of India, in New Delhi from 26 to 28 October 1987.

As is well known, occupational risks cover two distinct areas of industrial accidents and occupational diseases. Both these areas were examined in the ISSA Asian Regional Working Group Meeting on Occupational Risks held in Colombo from 7 to 10 July 1981. The purpose of the Round Table Meeting in New Delhi was to study the developments and progress since the meeting in Colombo in 1981, confined to the field of occupational diseases.

Participation

The meeting in New Delhi brought together 26 experts from member organisations in Fiji, India, Indonesia, Islamic Republic of Iran, Republic of Korea, New Zealand and Saudi Arabia and from the International Labour Office, the International Commission on Occupational Health and the Rehabilitation Coordination, India. It was also attended by 13 national observers from India. The General Secretariat of the ISSA was represented by Miss Nayantara Pathmarajah, official in charge of ISSA's programme of regional activities for Asia and the Pacific, Mr Har Mander Singh, Director of the ISSA Regional Office for Asia and the Pacific, Dr Harald Maruna, Assistant Head of Accident Prevention and Occupational Diseases, General Institute for Insurance against Employment Accidents and Occupational Diseases, Austria and Mr Bernard Moncelon, Director, National Research and Safety Institute, France. The last two acted as Advisers to the Round Table Meeting on behalf of the ISSA.

Agenda

The Round Table Meeting had the following subjects for its deliberations:

—current developments in the field of occupational diseases with special reference to their identification and compensation;
--the treatment of occupational diseases and provisions for rehabilitation; and
--the prevention of occupational diseases.

Opening Session

Welcoming the participants at the opening session, Mrs Kusum Prasad, Director General of the Employees' State Insurance Corporation of India observed that the alleviation of distress rather than its prevention had historically been the hallmark of social security. Consequently, in the field of occupational diseases, social security had concerned itself mainly with the development of medical services to cure diseases already contracted. She expressed the hope that the meeting would generate fruitful ideas and propose options for concrete programmes towards the achievement of the qualitative improvement of life, health, happiness and the total well being of the worker. Dr Alois David, Medical Officer in the Occupational Safety and Health Branch of the International Labour Office, in his address traced the causes of occupational diseases and dwelt upon the approaches to their prevention and the institutional and organisational arrangements necessary for the achievement of this objective. Referring to the great concern of the International Labour Office for the workers' health, he stated that its activities in the field of occupational safety and health had become a component of its international programme for the improvement of working conditions and environment. Mr Har Mander Singh, Director of the ISSA Regional Office welcomed the participants on behalf of the President and the Secretary General of the ISSA and delivered the message of the Secretary General to the meeting. In his message, the Secretary General stated that it was highly appropriate that the Round Table Meeting should have been organised by a highly reputed institution like the Employees' State Insurance Corporation, bringing together eminent experts so that they might pool their vast knowledge and experience to examine the vital aspects of social protection against occupational diseases. He referred to the need for the reinforcement of protective measures against occupational diseases, specially in the developing countries, in the context of the rapid technological developments and to the special importance attached by the ISSA to the aspect of protection and the steps taken by the Association to stimulate international action in this field. He expressed confidence that the deliberations at the meeting would act as a catalyst and that the discussions and conclusions would provide useful guidelines for resolving some of the complex issues listed for deliberations. Having delivered the message of the Secretary General, Mr Har Mander Singh thanked the reporters who had contributed excellent technical reports and stated that their knowledge and expertise would permit a stimulating and rewarding exchange of views and experiences during the meeting.

The Round Table Meeting was inaugurated by Mr PA Sangma, Union Minister of Labour of India who in his address referred to the commendable work done by the ISSA in the field of social security in Asia and the Pacific and to the emergence of social security as a strong liberating force which had become the yardstick for measuring the economic progress of a country and was an essential step towards the achievement of the noble goal of a welfare state. He said that it was heartening for him to know that ISSA had decided to highlight the neglected area of occupational diseases and expressed the view that social protection against occupational diseases had necessarily to be organised within the framework of social and economic development of each country. Quoting the experience of India, he stated that the country's programme for the prevention, recognition and treatment of occupational diseases would have to be a part of the total health programme and coordinated with measures intended to alleviate poverty, extend industrial development and spread social enlightenment and education. However, there were certain aspects such as identification and prevention of occupational diseases which, because of their universal importance and concern, could be tackled by an identical approach in all countries. He hoped that the deliberations at the meeting would help in finding solutions to the common problems relating to the social protection against occupational diseases.

The opening session concluded with a vote of thanks by Dr Ved Prakash, Medical Commissioner of the Employees' State Insurance Corporation, who, on behalf of the National
Organising Committee, expressed gratitude to the ISSA and its Regional Director for their close co-operation in the organisation of this event and thanked the Union Labour Minister and the distinguished gathering of 200 guests and participants for their presence at the opening session.

Technical Sessions

At the start of the technical sessions, Mrs Kusum Prasad, Director General of the Employees' State Insurance Corporation of India was elected Chairperson of the Round Table Meeting and she presided over all the working sessions.

During the morning on 26 October, at the first technical session, Mr Har Mander Singh presented the ISSA General Secretariat's Introductory Report on Social Protection against Occupational Diseases. He dwelt upon the impact of new technological developments on occupational diseases, the inadequacies of measures and facilities available for effective protection against such diseases, the imperative need for improvement in occupational safety and in safety standards and for greater emphasis beyond the early detection of diseases and the superficial relief of systems, to an attack on the social and technological roots of the causative factors. He further stressed the need for more active participation by social security schemes in all forms of rehabilitation of workers who had suffered disability on account of an occupational disease, to facilitate their reintegration into the community.

Dr Harald Maruna, ISSA Adviser, presented the report on an Overview of the Principles of Diagnostic and Prevention Strategies in the Field of Occupational Diseases. He pointed out some of the causes of occupational diseases, the different tests used to diagnose them and the methods which could be adopted in order to prevent the onset of such diseases. He mentioned that ideally, a large industrial health programme should include environmental monitoring, medical surveillance and educational programmes concerning risk factors.

In the afternoon session, Mr Bernard Moncelon, ISSA Adviser, presented his Report on Research Undertaken in the Prevention of Occupational Diseases. Dealing with the role of the ISSA in this field, he stated that since it was founded some 15 years ago, the ISSA International Section for Research on the Prevention of Occupational Risks had kept an inventory of scientific research related to occupational safety and health and as a result, it had been able to set up a data bank which could be consulted on a key word basis by users wishing to check on a problem or on a subject of general interest to researchers at a given moment of time. He added that the type of help which the developing countries could expect from research carried out by the international scientific community in the field of occupational diseases was generally a matter of transposing the results to fit the needs prevailing in their own countries. However, this was not always easy since there were certain elements which were not directly transposable.

Dr Ved Prakash, Medical Commissioner of the Employees' State Insurance Corporation presented his paper on Current Developments in the Field of Occupational Diseases with Special Reference to their Identification and Compensation. He stated that facilities for diagnosis and treatment of occupational diseases were provided as a part of the general health services by most of the countries. Specialised institutions for such services were few in the developing countries, which suffered from a shortage of qualified manpower and material resources. Most countries had provision for compensating disabilities arising out of occupational diseases and such compensation was usually the responsibility of the employers or the social security institutions.

On 27 October, at the morning session, Dr Keir Howard, Medical Adviser of the Accident Compensation Corporation of New Zealand presented his paper on Treatment of Occupational Diseases and Provisions for Rehabilitation. He indicated that the principle that the treatment and rehabilitation for occupational diseases should be freely available and not be a burden on the worker seemed to be generally recognised and accepted. There were, however, very limited resources available for recognition, diagnosis and treatment of occupational diseases and for implementing rehabilitation programmes. Such treatment was only likely to be freely available in a system where it was fully integrated into the
national health care services. A major limiting factor in the development and improvement of the existing services was the lack of trained personnel.

In the afternoon, a technical visit was made to two factories in the nearby industrial township of Faridabad to enable the participants to see at first hand the measures adopted by the employers for the prevention of occupational diseases.

On 28 October, at the morning Session, Mr Sentanoe Kertonegoro, Director of the Social Insurance System Astek of Indonesia presented his paper on the Prevention of Occupational Diseases in Countries in Asia and the Pacific. He stated that while determining social security measures in this field it was desirable that the scope and organisation of the scheme should be taken into account and special efforts should be undertaken to develop suitable coordination between the various agencies active in the prevention of industrial injuries. He pointed out that this was a very specialised area and that due importance had to be given to the wishes of workers, employers and the government.

Dr Alois David, Medical Officer in the Occupational Safety and Health Branch of the ILO delivered a paper on the Prevention of Occupational Diseases. He provided the List of Occupational Diseases appended as Schedule I to the ILO Employment injury Benefits Convention, 1964 (No. 121). He analysed the main causes of occupational diseases and the various measures to be adopted in order to ensure primary, secondary and tertiary prevention. Information was also provided on the principal activities of the ILO in this area which consist of setting international standards and supervising their observance as well as expanding technical cooperation, carrying out research and providing advice.

The presentation of papers resulted in wide ranging discussions on the problems and issues encountered in the area of occupational diseases.

Closing Session

At the concluding session on 28 October, Dr Keir Howard of New Zealand presented a synopsis of the discussions in the areas of research, prevention, recognition, treatment and rehabilitation of occupational diseases.

In the field of research, there was a general consensus with regard to the need for internationally agreed guidelines, specially in respect of the data required in national statistical systems. A role was seen for social security institutions to encourage industries to maintain good record systems and further all forms of research by financial support. Epidemiological research throughout the Asian region needed to begin at the very basic descriptive level on the incidence and prevalence of occupational diseases as also the occupational conditions which gave rise to them.

On the question of prevention, it was felt that the time had come for social security organisations in the region to extend their activities, hitherto limited to compensation, to a more active interest in prevention. In the Asian region, physicians and hygienists needed to work together, through the primary health care system with which occupational health programmes should be integrated, to identify problems and seek their elimination. A suitable regulatory framework and proper enforcement infrastructure were essential for preventive programmes.

On the question of recognition or diagnosis, it was felt that it was necessary to organise training aimed at equipping the medical practitioner not only with clinical knowledge to diagnose, but more importantly with an understanding of all the processes involved so that he could provide advice on prevention.

With regard to treatment and rehabilitation, the importance of ensuring total health care for the working population was emphasised as well as the problem of extending the concept of occupational diseases from a quasi-legal concept to embrace all types of work-related sickness.

It was noted that benefits of coverage, treatment, rehabilitation and compensation for occupational diseases provided by ISSA member organisations in the region were available only to a very small proportion of the workforce and that there was need to give urgent consideration to the problems encountered in this field, by the
rural sector, the unorganised labour and the child labour.

At the conclusion of the meeting, Mr. Sentanoe Kertonegoro of Indonesia offered a vote of thanks on behalf of the delegates and observers. Miss Nayantara Pathmarajah, speaking on behalf of the ISSA, thanked the host organisation and all concerned for the successful deliberations and Mrs. Kusum Prasad, the Chairperson, made the concluding remarks.

The present volume contains the speeches made at the opening session, an introduction to each of the reports presented at the technical sessions followed by the text of the report and the summary of discussions and conclusions. A list of participants is given in the Annexure.
Welcome Address by Mrs Kusum Prasad,
Director General, Employees’ State
Insurance Corporation, India

It gives me great pleasure to welcome you all, on behalf of the National Organising Committee, to this inaugural session of the Asian Regional Round Table Meeting on Social Protection against Occupational Diseases. It is a matter of great satisfaction to the National Organising Committee and the Employees’ State Insurance Corporation that so many distinguished experts from the field of social security, and from medical services and occupational health should have taken the trouble to participate in this meeting along with senior representatives of the ISSA Secretariat. At the same time, we greatly miss the ISSA Secretary General, Mr Vladimir Rys whose visit had to be called off on account of other commitments.

We are gathered here in the interest of a very vital though very recent concern, that of the total health and environment of the individual, the worker. So far, the considerations that have held ground in the sphere of social security, have centred around gainful employment, and failing that, compensatory benefits for the loss or the suspension of employment and the earliest return to full employment. Thus, social security has concerned itself with medical services to cure diseases already contracted and benefits to compensate for periods of unemployment on account of employment injury, maternity etc. Alleviation of distress has historically been the hallmark of social security, not prevention of it.

Necessarily, the qualitative improvement of life, cannot precede, but follows the provision of the necessities for keeping body and soul together and in the developed world, the concept of cure has spanned a very large part of its industrialised era. The experience of the developed countries is, however, being telescoped in the developing countries and we find ourselves being deeply concerned with the health, happiness and total environment of the worker. It is hoped that the present meeting will generate fruitful thought and throw up concrete programmes towards the achievement of this goal.

India and the Employees’ State Insurance Corporation are fortunate indeed to have been given the opportunity to host this very important meet, so intimately connected with the cause of human rights, towards the furtherance of human well being and that too, to mark, this, the sixtieth anniversary year of ISSA.

Once again I welcome all our distinguished guests and wish them happy and useful deliberations during these coming three days.

Address by Dr Alois David, Medical Officer, Occupational Safety and Health Branch, International Labour Office, Geneva

I have great pleasure and honour to extend to all of you greetings on behalf of the International Labour Office. I feel particularly privileged as I had the honour to conduct, also in India, the ILO Inter-Regional Seminar on Occupational Health Services, in the Model Centre for Occupational Health Services of Bharat Heavy Electricals Limited in Tiruchirapalli, in 1985. It is for the second time in two years that India hosts and its government supports at such a highly distinguished level, an important international meeting aiming at the protection of the health of the workers against occupational risks.

My presence at this meeting reflects also the long standing cooperation between the ISSA and the ILO. Their common link is the concern for the health of the people at work. Although exact data is lacking, it is estimated that about 180,000 workers die annually due to accidents at work, and the incidence of occupational diseases in industrialised countries is reported to be one to
five cases per 1000 workers per year. In some branches of economic activity, the number is much higher.

The ILO Constitution sets forth a number of objectives for the improvement of the working conditions and the promotion of social justice. The protection of the worker against sickness, disease and injury arising out of his employment is one among them. ISSA is the most important international organisation in the field of social security, which gives it the opportunity to exert direct influence over international initiatives undertaken by other organisations in this field.

I wish to mention some of the main elements of the ILO's activities in the field of the workers' health, during the biennium 1988-89. Firstly, I would like to invite all of you to the ILO's Seventh International Pneumoconiosis Conference, which will be held from 23 to 26 August 1988 in Pennsylvania, USA, jointly organised with the National Institute for Occupational Safety and Health (NIOSH) and co-sponsored by the US Occupational Safety and Health Administration, the Mines Safety and Health Administration, and the Bureau of Mines. A special session will be devoted to the ILO International Classification of Radiographs of Pneumoconiosis and your views will make a valuable contribution.

We have similar expectation of receiving your advice on the health effects of man-made fibres, a subject which will occupy the Occupational Safety and Health Branch of the ILO in the following two years.

A few weeks ago, the European Regional Conference of the International Labour Organisation urged the Office to review and update the list of occupational diseases appended to the Employment Injury Benefits Convention, 1964 (No. 121), which was last amended in 1980.

All of you may wish to take advantage of the information disseminated through the ILO International Occupational Safety and Health Information System and the International Occupational Safety and Health Hazard Alert System.

Ladies and gentlemen, most of you occupy leading positions in your countries with a major influence on the development of occupational health. Therefore, we welcome your personal contribution to the noble task of prevention of occupational diseases, and I wish you every success at this meeting in New Delhi for the sake of those whose health at work will depend upon your efforts when you return to your daily tasks.

I wish to congratulate ISSA for convening the present meeting and to thank you all for coming from far away places, to participate in it.

Message of Mr Vladimir Rys, Secretary General of the ISSA, delivered by Mr Har Mander Singh, Regional Director, ISSA, New Delhi

It is my privilege to welcome you all on behalf of the President of the ISSA, Dr. Jerome Dejardin and its Secretary General, Mr Vladimir Rys, to this inaugural session of the ISSA Regional Round Table Meeting on Social Protection Against Occupational Diseases.

The Secretary General, Mr Vladimir Rys was greatly looking forward to his participation in this important programme which is of great significance to the countries of Asia and the Pacific region. He much regrets his inability to be present on this occasion due to the unexpected commitments relating to the ISSA work programme and sends his greetings and good wishes for the success of the Round Table Meeting and hopes that the deliberations will help in the further understanding of the growing phenomenon of occupational diseases and in devising social protection measures against it. Mr Vladimir Rys, Secretary General of the ISSA has asked me to convey the following on his behalf to this august gathering as his message on the occasion of the Round Table Meeting.

His message begins

Mr Minister, ladies and gentlemen : as you are aware, occupational risks cover two distinct areas - one of occupational accidents and another of occupational diseases. In many countries of this region, there has hitherto been a greater stress on occupational accidents and a tendency to underplay the importance of occupational diseases. Both these facets were considered at the ISSA Working Group Meeting on Occupational Risks held in Colombo in July 1981. The present meeting is a follow up on the Colombo meeting
and will be dealing exclusively with the aspect of occupational diseases.

Social protection against occupational diseases assumes special significance when we realise that safety is an essential feature of good working conditions and that compensation is in actual fact a payment for the default in the application of appropriate preventive and protective measures. Within the framework of social security, protection acts as a bulwark against contracting occupational diseases with its attendant social, economic and humanitarian consequences.

A notable trend in the field of occupational diseases is the impact of the rapid technological developments which have brought in their wake new and hitherto unknown occupational diseases, simultaneously eliminating some of the existing sources of occupational diseases. Social protection against occupational diseases needs to be considered in the context of this technological trend, especially in the developing countries, where the existing apparatus, has unfortunately often not been able to identify or counteract even the known diseases of occupational origin.

If social protection against occupational diseases is to become a reality, social security schemes necessarily need to strengthen their preventive activities. This might require diversion of a part of their resources and the utilisation of such resources in the most efficient and effective manner by prior co-ordination among the concerned agencies. Social security schemes can effectively participate financially and administratively in activities such as safety campaigns, dissemination of general and technical information and research and training of medical and paramedical staff. Such a diversion of funds is, indeed, in the nature of an investment which will go towards reducing the incidence and severity of occupational diseases and along with it of human suffering thereby reducing the economic liability for compensation by the social security institutions. Expenditure thus diverted for protection and prevention might be substantial but occupational diseases cost a lot more and cause a great deal of human suffering.

The International Social Security Association attaches special importance to protection against occupational diseases and the related aspects including compensation and treatment of diseases. Consequently an extensive range of activities are organised by the Association in this area and include holding meetings and symposia, conducting studies and surveys, promoting research activities, encouraging the exchange of information and expertise at the international level and preparing documentation on various aspects of this subject. In order to stimulate international action in this field the ISSA established two Permanent Committees, one dealing with the Prevention of Occupational Risks and the other with Insurance against Employment Accidents and Occupational Diseases. These Committees work in close collaboration and constantly follow the changing work environments and the emergence of new occupational diseases and examine the measures required to eliminate or reduce their consequences through the identification and adoption of suitable remedial administrative, medical and statistical measures.

The Permanent Committee on Prevention of Occupational Risks also has the important task of co-ordinating the activities of the nine ISSA International Sections for the Prevention of Occupational Risks which are financially autonomous bodies whose secretariats are decentralised with member organisations of the Association in several European countries. Each International Section specialises in a specific area, that is, agriculture, the chemical industry, the construction industry, the iron and steel industry, the mining industry, electricity, machinery guarding and information and communication techniques in the field of occupational safety and hygiene and there is one International Section which focuses on research in the area of prevention and promotes international cooperation and exchanges as well as co-ordinates research undertaken world-wide.

Within the framework of the ISSA's activities in this area the present Round Table Meeting affords an excellent opportunity for the exchange of knowledge and experience in a regional context with a view to harmonising basic principles and measures for safety, to resolve the emerging problems and to devise appropriate preventive activities.

On this occasion, it is my pleasure to thank the Honourable Minister of Labour, the Labour
Secretary, the Additional Labour Secretary and the officials of the Labour Ministry of India for their support in organising this meeting and the Director General of the Employees' State Insurance Corporation, her officials and the National Organising Committee for their active collaboration and for making such excellent arrangements. With over 35 years of social security behind it, India can take pride in being almost a pioneer in the field of social security in this part of the world. The range of protection provided by the ESIC and the magnitude of its operations exemplify its creditable performance as one of the largest social insurance institutions in the region. It is therefore highly appropriate that this Round Table Meeting should have been organised by a distinguished institution like the ESIC, bringing together eminent experts, pooling their vast experience and knowledge, to examine the vital aspects of social protection against occupational diseases.

I am confident that the deliberations at this Round Table Meeting will act as a catalyst engendering appropriate action, and that the discussions and conclusions formulated at this forum will provide useful guidelines for resolving some of the complex issues of the theme before you.

End of message

The Secretary General has asked me to express on behalf of the International Social Security Association our sincerest gratitude to the many experts present at this meeting and in particular to Dr Harald Maruna of the General Institute for Insurance against Employment Accidents and Occupational Diseases of Austria and Mr Bernard Moncelon of the National Research and Safety Institute of France. The presence of these two distinguished experts is an example of the international cooperation and collaboration which is the very foundation of ISSA's activities, for they are here not only as representatives of their respective institutions but also as members of the ISSA International Sections on Prevention. We would also like to extend our thanks to the International Labour Organisation for the continued support and contributions made to ISSA activities, on this occasion through the presence of Dr Alois David and on a permanent basis in the region through the Area Director.

Solidarity and cooperation between ISSA member organisations within a region is essential for the success of our action in the regional context and the technical contributions made towards this meeting by Dr Ved Prakash of India, Mr Sentanoe Kertonegoro of Indonesia and Dr James Keir Howard of New Zealand are a concrete example of this type of collaboration and we are very grateful for the excellent reports they have prepared.

I am sure that with so many highly qualified experts present here we will have a most fruitful and rewarding meeting.

Inaugural Address by Mr P A Sangma, Union Minister of State of Labour, India

It gives me great pleasure to be present here for the inauguration of this Asian Regional Round Table Meeting on Social Protection against Occupational Diseases, organised by the International Social Security Association during the year of its sixtieth anniversary. The activities of the International Social Security Association are well known to the delegates, observers and guests present here and need no description. The Regional Office of ISSA for Asia and the Pacific has been active, I believe, since 1974 and has done commendable work in the field of social security in this part of the world where social security needs are, in fact, much greater than in any developed part of the world. It is only befitting that the Employees' State Insurance Corporation should host this meeting, as it is one of the foremost social security organisations in the country.

Social security is a strong liberating force. It liberates its members collectively from the worry of want and economic hardship in cases of sickness, injury, death or confinement, factors over which they have little control. It has been justifiably claimed by experts that once a protected worker is assured of his steady income during such contingencies, he or she becomes an efficient and effective participant in the common effort for national growth and development. It is perhaps this characteristic which has created demand for more and more social security schemes all over the world. In fact, the extent of social security coverage, both in terms of population and spectrum of benefits, has become the
yardstick by which the economic progress of a
country can be measured today.

In India, even though legislations based on
the employers' liability principle like the
Workmen's Compensation Act and the State
Maternity Benefit Act existed during the foreign
rule, these could not be said to be the real
measures of social security. It was only after
the country attained independence in 1947 that
a real beginning in social security was made
when the Employees' State Insurance (ESI) Act
was passed in 1948 followed by the Employees'
Provident Fund Act, 1952. The ESI Act provides
for economic relief during periods of sickness,
maternity and employment injury and also cash
relief to family members in cases of death of
the bread winner due to employment injury.
The EPF Act provides for lump sum payment
as an old age protection. The Scheme of family
pension has also been introduced under the EPF
Act to provide protection to the family members
on the death of the bread winner. The two
schemes are, no doubt, meant for the protection
of the workers but since the basis of coverage
is different in both schemes, these have registered
varying progress in the past years of their
operation. When we take stock of how much
we have achieved we find that we have still a
long way to go. Out of a workforce of over
292 million in our country, the ESI Scheme,
being more comprehensive involving essentially
provision of medical arrangements, has been able
to cover so far 7.12 million workers while the
EPF Scheme has so far covered 13.81 million
workers. The ESI Scheme, actually protects 27.6
million beneficiaries including family members
who are entitled to medical care under it.

Apart from these two schemes, the central
and the state governments have provided social
security protection in some other areas as well.
A measure of insurance against lay-offs and
retrenchment has been provided in the Industrial
Disputes Act, 1947. Welfare funds and provident
fund for the coal miners have been in force for
a considerable time. Public assistance
programmes by some of the state governments
include old age pension schemes for the aged
having no source of income and no support. A
special legislation provides for payment of
gratuity to certain categories of employees in
factories, plantations, coal mines, ports, ships
and establishments.

It is relevant to mention that our Constitution
provides for a welfare state and the importance
and imperative need for social security has been
made a part of the Constitution itself. One of
the Directive Principles of the Constitution of
India is that the State shall, within the limits of
its economic capacity and development, make
effective provision for securing the right to work,
to education and to public assistance in case of
unemployment, old age, sickness and disablement
and in other cases of undeserved want. The Schemes I have mentioned are a step towards
achievement of this noble goal. Even so, our
coverage is very small compared to the population
in need of social security.

India, with a population of more than 760
million has basically an agricultural economy.
The population is preponderantly rural, the
urban population forming only 23 per cent of
the whole. Since the independence of the
country in 1947, there has been marked industrial
development and gradual movement of the
population from rural agricultural occupations
to urban industrial activities.

The greatest problem that developing
countries like ours face is their inability to
reach the rural and unorganised sectors of the
working population. In 1985, India had a total
workforce of 292 million. Of them, 230 million
were in the rural sector. Even among the
remaining 62 million workers in the urban areas,
only 24 million were in the organised sector.
The ESI Scheme has been extended so far to only
7.12 million urban workers and it has yet to
cover the remaining 54.88 million of these
workers, many of whom can only avail of free
medical care available at state hospitals.

In respect of rural workers, the paradox often
quoted in social security circles comes to be
painfully true, that those who can afford a social
security scheme may not always need it and those
who need it most cannot afford it. The rural
worker is not only too poor to afford the social
security contributions but the lack of security and
stability of his job compels him to move from
place to place and to remain at the mercy of his
employer, which prevents him from availing of
benefits. This is the reason for the inability of
the Scheme to reach the rural worker. This is
also true at least in part in respect of the Scheme's
inability to extend protection to the remaining urban workers in unorganized sectors. Essentially, what is required is a scheme simpler than the present ESI Scheme, a task which is quite difficult to achieve. We have no alternative but to re-define and re-fashion the techniques and strategies of social security schemes to bring within their fold the most vulnerable population even in the remote corners of the country and, at least, to provide a modicum of social security to them.

A worker pursuing an occupation is exposed to occupational risks, which cover two distinctive areas of occupational accidents and occupational diseases. The tendency has been to lay greater stress on occupational accidents and to ignore the importance of occupational diseases. Both these facets were examined at the ISSA Asian Regional Working Group Meeting on Occupational Risks held in Colombo in July, 1981, though even there greater stress was laid on occupational accidents. It is, therefore, heartening for me to know that the International Social Security Association has decided to highlight this neglected area of occupational diseases and has arranged a meeting on social protection against occupational diseases. This protection, obviously, will have to be within the framework of each country's social and economic conditions. The requirements will vary from country to country depending, among other things, upon the state of development of the country. For instance, India is undergoing development and at the same time suffers from poverty and disease. Therefore, a programme for prevention, recognition and treatment of occupational diseases in India will have to be a part of the total health programme. We are now trying to set up four regional centres in the country which will conduct research, identify the occupational diseases and suggest remedial measures. More emphasis on prevention rather than cure of diseases is clearly indicated as the conceptual and actual framework, in which the problem needs to be tackled. This has to be coordinated with measures intended to combat poverty, bring in industrial development and spread social enlightenment and education. The requirements of other countries which are represented here may not be identical. And yet, there are matters of universal importance which can be tackled by similar approach, say with regard to the system of recognition and identification of occupational diseases, prevention of occupational diseases, benefit for occupational diseases and rehabilitation of the affected. The deliberations in this meeting will help us find solutions to these problems.

I am sure that those who are participating in this meeting, whether as experts or as delegates and observers will benefit from one another's experience and will go back to their countries enriched with knowledge, skill and zeal to grapple with their own day to day problems of social protection against occupational diseases in their homelands.

I wish this meeting all success.

Vote of thanks by Dr Ved Prakash, Medical Commissioner, Employees' State Insurance Corporation of India

Before the curtain is drawn on this morning's opening session of the Asian Regional Round Table Meeting, it gives me immense pleasure, to take this opportunity to convey to all of you the profound gratitude on behalf of the Employees' State Insurance Corporation and the ISSA Secretariat for having joined us on this occasion.

The National Organising Committee is extremely grateful, to the Union Labour Minister, for gracing this occasion with his presence; the organisers, hosts, foreign delegates and other participants feel greatly honoured to have him in their midst. Mr Minister, I must also thank you for your inspiring address which was reflective of the Government's concern for the challenges facing the social security programme in India and other developing countries. Your emphasis on the need for international cooperation for the advancement of social protection programmes signifies the importance the participating nations and the ISSA attach to this meeting or those held elsewhere on a regular basis. Your spelling out some of the major challenges which the developing nations are confronted with, provided sufficient food for thought to the social security experts, occupational health researchers and other professionals in the audience. Your insight into the problems of social security in India, indicates the extent of your personal involvement in the welfare of the workforce in India, and for that
matter in the whole of Asia, the problems being identical in character.

The National Organising Committee has also desired me to convey its gratitude to the dignitaries from the Ministry of Labour whose contribution in organising this meeting has been significant. It was with their active support and assistance that the foundations for the Round Table Meeting were laid and with their presence at this inaugural session we feel further obliged.

Our thanks are also due to the Secretary General of the ISSA and the Regional Director of the Association, Mr Har Mander Singh, for their fullest cooperation in hosting the event. We are also grateful to Mr Singh for highlighting in proper perspective the activities of the Association and the topical importance of the three day meeting.

We are very grateful for the inspiring talk given by Dr Alois David from the Occupational Safety and Health Branch of the ILO, Geneva.

On behalf of the National Organising Committee I must also thank Mrs Prasad, Director General of the ESIC for her address to this session. Her guidance to us as the Chairperson of the National Organising Committee has been of great value.

I once again thank the Honourable Minister, distinguished guests, media persons and all of you for making it convenient to join us this morning.
Overview of social protection against occupational diseases

On the morning of 26 October, immediately after the opening session, the first technical session of the Round Table Meeting commenced with the presentation of the ISSA General Secretariat's *Introductory Report on Social Protection against Occupational Diseases*, by Mr Har Mander Singh, Director of the ISSA Regional office for Asia and the Pacific. The Report mentioned the need for viewing the prospects of protection in the context of the transfer of technologies to the developing nations, the identification of risks accompanying such transfers and the dissemination of information in regard to them. A constant re-assessment of occupational diseases from medical, scientific and social insurance legislation standpoints was called for, with a view to promoting greater awareness of occupational risks, safety measures at work, industrial medical supervision and avoidance of industrial diseases. The inadequacy of the available data relating to occupational diseases especially from the developing countries as indicated by the small number of reported cases of occupational diseases compared to the total number of employment injury cases, and the absence of periodical reviews of the situation through national studies, displayed a tendency to underplay the importance of occupational diseases and of the dearth of resources to counteract traditional and new occupational risks. There was a lack of uniformity in the legal definitions and provisions for recognition of occupational diseases in different countries.

The report traced the history of the acceptance of some diseases being occupational in character, beginning with the agreement at the International Labour Conference in 1925 on three diseases being occupational in character and the addition of new hazards, gaining recognition for as many as twenty-nine diseases under the ILO Employment Injury Benefits Convention in 1980. The report recounted the three established systems prevalent in the national legislations for listing occupational diseases, namely the closed list system, the general clause system and the open list system and their relative merits and demerits.

The report mentioned that legislation in several countries provided for special benefits in the event of long periods of exposure, in the form of anticipatory remedial treatment, transitional cash benefits and job assistance measures. Benefits provided after the occurrence of an occupational disease were generally identical to those awarded after an employment accident and included medical treatment, short-term and long-term benefits and in some countries special job assistance benefits, in addition to rehabilitation measures. The occupational risk insurance schemes relating to diseases and accidents were usually financed through contributions by employers, with employees also being called upon to contribute in some countries and occasionally the State also making a contribution. The contribution rates were fixed either as a percentage of the worker's earnings or according to the risk involved, the type of work and the size of the undertaking. In certain countries a system of increases or rebates was applied in relation to the actual accident experience of the undertaking.

Concerning medical treatment, there were variations in the system in different countries and while in some, occupational diseases were treated in the same manner and the same establishments as non-occupational diseases, in some others there were special establishments for the treatment of occupational diseases which also provided a comprehensive range of rehabilitation services.

The report emphasised the need for preventive measures and the importance of occupational
safety, the obligation of the employer to provide safe working conditions and the role of the labour departments and the social insurance institutions in ensuring minimum safety standards. It was socially and economically desirable to rehabilitate the injured worker particularly where further exposure could lead to recrudescence or increased incapacity.

Referring to the recent developments in insurance against occupational diseases in some countries during 1984—86, the report brought to light certain features such as the wider definition of occupational diseases, the system of graduated contributions depending upon the efforts made by an enterprise to promote occupational safety, the extension of coverage against occupational risks to several additional categories and an increase in the pension rates for occupational diseases.

The report recounted the preventive activities of the ISSA in the area of occupational diseases including the establishment of two Permanent Committees which stimulated international action and undertook special surveys and of the nine ISSA International Sections for the prevention of occupational risks specialising in various areas. The ISSA has been collaborating with the ILO since 1955 in organising World Congresses on the Prevention of Occupational Accidents and Diseases and has also been providing member organisations with regular opportunities to review trends and issues in the field of prevention within a regional context, through regional technical meetings.

The text of the report follows.
INTRODUCTORY REPORT ON
SOCIAL PROTECTION AGAINST OCCUPATIONAL DISEASES

By
GENERAL SECRETARIAT OF THE ISSA

INTRODUCTION

1. Occupational risks cover the two distinct areas of industrial accidents and occupational diseases. There is a tendency to lay greater emphasis on industrial accidents and in many cases to underplay the importance of occupational diseases. Both these areas were examined at the ISSA Asian Regional Working Group Meeting on Occupational Risks held at Colombo from 7-10 July, 1981. At the present Round Table Meeting in New Delhi, it is proposed to study the developments and progress since the Meeting at Colombo in 1981, in the field of occupational diseases.

2. The subject of occupational diseases is assuming great importance because modern technology is being increasingly applied in all areas, thus affecting the occupational life of a large number of workers and, in some cases, that of entire populations. In this context, the impact of modern technology in the fields of chemicals and atomic energy deserves special consideration. The International Social Security Association has always attached great importance to the prevention and compensation of occupational diseases. Studies undertaken within the context of the Association's activities in this area have covered the administrative, medical and statistical aspects of occupational diseases, the impact of insurance against employment accidents and occupational diseases on the prevention of occupational diseases, the impact of recent developments in technology on occupational diseases, the present state and evolution of occupational diseases in the light of the recognition of new types of diseases and the statistical investigations and surveys of several occupational diseases, particularly silicosis, lead or benzine poisoning and dermatosis.

3. Hitherto, the workforce in most developing countries was exposed to conventional occupational risks, but with the import of new technology in industry and agriculture, new risks—physical, chemical, environmental and even mental—are emerging. The developing countries, which are not adequately equipped to counteract the traditional occupational risks, are now faced with new risks. There is a dearth of standards of prevention and of legislation, and a shortage of the necessary expertise and of trained personnel and a lack of awareness of the gravity of the occupational diseases as well as insufficient enthusiasm for their prevention. The prospects of protection against occupational diseases need to be viewed in the context of the trend in developing nations to raise productivity in industry and agriculture through the transfer of technologies with its inherent risks for which these countries are neither sufficiently prepared nor informed. It is essential that the occupational risks accompanying new technologies are identified and suitable legislation is passed and information in regard to them is disseminated without loss of time.

4. The state of occupational diseases forms part of the dynamic process of expansion of science and technology and needs to be constantly re-assessed from medical, scientific and social insurance legislation standpoints. In this way, one may bridge the gap between the state of scientific knowledge and the state of legislation. Almost one thousand new chemicals are estimated to enter the market each year and workers are being constantly exposed to new risks. It is believed that about 80 years will be necessary for an assessment to be made of the toxic properties of some 40,000 new chemical substances. From this it is clear that there is a need for an international exchange of experience on the manner in which the constantly-changing state of occupational diseases is to be assessed from medical and insurance legislation standpoints. A greater awareness of industrial risks will help in promoting measures of safety at work and industrial medical supervision and avoidance of industrial diseases.
THE IMPACT OF NEW TECHNOLOGY ON OCCUPATIONAL DISEASES

5. A special study regarding the influence of new technology on the incidence of occupational diseases was carried out by the ISSA and was published in 1980. The study, based on investigations in 11 countries, namely; Austria, Brazil, Cameroon, Finland, Federal Republic of Germany, Great Britain, Italy, Malaysia, Philippines, Switzerland and the USA showed that the effects of new technological developments in terms of the appearance of new occupational diseases or an increase in the existing ones, differed from one country to another. In six of the countries namely Austria, Finland, Federal Republic of Germany, Malaysia, Philippines and Switzerland, technological progress had not resulted in an increase in the number and severity of occupational diseases and consequently there was no deterioration in the health situation of the population. The increase in the incidence of occupational diseases in varying degrees in some of these countries was not due to the use of modern technology, but to other causes. In three countries, namely Brazil, Cameroon and Italy, an increase in the number and severity of occupational diseases was noted, but the repercussions on the health situation of the population varied. The sectors of production most affected, wherever a deterioration in the health situation was noted, were chemicals, plastics, dyestuffs, adhesives, metal processing, printing, dry cleaning, tin processing, woodworking industries and, to a certain extent, agriculture. The results of the study showed that on the whole technological progress did not have any significant repercussions on the health situation of the population in general.

6. The study also revealed that occupational safety and health measures to control occupational diseases formed part of the general preventive measures already existing or planned and in nearly all the countries no specific measures had been introduced to control occupational diseases due to new technological processes. Many laws already existed or were planned, such as legislation concerning the substitution of non-hazardous substances for hazardous ones, use of personal protective equipment, specific on-target information and instructions, changes in the structure of accident prevention services and techniques, improvement of workplace safety and health and new measures in technical and medical organisation, especially the reorganisation of occupational medicine and specific measures to reduce the rapidly-rising incidence of noise-induced hearing loss in a number of countries.

7. The study indicated that there is no clear distinction between the control of occupational diseases through the accrual of general experience and such control as a result of technological progress. This is also true in cases where, apart from other causes, most recent advances in technology have resulted in a reduction in the number and severity of the existing occupational diseases. This is evident in the sharp drop in the number of silicosis and silico-tubercular cases in the Central European countries of Austria, Finland, Federal Republic of Germany and Switzerland.

8. Changes in technology are inevitable and since new occupational diseases come in their train, it would seem to be reasonable to review the situation periodically. Many countries have arranged for national studies on this aspect to be undertaken from time to time.

INADEQUACIES OF MEASURES OF PROTECTION AGAINST OCCUPATIONAL DISEASES

9. An examination of the available data in respect of existing employment injury insurance schemes reveals that they often concentrate on employment accidents rather than on occupational diseases. On the other hand, a number of studies on occupational health problems have pointed to a greater impact of workplaces on the health of the workers than is borne out in the regularly published statistics on the incidence of occupational diseases. This is due to the fact that the statistics often virtually exclude chronic illnesses or illnesses with a long incubation period whose relationship to the job frequently surfaces only after retirement or death. Another reason is the inadequacy of the facilities for the identification and diagnosis of occupational diseases and other work-related illnesses. Continued efforts towards better methods are needed to produce national estimates of greater credibility concerning chronic and latent components of diseases of job origin. Such efforts should include improved techniques for diagnosing occupational diseases, more
sophisticated and efficient means of monitoring the workers' health, education and training of doctors and workers regarding health hazards on the job and epidemiological studies and methodology for determining the contribution of job exposure to the origin and cause of the disease.

10. Occupational hazards are a major cause of mortality and morbidity today. Yet issues of occupational safety and health, particularly in relation to diagnosis and prevention of occupational diseases and the legal entitlements of victims to benefits have long been neglected by the medical establishments. In most cases, the workmen's compensation schemes have failed to provide adequate protection for the victims of occupational diseases. In this context, the experience of one of the most advanced countries, USA, highlights the inadequacy of the medical establishments and the workmen's compensation schemes in dealing with the problem of occupational diseases and their prevention.

11. The United States Department of Labor reported that in 1974, approximately 650,000 workers were designated as severely disabled because of occupational diseases, out of which only 5 per cent received workmen's compensation benefits. A much larger percentage, relied on other federal or state programmes for benefits: 53 per cent drew social security disability benefits and smaller percentages received disability benefits from the Veteran's Administration, public assistance, pension schemes or private insurance. Approximately 34 per cent of the total number received benefits from more than one of these programmes, most benefits overlapping with social security. Twenty-two per cent received no income support from any programme whatsoever. Although more up-to-date national data is not available, a preliminary examination of more recent statistics available from the workmen's compensation boards in some States indicates that the percentage of victims of occupational diseases receiving workmen's compensation benefits has not grown appreciably since 1974. The main reasons identified for the inadequacy of the workmen's compensation schemes are as under:

— Workmen's compensation schemes were designed at the turn of the century to afford financial and medical benefits to the victims of industrial accidents, and not diseases. Coverage was later extended to include some occupational diseases and more recently in many States to include "any and all occupational diseases".

— Occupational diseases are often slow starting and caused by several factors. Many of these have long latency periods and a significant time gap elapses between the workers' first or even last exposure to the hazard and the manifestation of the disease. Hence, many of the policies and principles of the systems that formed the basis for determining compensation in cases of occupational accidents which are the result of sudden, unexpected and unforeseen events as well as being situations in which the cause and effect are easily recognisable, are not suited and are inapplicable to cases involving occupational diseases.

— Cases of work-related diseases are often not brought to the attention of the workmen's compensation schemes because physicians, health personnel and social workers are not trained to recognise the connection between occupational exposure and illness.

— Physicians are often unwilling to accept workmen's compensation cases for treatment because of the large amount of paperwork required, the relatively low fees paid and the excessive time needed for testimony and also because the criteria for determining the work-relation of the illness are ambiguous. For example, in the case of a smoker exposed to asbestos, the risk of contracting lung cancer is five times greater than if smoking was the only factor and more than 50 times greater than the risk for a non-smoker not exposed to asbestos; but most physicians would rather not state what, in their opinion, is the causative agent in cases of lung cancer in which both smoking and asbestos exposure are factors.

— Affected workers or their survivors are often unaware of their eligibility for benefits.

— Although originally designed to be a
no-fault system, today the system places the burden of the proof on the individual worker in benefit claims for occupational diseases.

Administrative inefficiency and the widespread policy of industries and insurance carriers to contest every claim for workers' compensation, even if its *prima facie* merits are clear, are obstacles to the provision of compensation benefits for occupational diseases. All necessary efforts should therefore be made to overcome the above-mentioned inadequacies and obstacles so that the victims of occupational diseases and job-related illnesses are able to receive the compensation to which they are entitled under the workmen's compensation schemes.

IDENTIFICATION OF OCCUPATIONAL DISEASES

12. Data relating to occupational diseases, especially from developing countries, is not easy to obtain. Very often, the statistics concerning diseases are included in those for occupational accidents because the figures related to diseases are so small as to be almost insignificant as compared to the total number of employment injury cases.

13. Most countries provide for a legal definition of occupational diseases. For example, in the Federal Republic of Germany, Great Britain, Italy and USSR, it is explicitly or implicitly stated that for an occupational disease to be recognised as such, specific groups of persons must be exposed to the risk to a substantially greater extent than the rest of the population. In Switzerland, the law provides that the disease must be caused "mainly" by an occupational activity. In Austria and Finland, an occupational disease is defined as one arising as a result of specified and clearly-defined physical, chemical or biological factors. In the Philippines, occupational diseases include the listed diseases as well as others arising from work; there is also the negative requirement that the worker should not have shown any clear negligence in relation to the circumstances that led to the disease. In the USA, there is no uniform federal legislation on employment accidents and occupational diseases, but such diseases are treated under civil law on the basis of the definition of an employment accident as "arising out of and in the course of employment" or under the heading of "accidental".

14. It has not been easy to agree on a list of diseases caused by occupational activity. In 1925, the International Labour Conference was able to agree on only three diseases which could be described with any certainty to be occupational in character and important enough to deserve compensation. These were: poisoning by lead, poisoning by mercury and anthrax infection. The impact of technological progress brought in its train many new hazards and the ILO Employment Injury Benefits Convention, 1964 (No. 121), listed 15 occupational diseases. In 1980, this list was revised to bring the total number to 29.

15. There are three ways in which national legislations usually establish a system for the compensation of occupational diseases. These are:

— the "closed list" system: which is found, for example, in Great Britain, Italy, Malaysia, the Philippines and the USSR. Under this system, a list of proven and accepted occupational diseases is prescribed which may be similar but not necessarily the same as the ILO list. Only such diseases as are prescribed are accepted so that there is an arbitrary distinction between these and others which, although they may well be of occupational origin, are outside employment injury coverage. Significant variations between lists of occupational diseases of various countries exist, partly because of the different attitudes and mainly because of the differences in local industries and hazards;

— the general clause system: exists in various States of the USA and under this system the occupational origin of any disease is accepted provided that, by its nature and incidence, it can reasonably be attributed to the claimant's employment. This system transfers the authority to recognise a disease as occupational from the legislature to the administrative and judiciary authorities and leaves the burden of proof, at least formally, upon the injured worker.
—the "open list" or mixed system: as in force, for example, in Austria, the Federal Republic of Germany and Switzerland, combines the two systems mentioned earlier. Under this system, apart from a prescribed list, the administrative authority has the power to add new diseases when experience and research have proven that a particular disease is specific to a particular occupation.

16. It should be recognised that each system has its merits. The very existence of a list creates a legal presumption in favour of the worker in a prescribed occupation. The inclusion of a disease in the schedule is dependent on medical and statistical observations on the relationship between the exposure to the risk and its effect requiring compensation. The use of this concept and the existence of lists have enabled persons with symptoms of diseases recognised as being of occupational origin to obtain compensation without having to prove that the disease from which they suffer was not caused by reasons other than occupational exposure. The restrictive conditions attached to these diseases also have a compulsory character and the non-fulfilment of these conditions cannot, therefore, give rise to compensation. In some lists, certain items of information are in the nature of guidelines for the experts called upon to decide whether or not the disease is occupational in character.

17. The more open the system becomes, the more the burden of the proof can fall upon the worker which, in some cases, can result in a conflict of interest between the worker and the institution responsible for meeting his claim. However, it is generally accepted that the mixed system is the most suitable one for compensating occupational diseases since it combines the breadth of the general clause system with the list system under which the occupational origin of a disease is established more easily for the worker. As far back as in 1962, the Commission of the European Communities had recommended the adoption of the mixed system that would allow those suffering from diseases not yet officially recognised as having an occupational origin to enjoy a right to compensation, provided that they could supply proof of the occupational origin of the disease. The Commission also drew up a European schedule of occupational diseases and recommended that the member countries examine more closely the possibility of including in their national schedules all the diseases listed in the European schedule and exchange information on contentious cases.

18. Another aspect of identification of an occupational disease is the authority statutorily responsible for taking the initiative leading to the recognition of a disease as being of occupational origin. In some countries, like Cameroon, Malaysia and Switzerland, the legislative body determines the occupational diseases. In some countries, the legislature delegates responsibility to another body for determining individual occupational diseases within the framework of the statutory definition, as in the Federal Republic of Germany, where the federal Government is authorised to issue statutory orders in this respect, and in the Philippines, where occupational diseases and other diseases arising from work are determined by the Employees' Compensation Commission. In the USA, where no statutory definition exists, any dispute as to whether a particular disease is to be considered as occupational in origin or not has, in the last resort, to be settled in a civil court: the initiative for the determination of a disease as being occupational may come from physicians, trade unions, employers, insurance bodies and official authorities. There are statutory and non-statutory commissions of experts as in Cameroon, the Federal Republic of Germany and Great Britain which advise the legislature or the competent authority empowered to compile lists of occupational diseases. The existence of comprehensive and centrally-kept documentation libraries on occupational diseases in some countries provide considerable help in this context. For example, in Finland, all doctors and insurance bodies are required to report all cases of occupational diseases or other diseases arising from work, through the governmental Labour Protection Authority to the Institute of Occupational Health, which operates a register of occupational diseases. A system of documentation of occupational diseases also exists in the Federal Republic of Germany. The knowledge and information provided in the documentation with regard to the causes, manner of occurrence, progress and consequences of occupational diseases, together with information on the characteristics of new occupational diseases become especially important in relation to prevention and rehabilitation measures for particular types of diseases. Such
documentation is all the more important, for example, in the USA where in some of the States there is no legal definition of occupational diseases.

BENEFITS FOR OCCUPATIONAL DISEASES

19. Benefits for work injuries are the oldest and most widespread social security measures and the trend in recent years has been towards covering occupational risks through social insurance schemes rather than employers' liability schemes. There are, however, some exceptions. In Argentina, for instance, while the Constitution provides for the introduction of a social insurance scheme, the scheme in operation is still rudimentary and does not award cash benefits; the employer is considered liable under the civil law except where there is gross negligence on the part of the victim. In Morocco, the existing provisions are based on the French legislation of 1898: the employer's responsibility is limited to invalidity caused by an accident or an occupational disease and to providing compensation in the initial stages. The employer can insure himself with a private company and pay a premium for the risks inherent in the establishment's activities as well as paying contributions to various funds set up by the law to deal with other risks such as the adjustment of pensions and compensation in the event of the employer becoming bankrupt. If the employer prefers not to take out an insurance, he can make a direct settlement by paying a capital sum to an appropriate fund to cover pensions together with contributions to other funds mentioned above.

20. In many countries where there is compulsory insurance, the occupational risks branch is autonomous and independent from the other social security funds. This is, however, not the case in countries like Belize, Benin, Bulgaria, Cyprus, Great Britain, Greece, Honduras, India, Jersey, Mauritius, Norway, Philippines, Spain, Sweden and USSR which, either because they have a centrally-planned economy and/or for historical reasons or by choice have adopted integrated social security systems.

21. Benefits for occupational diseases can be considered from two aspects, namely, before and after the occurrence of the disease. There is generally a long period of exposure prior to the onset of an occupational disease. The concept of benefits can, therefore, be linked to the general measures for prevention. For the latter, legislation in several countries provides for special benefits in the form of anticipatory remedial treatment, transitional cash benefits and job assistance measures. Thus, for example, in the Federal Republic of Germany, the insuring institution is required to use all suitable means to counter the occurrence, recurrence or worsening of the danger of an occupational disease and, if the danger cannot be avoided, the institution is required to call upon the insured person to give up the dangerous activity and to provide him with special benefits in the form of job assistance, such as allocation to a new workplace and retraining, as well as cash benefits. In the event of a job change leading to a lower income, the financial disadvantages are required to be compensated through transitional benefits or a transitional pension. In Italy, a transitional pension is admissible for persons suffering from silicosis or asbestosis whose earning capacity has consequently been reduced to less than 80 per cent, if the insured person gives up the activity causing the disease. In the USSR, there is entitlement to the difference between the former and new earnings for the period of temporary assignment up to one year. The Austrian law grants special voluntary benefits which enable the insured person to take up an employment at a workplace where he is no longer exposed to the risk; in addition, measures for medical, vocational and social rehabilitation are also provided. A reduction in earnings or other economic drawbacks caused by the change of employment can be compensated by granting a transitional pension or by paying a transitional benefit corresponding, at the maximum, to the amount of the full annual pension.

22. The benefits provided after the occurrence of an occupational disease are generally the same as those awarded after an employment accident and consist of treatment, short-term and long-term cash benefits and, in some countries, such as Austria, the Federal Republic of Germany, Italy and Switzerland, a special job assistance benefit. The rates are generally higher than those for ordinary sickness and the conditions of eligibility are more favourable to the insured person. Thus, in Finland, the employment injury pension is paid
where there is at least 10 per cent reduction in earning capacity while, under insurance against incapacity for earning, the minimum is 40 per cent. In the USSR, in contrast to the conditions applied for general sickness compensation, the benefit for temporary incapacity arising out of an occupational disease is independent of the period for which the person has worked or has been a member of a trade union. Some countries, such as Great Britain, Italy and the USA, have special schemes of compensation for pneumoconiosis. In Great Britain, under the scheme for pneumoconiosis and byssinosis, the weekly pension is paid even when there is less than 20 per cent reduction in earning capacity—and where it is 10 per cent or less, a lump sum is paid, while for other occupational diseases no pension is paid for a reduction in earning capacity of less than 20 per cent. In Italy, in contrast to the position concerning occupational diseases in general, the law does not specify any time limit for the first determination of symptoms of silicosis or asbestosis after the cessation of exposure to the risk.

23. As regards the financing of occupational risks insurance schemes, the traditional assumption that the employer should be liable for compensation when an employee suffers from a disease or accident at work inevitably leads to the employer bearing the full cost. In many countries, the employee is also called upon to pay a contribution and this is often the case where occupational benefits are a part of, or overlap with, other branches of social security such as sickness and maternity. Occasionally, the State also contributes, as in Cyprus, Great Britain, Honduras, Jersey and Venezuela. In many countries, the rate of contribution is a fixed percentage of the earnings of all workers and do not vary according to the risk involved or the type of industry or undertaking. This is the situation in countries such as Austria, Barbados, Belize, Bulgaria, Burundi, Congo, Cyprus, Finland (agricultural workers) Great Britain, Honduras, Iceland, India, Ireland, Italy (agricultural workers), Malaysia, Mexico (government employees), Norway and Sweden. The countries where contributions vary according to the inherent risk and the types of work include Belgium, Canada, Colombia, Finland (employees), France (agricultural workers), Greece, Haiti, Israel, Italy (workers in industry and the tertiary sector), Ivory Coast, Panama, Spain, Switzerland, the USSR and Venezuela. In some countries like Denmark, France and the Federal Republic of Germany, the rate of contribution varies according to the risk and the size of the undertaking. In certain countries, increases or rebates are applied in relation to the actual accident experience of the undertaking, as in Belgium, Canada, Colombia, Finland (large and medium-sized undertakings), France, the Federal Republic of Germany, Greece, Israel, Italy (industry and the tertiary sector), Mexico and Spain.

TREATMENT OF OCCUPATIONAL DISEASES

24. There are variations in the system of medical treatment for occupational diseases in different countries. While, for example, in Great Britain and, for some benefits, in Italy the treatment is provided by the national health service, in the Federal Republic of Germany, the accident insurance institutions offer special treatment. In Great Britain, occupational diseases are treated in the same manner and in the same establishments as non-occupational diseases. In the Federal Republic of Germany, there are special establishments for the treatment of occupational diseases which also provide a comprehensive range of rehabilitation services. The treatment provided at these establishments is not limited to respiratory diseases but covers all diseases of occupational origin under physical medicine, with special emphasis on the respiratory and circulatory organs. For occupational diseases involving surgery and orthopaed, treatment is given at the accident clinics of the industrial accident insurance establishments.

PREVENTION AND REHABILITATION

25. In order to reduce the rate of occupational diseases, safety must be considered an essential element of good working conditions and compensation should only be required when preventive measures fail. An employer has the duty to provide for the safety of his workers at all times. The labour departments, social insurance institutions and many general insurance companies employ inspectors who are given training in occupational safety and health and the employers are expected to meet the minimum safety standards set. Surveys of working
conditions in industries are undertaken from time to time. The measures adopted for safeguarding against machinery and processes and also against such hazards as dust, heat and noise have resulted in significant reductions in the number of claims for occupational diseases in many countries. In several countries, specialist bodies have been set up to deal with prevention and working conditions generally.

26. It should be noted that figures which show a decline in the number of occupational diseases are sometimes influenced by the introduction of new mechanised processes leading to fewer workers being employed in the industries.

27. The rehabilitation of the injured worker is socially and economically desirable, particularly in cases where further exposure to the previous conditions may lead to recrudescence or increased incapacity. It is not unusual, in cases of occupational diseases, to find that a change of job is essential and rehabilitation is necessary. Growing interest in rehabilitation is evident in many countries and takes many forms.

CONCLUSION

28. In recent years, the introduction of improved mining, manufacturing and industrial techniques, reduction in labour forces in high-risk industries as a result of modern technology and improvements in health and safety standards have all contributed to fewer cases of occupational diseases. Nevertheless, the risks, especially in countries developing new industries, should not be underestimated. The need for prevention, compensation and rehabilitation for persons exposed to occupational diseases will continue to be necessary. Greater stress on prevention is imperative and the emphasis must go beyond the early detection of the diseases and the superficial relief of the symptoms to an attack on the social and technological roots of the causative factors. This is the only way to reduce the number of work-related casualties. Workers who are disabled or have contracted an occupational disease should have access to all forms of rehabilitation necessary for their reintegration into the community. Social security schemes should participate more actively and provide financial support to rehabilitation programmes.

29. It is possible that some countries have been slow to react to the changing requirements in the area of legislation and consequently find themselves with closed lists which may no longer meet the current needs. In such cases, the list associated with the ILO Convention No. 121 (as amended in 1980), should provide a useful basis for a more comprehensive national list. Many countries have arranged for periodic national studies to review the situation arising from new occupational diseases occurring in the train of changes in technology.

30. In the field of occupational diseases, one tends to think of high-risk industries and to forget the various forms of stress involving such conditions as eye-strain and backache which may be occupational in origin. There is a need to expand the range of officially-recognised compensable diseases to include psycho-social and stress conditions. The possibilities are endless and need to be tempered by medical opinion and the ability to meet the costs. It should be left to each country to determine which diseases it will accept as being occupational in origin.

31. Specialist knowledge and medical equipment is often required to identify an occupational disease and the degree of incapacity. The present standards for the training and selection of occupational physicians and safety specialists need to be improved and made more specific. Furthermore, occupational diseases as a medical speciality should be developed in new directions.

32. The ILO Convention No. 121 indicates that compensation should normally be by means of periodic payments and only in exceptional circumstances, when the authorities have reason to believe that a lump sum will be used in a manner which is advantageous for the injured person, should the benefit be paid in the form of a lump sum. The Convention, however, acknowledges that for so long as a country lacks the administrative facilities to make periodic payments, benefits in a lump sum form will probably be unavoidable.

33. In many countries, the great majority of
the workforce remains excluded from coverage against occupational diseases by virtue of being self-employed or because they are family workers involved in subsistence level rural pursuits. Such workers are not less exposed to occupational diseases but are, in fact, a particularly vulnerable group whose inclusion within the schemes should be considered a priority in many countries in the context of social security development and progress.
As a result of a comprehensive reform of social security in Algeria, from January 1984, the definition of occupational diseases has been extended to include all types of poisoning, infections and affections, which are enumerated in a list that also shows the work liable to cause diseases, the duration of exposure to the aforesaid risks and duration of liability after exposure to the risk has ceased. A social security body has been given the responsibility for prevention, in liaison with other competent bodies, and manages a prevention fund for that purpose.

In Australia, insurance schemes relating to employment accidents and occupational diseases have been revised in several States. The New South Wales Government has introduced new conditions for private insurance companies administering its scheme, requiring them to submit new applications for continued eligibility. Contributions are to be reduced by approximately 20 per cent and will be graduated in the light of efforts made by the enterprise to promote occupational safety. In September 1985, the State of Victoria constituted an Accident Compensation Commission to administer their new programme. Large enterprises may, however, administer cover against the risk themselves if they meet governmental requirements.

In the Bahamas, the coverage for occupational risks has been extended to several categories of self-employed persons, including fishermen owning their own boats, haulage contractors and dealers in fresh food.

In Cameroon, pensions for employment injury and occupational diseases were increased by 15 per cent.

In Canada, insurance against employment injuries and occupational diseases has been extended to young persons engaged in community work for whom coverage has become compulsory. Voluntary membership is now open to domestic workers joining individually or by collective agreement and to self-employed persons. Victims of employment injury and occupational diseases are entitled to physical, social and vocational rehabilitation.

In Costa Rica, membership of the Occupational Risks Insurance Scheme has been made compulsory for all workers from October 1985.

In the Dominican Republic, the increase in the maximum income for social security coverage has considerably improved the scope of protection against occupational risks.

In the Islamic Republic of Iran, coverage for social security protection against occupational risks was extended to various groups of agricultural, forestry and fishery workers and to public sector employees not covered by special schemes.

In Ireland, as a result of the review undertaken, the prescribed list of occupational diseases for protection under the Occupational Risks Scheme has been extended to include bronchial asthma, toxic poisoning, non-endemic infections, parasitic diseases, viral hepatitis and occupational deafness. Other diseases included are vitiligo, angio sarcoma of the liver, ostolysis of the terminal phalanges and carcinoma of the nasal cavity. The inclusion of non-endemic infections and parasitic diseases ensures that the Irish Volunteer Department workers who might contract these diseases while working on projects in developing countries would qualify for benefits under the Scheme.

In Switzerland, the scheme of protection against occupational risks has been drastically modified. The new Act extends the scope of insurance, introduces numerous amendments to benefits, regulates accident prevention in a different way, makes all employees subject to the compulsory insurance scheme and offers optional insurance for employers and self-employed persons on the same terms as for employees.

In Turkey, a new scheme for agricultural employees came into force in 1984 providing them with the same protection as that offered to other workers by the Social Insurance Act.
ISSA'S ACTIVITIES IN THE AREA OF OCCUPATIONAL DISEASES

The prevention of occupational risks and diseases is an integral part of the overall concept of social security. The International Social Security Association has over the years developed an extensive range of preventive activities and support and commitment towards this goal have become increasingly widespread.

In order to organise and develop activities in these areas, the ISSA created two Permanent Committees: the Permanent Committee on Prevention of Occupational Risks and the Permanent Committee on Insurance against Employment Accidents and Occupational Diseases. These Committees work in close collaboration, stimulate international action in the field of prevention and undertake special surveys. Experts in the different areas of prevention are brought together at the meetings of the Permanent Committees which take place twice during each triennium. These experts carry out international studies on themes of current impact and the subjects to be examined during the period 1987 to 1989 are the following:

—strategies to prevent the effects of harmful substances on the individual and to evaluate “noise” and “vibrations” as sources of ill-health;

—integrated strategy on several fronts for effective prevention of occupational risks, traffic accidents and accidents at home;

—commuting accidents under insurance against employment accidents and occupational diseases; and

—benefits in kind under insurance against employment accidents and occupational diseases.

The Permanent Committee on Prevention of Occupational Risks has functioned from the outset as a planning and co-ordinating body for the activities of the Association in this field. It later assumed this responsibility with respect to seven ISSA International Sections for the Prevention of Occupational Risks specialising in various sectors of industry and agriculture, and two ISSA International Sections dealing with information and communication techniques in the field of occupational safety and hygiene, and with research in this area. These ISSA International Sections are financially autonomous bodies whose secretariats are decentralised with member organisations of the Association in several European countries. The activities of the International Sections, each in its own field of competence, consist of:

—exchange of information between bodies active in the prevention of occupational risks;

—organisation at the international level of meetings of technical working groups, round tables and symposia;

—conducting surveys and studies;

—research activities;

—publication of relevant information.

These Sections presently have more than 250 members. Although the majority of the membership originates from European countries, many Sections also have members from other continents. The different Sections are listed below:

—ISSA International Section for Agriculture
—ISSA International Section for the Chemical Industry
—ISSA International Section for the Construction Industry
—ISSA International Section for Electricity
—ISSA International Section for Information
—ISSA International Section for the Iron and Steel Industry
—ISSA International Section for Machinery Guarding
—ISSA International Section for the Mining Industry
—ISSA International Section for Research
Over the years, the ISSA International Sections have organised more than 100 International Symposia. Presently, about 35 working groups are studying specific prevention subjects.

Within the framework of the activities of the Permanent Committee on Prevention of Occupational Risks, the ISSA has been collaborating with the International Labour Office since 1955 in the organisation of World Congresses on the Prevention of Occupational Accidents and Diseases. These Congresses offer a platform for the exchange of experience and new ideas and developments in this area, and the importance attached to this forum is clearly illustrated by the high participation which ranges between 1,500 and 2,000 specialists from all over the world. The XIth World Congress on the Prevention of Occupational Accidents and Diseases was held in Stockholm, Sweden, from 24 to 29 May 1987.

Apart from this wide range of international activities, the ISSA also provides member organisations with regular opportunities to review trends and issues in the field of prevention of special relevance within a regional context, through regional technical meetings. The present Round Table is one such meeting.

**SOURCE MATERIAL**


Current developments in the field of occupational diseases with special reference to their identification and compensation

Chapter IV

The report on the first item of the agenda namely *Current Developments in the Field of Occupational Diseases with Special Reference to their Identification and Compensation* was presented by Dr Ved Prakash, Medical Commissioner of the Employees' State Insurance Corporation of India. This report was based on the information and material furnished in national monographs from social security schemes of Australia, India, Indonesia, New Zealand, the Philippines and Saudi Arabia.

The report referred to the general diffidence and hesitation in establishing employment as the cause of an occupational disease, since its adverse effects manifested after a considerably long period. Legislation and regulations relating to occupational safety and health existed at various levels in most countries but usually the situation was one of multiple responsibility with more than one agency being entrusted with the activities concerning recognition, treatment, compensation, supervision and prevention of occupational diseases. The list system of occupational or notifiable diseases, creating a presumption in favour of the worker in a prescribed occupation, had been adopted in a number of countries and in some countries, the list or schedule of occupational diseases had a flexible provision ensuring compensation for any other disease directly attributable to employment. The emphasis generally was on compensation rather than on prevention of occupational diseases. Medical treatment was usually for as long as the person's condition required it and was rendered by the normal medical services and there was hardly any separate institution dealing specifically with occupational diseases in the reporting countries. The social security institutions were mainly concerned with compensation and at best played only a supportive role in the areas of enforcement and prevention through cooperation with the concerned agencies and by providing some financial assistance to these bodies.

Owing to a general lack of knowledge and training, the absence of universally acceptable criteria for diagnosis, the inadequacy or lack of the required diagnostic equipment and the non-existence of industrial medicine as a speciality in some countries, physicians found themselves handicapped in establishing with absolute certainty that a disease was of occupational origin. There was, on the whole, no organised or reliable system of collecting statistics and the reported statistics were often unreliable. The report concluded with the observation that there was a general awareness regarding the necessity to undertake further indepth studies, with a view to making identifications simpler and prevention more effective. To achieve these objectives it was necessary to adopt a systematic and organised approach, learning from the experience and systems of more developed and advanced countries.

The text of the report follows.
CURRENT DEVELOPMENTS IN THE FIELD OF OCCUPATIONAL DISEASES
WITH SPECIAL REFERENCE TO THEIR IDENTIFICATION AND COMPENSATION

By
Dr Ved Prakash

INTRODUCTION

Modern social concepts require the State to respect and promote the health of all citizens. The workers occupy a special place in the development of the State and are, therefore, given special attention. The progress of a country to a very large extent depends on the health of its workers and the State endeavours to protect and promote their health by various national health and social programmes. Social and health insurance schemes have their origin in the State’s efforts to achieve this objective. But health and its maintenance continue to be a major social investment and challenge for all.

Many of the social security programmes provide for assistance during contingencies of sickness, maternity, injury, disability, death and unemployment, but employment injuries have from the very outset of such schemes received special attention and continue to do so.

A worker pursuing an occupation is exposed to occupational risks. Occupational risks cover two distinct areas consisting of occupational accidents and occupational diseases. In most countries, the tendency has been to lay great stress on occupational accidents and to ignore the importance of occupational diseases. Both these facets were examined at the ISSA Asian Regional Working Group meeting on Occupational Risks held in Colombo in July 1981, although even at that forum, accidents overshadowed the diseases. This appears to be natural as occupational accidents are ghastly, sudden, immediately noticeable and it is easy to establish employment as a cause while in the case of occupational diseases, the process is long and drawn out, the adverse effects are noticeable usually after a very long time and there is always hesitancy as well as difficulty in establishing employment as the cause of the disease. It is therefore heartening to note that the ISSA has decided to highlight this relatively neglected area and has organised a Regional Round Table Meeting on Social Protection against Occupational Diseases.

The participating countries were required to submit national monographs on social protection against occupational diseases. National monographs were received from India, Indonesia, Malaysia, New Zealand, the Philippines and Saudi Arabia, and Australia provided two reports on the subject. On the basis of the material furnished by the countries, the present report was prepared on these countries’ activities in the field of occupational diseases with special reference to their identification and compensation. I am grateful to the respective organisations of these seven countries for preparing and sending these monographs and reports which have been used extensively in the present document.

AUSTRALIA

In Australia, legislative and administrative responsibility for compensation of workers in respect of employment injuries rests mainly with the State and Territory Governments, each of which has a separate scheme; the Department of Social Security has only a limited role in this area. Consequently, the Department was not in a position to prepare a national monograph on occupational diseases in Australia; but, instead, sent two publications, namely Workmen’s Compensation and Social Security: An Overview by Donald Stewart (Report and Proceedings No. 63, November 1986, the Social Welfare Research Centre, University of New South Wales, Australia) and a Report by the Advisory Committee on Prices and Incomes: The Costs of Worker’s Compensation in Australia, which provided the following information on the situation in Australia.

Legislation

Common law compensation for work injury in Australia operates in conjunction with
statutory/no-fault compensation schemes for most of this century. Recently, other innovations have seen a limiting of common law actions and their substitution with bureaucratically-administered forms of compensation for employment injuries.

Work environments are places in which several factors, either physical, chemical or psychological, may act detrimentally against the health and well-being of workers. The effects manifest themselves as work-related injuries and have been the subject of much debate and community interest for the past 180 years and in particular during the last 100 years. The work environment is regulated by a complex legal framework which is applied through public, administrative, judicial and enforcement bodies. The main aim of these laws is to provide a measure of protection for the work-injured.

Legislation relating to health and safety in the workplace exists at both State and Federal levels. There are at least 132 different items of safety legislation as well as hundreds of sets of regulations in Australia. The recently-established National Occupational Health and Safety Commission, which was renamed Worksafe Australia, represents an initial step towards introducing some uniformity in the area of safety legislation. For the present, however, the States still retain their individual jurisdictions.

Liability in the workplace, that is the liability of management, is generally restricted to a limited range of physical and chemical factors considered to be directly related to trauma accidents and a limited number of diseases and illnesses. Other non-specific diseases which can often be associated with unfavourable working conditions, for example some forms of heart disease, allergic diseases, over-use injuries, psychological disorders and psychosomatic diseases, may not be specifically referred to in compensation legislation. As such, they may be beyond the jurisdiction of compensation legislations and consequently be largely non-compensable.

The development of Australian labour relations legislation has largely reflected the pattern of British reform. The earliest specific Australian workers’ compensation legislation was enacted in Western Australia in 1902. By 1914, all States and the Commonwealth (for Commonwealth Government employees) had also introduced such legislation, except in Tasmania, where the principle of compulsory insurance for workers' compensation was not introduced until 1927.

For several reasons, partly medical, partly legal and partly conventional, compensation legislation has been, for the most part, initially restricted to the more physically obvious trauma injuries and a restricted category of diseases.

All States except Queensland have, within the past decade, enacted a specific Occupational Health and Safety Act. Designed in principle to provide a uniform measure of protection for all workers, these Acts superseded and modified a number of specific Acts which had evolved late in the nineteenth century in order to deal with various industrial hazards and workplaces.

In contrast to other States, the Victorian Government passed legislation in 1985 which dramatically altered the rights and obligations of the various parties involved in the work environment. The legislation effectively created three bodies operating under the auspices of an integrative tribunal structure. The new body, the Accident Compensation Commission (VACC) is intended to:

“ensure a coordinated approach in the implementation of Work Care in liaison with the Victorian Accident Rehabilitation Council and the Occupational Health and Safety Commission that emphasises accident prevention, rehabilitation and operational efficiency.” (VACC, 1985 : 17).

The Victorian Occupational Health and Safety Act, 1985 (OHSA Vic), as well as the other legislations, reflect the recognised need for an integrated approach to accident prevention, compensation and rehabilitation in the field of industrial health and safety.

The objectives of OHSA (Vic.), as set out in Section 6, are:

(a) to secure the health, safety and welfare of persons at work;
(b) to protect persons at work against risks to health or safety;
(c) to assist in securing safe and healthy work environments;
(d) to eliminate, at the source, risks to the health, safety and welfare of persons at work;

(e) to provide for the involvement of employees and employers and associations representing employees and employers in the formulation and implementation of health and safety standards (1985 : 4).

Identification of Occupational Diseases

Generally speaking, the problem of poorly-integrated occupational health and safety systems and the implications for the prevention of trauma injuries is considered to be more extreme in the description and recognition of work-related illness.

The standards of proof for establishing the connection between workplace conditions and disability are also more difficult to meet in the case of occupational diseases. Illness, particularly cancer and other chronic diseases, often develop some considerable period of time after exposure and consequently are difficult to relate to exposure levels in the workplace. Causality therefore remains a problem and the onus of proof remains with the worker, except for those cases in which a certain disease is universally accepted to be the result of certain forms of exposure.

Financing

With the exception of Queensland and the scheme which applies to Commonwealth employees, compensation schemes in Australia have been financed mainly by means of firm-specific principles in which individual employers deal with insurers on a one-to-one basis and negotiate compensation insurance premiums accordingly.

Compensation insurance for those other than self-insurers is administered by private and/or government insurance bodies according to a diverse range of management practices.

Compensation

Briefly, compensation is provided by the application of one or more of three basic models, or systems, based either on civil or common law actions, through the application of specific principles of compensation defined by legislation, or through schemes operated on a mainly bureaucratic or administrative basis. In most States, at present, a worker may sue his employer for damages through common law if he/she sustains personal injury during the course of employment and such injury is thought to be a negligent breach of statutory duty by the employer, or a person for whom the employer is legally responsible. Under the common law, every employer has a duty to take reasonable care of the safety of his workers at all times. This duty or care is often classified into the following categories:

(a) the provision of a safe place of work;
(b) the provision of a safe system of work;
(c) the provision and maintenance of a proper plant and equipment;
(d) the provision of competent staff to manage and supervise the business.

The liability of the employer may arise under both statute (e.g. Health and Safety Acts) as well as under common law.

Statistics

Efforts by the International Labour Organisation (ILO) to standardise statistics relating to occupational injury and disease date back to the inaugural International Conference of Labour Statisticians (ICLS) held in 1923. The tenth ICLS (1962) recognised the importance of adequate statistics in this area for the purpose of developing an accident prevention programme, and subsequently passed a resolution concerning standard terminology, concepts and definitions.

Following a Statisticians Conference held in 1978, the Australian Bureau of Statistics (ABS) developed and recommended national standards covering classifications and concepts for the collection of occupational injury and disease statistics based on workers' compensation claims. The ABS standards were based largely on earlier ILO recommendations, with minor revisions to classifications and associated codings of certain data items.

The extent to which the State and Territory compensation authorities have adopted the ABS

30
standards varies and, at the present time, it is not possible to produce a nationally comparable set of compensation-based statistics. The present difficulties in using workers’ compensation claims as a source for occupational injury and disease statistics have arisen partly from the different State practices in the reporting and recording of this information.

In recent years, some improvement in the comparability of State statistics had resulted from the adoption of ABS-recommended standards.

INDIA

In India, rapid industrialisation and mechanisation in the face of malnutrition and endemic diseases, low levels of education, sanitation and hygiene, resulted in the workers being exposed to a higher risk of health problems than other countries. Moreover, they were unorganised and exploited by the employer as they were less well paid, had unregulated hours of work and had no welfare facilities. Their problems therefore necessitated enactments of new labour laws to fulfil their aspirations.

Legislation

Various enactments which have a bearing on health, social security and occupational health are:

1. Workmen’s Compensation Act, 1923 (W.C.A.)

These labour legislations aim at providing safety from occupational hazards and the payment of compensation in the event of work-connected accidents and occupational diseases. There is, however, no overlapping between these Acts since their areas and scope of services are well-defined, although they share a common objective.

Certain labour welfare enactments have also been introduced for the welfare of industrial workers, such as:


Workmen’s Compensation Act

The Workmen’s Compensation Act, 1923, marked the beginning in India of the realisation that legislation was necessary for the achievement of social security. It was enacted with a rather limited objective of protecting workers from hardship arising from accidents. Since 1924, it has undergone as many as 21 amendments, so as to keep pace with the industrial hazards arising from rapid industrialisation and mechanisation. The general principle of the Act is that compensation should be given by the employer to a worker who sustains personal injury by an accident (includes contracting an occupational disease) arising out of and in the course of employment. The State Governments make rules and carry out the terms of the Act. A schedule of occupational diseases is prescribed under the Act.

It was expected that the Employees’ State Insurance Act would ultimately replace the Workmen’s Compensation Act and would cover the workers of all industries. This has not happened as it has not been possible to extend the Employees’ State Insurance Act to rural and semi-urban areas where small industries are established and the means of the workers are limited.

Employees’ State Insurance Act

The E.S.I. Act was passed in 1948 in India. It applies to non-seasonal factories using power and employing 20 or more persons and to smaller power-using factories/establishments employing 10 to 19 persons. Presently, 7.19 million workers are covered under the E.S.I. Act.
The E.S.I scheme is administered by a corporate body called the Employees' State Insurance Corporation (ESIC) which has members representing employees, employers, the Central Government, State Governments, the medical profession and the Parliament. A Standing Committee constituted from among the members of the Corporation acts as an executive body for the administration of the Scheme. Besides the headquarters office in New Delhi, the E.S.I. Corporation has 19 regional and sub-regional offices in the States and 780 local, mini-local and pay offices all over the country for administering the Scheme. Medical care is administered by the State Governments by statute except in the Union Territory of Delhi, where the E.S.I. Corporation directly provides medical care.

Financing

The E.S.I. Scheme is mainly financed by contributions from the employer and the employees. The employers' contribution is equal to five per cent of the wages payable to an employee. The employees' contribution is now fixed at the rate of two and one-fourth per cent of the wages payable to an employee. The State Governments share in the expenditure on medical care to the extent of 12.5 per cent of the expenditure on medical facilities in all areas covered by the Scheme.

Schedule of Occupational Diseases

India follows a "list system" of occupational diseases. All the occupational diseases contained in the ILO Convention 121 (amended 1980), except diseases caused by vibration are listed in the schedule. In addition, poisoning by nitrous fumes, organo-phosphorous compounds, dinitrophenol and diseases due to infra-red radiations, bagassosis and primary neoplasms of the epithelial lining of the urinary bladder, etc. are included in the schedule. The list may be extended and more diseases can be added to it by the Ministry of Labour, after adopting the prescribed procedure.

Identification of Occupational Diseases

The process of identification usually starts when the worker goes to an E.S.I. dispensary or to a hospital with an ailment and the medical officer suspects that the disease is related to his occupation. During the last three years, a system of periodic health check-up camps has been started in Delhi in the premises of establishments for early detection of occupational diseases.

The E.S.I. Scheme does not have its own elaborate facilities for investigating, diagnosing or treating occupational diseases at present. Cases are currently referred to the National Institute of Occupational Health, Central Labour Institute and other renowned institutions for diagnosis and treatment. It has been decided to set up four occupational disease centres in four Employees' State Insurance hospitals at Bangalore, Bombay, Calcutta and Delhi and detailed plans have been made for these centres. However, the incidence of occupational diseases reported over the years to the E.S.I. Corporation has been insignificant, although the unreported incidence might be quite high. Certain limited studies conducted by the Central Labour Institute in selected industries has shown a high incidence of some common occupational diseases, as given below:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Incidence (percentage)</th>
<th>Number of workers examined in the study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byssinosis</td>
<td>29</td>
<td>3,792</td>
</tr>
<tr>
<td>Coal workers' Pneumoconiosis</td>
<td>18.8</td>
<td>950</td>
</tr>
<tr>
<td>Silicosis</td>
<td>27.6</td>
<td>2,033</td>
</tr>
<tr>
<td>Asbestosis</td>
<td>7.2</td>
<td>712</td>
</tr>
<tr>
<td>Lead poisoning</td>
<td>9.8</td>
<td>363</td>
</tr>
<tr>
<td>Insecticides/Pesticides poisoning</td>
<td>28.5</td>
<td>297</td>
</tr>
<tr>
<td>Carbon disulphide poisoning</td>
<td>7</td>
<td>270</td>
</tr>
<tr>
<td>Dermatitis</td>
<td>10.6</td>
<td>2,129</td>
</tr>
<tr>
<td>Noise-induced hearing loss</td>
<td>8.5</td>
<td>248</td>
</tr>
</tbody>
</table>

Compensation

In case of temporary disability due to an occupational disease, the cash benefit is subject to a contributory condition and is payable at a rate equivalent to about 70 per cent of the average daily wage. The benefit is, however, not payable
if the incapacity does not exceed three days excluding the date of accident.

If the disablement results in permanent, partial or total loss of earning capacity, periodic payments are available to the insured persons for life at a percentage of the permanent disablement rate depending on the accident or loss of earning capacity as may be certified by a duly-constituted Medical Board. The payment of the permanent disablement benefit is made with reference to the full rate which is 70 per cent of the average daily wage. Lump-sum compensation for permanent disablement is payable if the daily rate of benefit does not exceed Rs. 1.50 per day.

Periodic pensions are payable to dependents of an insured person who dies as a result of an employment injury/occupational disease. The widow receives the benefit during her lifetime or until remarriage and the pension amount is equivalent to three-fifths or the full rate if she is the sole beneficiary. Each child is entitled to an amount equivalent to two-fifths of the full rate until he/she attains 18 years of age or, in case of infirmity, the benefit continues to be paid while the infirmity lasts. The total benefit is not to exceed the full rate of the disablement benefit.

The E.S.I. Scheme provides a rehabilitation allowance to the insured person for each day on which he remains admitted in the Artificial Limb Centre for fixation or repair or replacement of artificial limbs at rates which generally conform to the sickness benefit rate.

Treatment for Occupational Diseases

Medical care in kind is available to an insured person and his family from the day he enters insurable employment, through Employees' State Insurance dispensaries, clinics of the insurance medical practitioners, hospitals and specialists centres. Artificial limbs/artificial dentures, spectacles and hearing aids, etc. are being provided to the insured persons who suffer loss of a relevant faculty due to employment injury, occupational disease or in the event of sickness and non-employment injuries.

Promotion and Prevention

The Factories Act, 1948, is charged with the responsibility of ensuring safety measures and promoting the health and welfare of workers in factories. The Act and rules framed thereunder are administered by the State Governments and Union Territories through their factory inspectorate. The Director General of Factory Advice Service and Labour Institutes (FASLI) is responsible at the central level for co-ordinating the implementation of this Act by the State Governments and for the formulation of model rules thereunder. The main safety measures are:

(i) provision of a safety officer in a factory employing more than 1,000 workers;
(ii) casing of machinery;
(iii) devices for cutting off the power;
(iv) protection for eyes, ears, hands; and
(v) provision of cranes and other lifting devices - no worker should be required to lift or carry weights which are likely to cause him injury.

In accordance with the Factories Act, it is obligatory on the part of factory management to provide information regarding specified accidents which cause death or serious bodily injury or occupational diseases contracted by employees. This Act also requires that occupational health surveys and an enquiry into all cases of death due to occupational diseases should be conducted.

The Directorate General of Factory Advice Service and Labour Institutes and the National Institute of Occupational Health (at Ahmedabad) organise training and research in industrial safety, occupational diseases, industrial hygiene, industrial psychology and industrial physiology, etc.

INDONESIA

Indonesia has a working population of 6.8 million. National provisions for the welfare of the labour population were introduced in 1969. Employment injury protection was first concentrated on accidents at work but later its scope was extended to include diseases attributable to work processes. Over the years, extensive campaigns have been initiated to improve working conditions and to prevent occupational diseases. Attempts have also been
made to provide specialised treatment and cash benefits.

The various agencies responsible for recognition, treatment, prevention, supervision and compensation in the field of occupational diseases are:

1. Directorate of Safety Norms, Industrial Hygiene and Occupational Health (prevention).
2. Centre for Industrial Hygiene and Occupational Health (prevention).
5. Ministry of Social Services (rehabilitation).

**Legislation**

Basically, every employer is held responsible for any occupational disease of his/her worker. The laws and regulations provide:

(i) that the Government shall promote labour protection including occupational health (1969);
(ii) the employer shall be responsible for pre-employment and periodic medical examinations of the worker (1970);
(iii) any disease attributable to an occupation or the work environment is considered an occupational disease in accordance with an established list of diseases and the employer is required to notify the authorities of all cases;
(iv) the employer will provide all protective equipment (1981);
(v) the worker shall be entitled to protection, prevention and promotion of health and medical care and rehabilitation (1982); and
(vi) a social insurance scheme will provide benefits for occupational accidents and diseases (1977).

**List of Occupational Diseases**

The list of occupational diseases under the employment injury laws contains 30 occupational diseases. The list generally follows the ILO Convention and creates a legal presumption in favour of a worker in a prescribed occupation and if the disease is contracted in the course of work it is usually covered without question. Proving that a disease is work-related does not fall upon the worker and it is simple to establish whether an employer or an institution is liable to meet the cost of the worker's claim. Once the diagnosis has been made and it is established that the claimant was recently employed in the defined occupation, the national rules for benefit apply. On the other hand, there is a shortage of doctors, especially industrial medicine officers capable of and responsible for interpreting the laws and regulations.

Many of the occupational diseases are identified as injury claims and some prescribed diseases are not identified as being of occupational origin and are treated as routine illness. The limited statistics available in the country may not be regarded as reliable.

**Social Insurance System ASTEK**

The Social Insurance System ASTEK has been set up to administer the employment accidents and occupational diseases programme and to provide provident fund and death benefits. The regulation requires compulsory coverage of employers with 25 employees or more, or with a monthly payroll of one million rupiah or more; other employers may join voluntarily. ASTEK is financed by contributions from employers (3 per cent of payroll) and employees (1 per cent of wages). The Scheme is managed by a Board of Directors under the Minister of Manpower. There is provision to extend the Scheme to include a health care programme for workers and their families with a contribution of 7 per cent of the payroll payable by the employer. The scope of coverage may be extended to include casual/seasonal workers.

**Enforcement**

The direct involvement of ASTEK in the treatment and prevention of occupational diseases has not been marked; instead the emphasis has been on compensation. Enforcement of labour laws is the responsibility of the labour inspectors;
the promotion of occupational health and safety is undertaken by health and safety inspectors and treatment of diseases is covered by the Department of Health. Care is taken to avoid overlapping in the work of the departments so that there is no duplication of effort or confusion amongst employers.

Compensation

The same provisions apply for compensation of occupational diseases and accidents at work and consist of:

(i) the cost of transportation to a hospital or home (maximum amount of Rp. 100,000);

(ii) The cost of medical treatment, including medicines, doctors' services, surgical operations, X-ray, hospitalisation, dental treatment, eye treatment and first aid (maximum Rp. 2,000,000 - including the transportation costs);

(iii) temporary disability allowance (120 days at full wages, subsequently 50 per cent of wages);

(iv) permanent total or partial disability allowance (calculated as a percentage of earnings and types of disablement);

(v) survivor benefits (up to a maximum lump-sum amount of 60 per cent of 48 monthly earnings) and funeral allowance of Rp. 50,000.

According to available information, the number of reported cases of occupational diseases for which ASTEK provided benefits during the past eight years has been static at approximately 0.03 per cent of all injuries related to work i.e. 100,154 accidents including 343 diseases.

Employers' Liability for Coverage of Occupational Diseases

At the present time in Indonesia, depending on the size and nature of the enterprise, an employer may:

(a) provide directly the necessary benefits in the event of an occupational disease claim in accordance with the national legislation and/or local agreements; or

(b) insure privately; or

(c) insure with the social security body, ASTEK.

The following methods are used by employers to provide coverage:

(a) Where the liability of an employer is simply stipulated in the legislation, he is expected to pay benefits when claims arise. Industrial employers may choose to insure their liability with a commercial insurer which is uncommon because of the cost of coverage and the reluctance of commercial insurers to cover small enterprises. Thus, in such cases, there is no guarantee that a worker will automatically receive the benefit.

(b) Local agreements regarding liability where the employer is obliged to obtain commercial insurance from approved insurers provides greater guarantee of protection to workers.

(c) Where the liability of an employer is stipulated in the legislation, the employer is obliged to join the national scheme (ASTEK) and the workers have an effective guarantee that benefits will be paid. Eventually, periodic payments (pensions) may be introduced instead of lump sum payments for permanent incapacity or death.

MALAYSIA

In Malaysia, safety in industries and occupational health and occupational diseases are within the purview of the Ministries of Labour and Health. The relevant legislations are the Workmen's Compensation Act, 1952; Factories and Machinery Act, 1967; Employees' Social Security Act, 1969; and Petroleum (Safety Measures) Act, 1984. The Factories and Machinery Department under the Ministry of Labour and the occupational health unit of the Ministry of Health are primarily concerned with safety, prevention and occupational health. The Social Security Organisation is charged with the responsibility to implement and administer the Employment Injury Scheme and the Invalidity Pension Scheme and maintains close liaison with the government agencies concerned with occupational health and safety for Malaysian
workers. Employment injury covers occupational disease in its definition.

Legislation

The Employees' Social Security Act, 1969, is in operation throughout the country and provides cash benefits, medical benefits and rehabilitation benefits; it also promotes occupational health and the safety of insured persons. The Act is applicable to every industry employing five or more persons earning 1,000 Malaysian dollars or less per month. An insured person, once covered, is always covered. With the amendment of the Act in 1987, it will become applicable to every industry or establishment employing five or more persons regardless of income. Under this Act, the Social Security Organisation (SOCSO) was established on 1 January 1971 as a Department within the Ministry of Labour. It was finally converted into a statutory body on 1 July 1985.

The Social Security Organisation works under the superintendence and general direction of a tripartite governing body comprising members representing the Government, the employers and employees. It administers the Employment Injury Insurance Scheme (employment accidents and occupational diseases) and the Invalidity Pension Scheme (invalidity or death).

Financing

The Schemes are compulsory and contributory social insurance schemes. They are financed by contributions paid by employers and employees which are income-related. Contributions towards the Employment Injury Scheme are solely borne by the employer at approximately 1.25 per cent of the employee's monthly wage. Contributions towards the Invalidity Pension Scheme are shared equally by the employer and employee and the rate is about 1 per cent of the employee's monthly wage.

Schedule of Occupational Diseases

The Social Security Organisation has a schedule of occupational diseases which provides a list of occupational diseases as well as the employments in which they may be contracted. The list of occupational diseases follows the ILO Convention and is very exhaustive. Flexibility is further insured by a proviso that any other disease would be compensable if directly attributable to a specific injury. The Organisation is also empowered to add any disease or occupation to the schedule by notification. This has been made possible by the 1987 Amendment Bill which has also laid down that the time limit for claiming compensation be raised from 12 months to 60 months in respect of cases where a claimant has ceased employment with a covered employer at the time of contracting the occupational disease.

Notification of Occupational Diseases

Under the Employees' Social Security Act, the covered employer is required to notify the Social Security Organisation of any case of occupational disease suffered by an employee for the purpose of cash and other benefits. Under the Factory and Machinery Act, every registered medical practitioner is required to notify any case of occupational disease to the Department. The number of occupational diseases reported to the Social Security Organisation or the Factory and Machinery Department has, however, been very small.

Virtually all were minor cases of dermatitis due to contact with dust or resin or rengas wood among workers of sawmill/plywood industries. The cases of occupational diseases reported to the Social Security Organisation in 1985 and 1986 are given below:

<table>
<thead>
<tr>
<th>Types of occupational diseases</th>
<th>Number of cases</th>
<th>1985</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermatitis due to rengas wood</td>
<td>21</td>
<td>21</td>
<td>54</td>
</tr>
<tr>
<td>Dermatitis due to certain chemicals</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hearing impairment by noise</td>
<td>22</td>
<td>22</td>
<td>55</td>
</tr>
</tbody>
</table>

All dermatitis cases reported above were minor cases requiring medical care only and no temporary disablement benefit was payable. In the hearing impairment case there was entitlement to a permanent disablement benefit along with a hearing aid.

On the other hand, no case of occupational
disease has been reported by employers to the Labour Department under the Workmen's Compensation Act, 1952, which has the same schedule of occupational diseases.

Compensation

An insured person suffering from an occupational disease is entitled to receive the following benefits under the Social Security Organisation:

Temporary Disablement Benefit (TDB): paid to an insured person for temporary disablement certified by an insurance medical practitioner or medical officer, at the rate of 70 per cent of the assumed average daily wage. No TDB is payable for the first four days of temporary disablement unless the disablement lasts for at least five days.

Permanent Disablement Benefit: where the occupational disease sustained by an insured person has resulted in permanent disablement as confirmed by a medical board, a permanent disablement benefit is paid to the disabled insured person, in such percentage of the full rate (70 per cent of the assumed average daily wage) as proportionate to the loss of earning capacity assessed by the Medical Board. The permanent disablement benefit is paid in the form of a monthly pension. However, where the loss of earning capacity as assessed by the Medical Board does not exceed 20 per cent, the beneficiary is allowed to commute the monthly pension into one lump-sum payment.

Constant Attendance Allowance: is payable to an insured person who is eligible for a permanent total disablement benefit, for as long as he/she is so severely incapacitated as to constantly require the personal attendance and care of another person. The rate is equivalent to 30 per cent of the daily rate of permanent total disablement benefit.

Funeral Benefit: up to a maximum of 1,000 Malaysian dollars is paid upon the death of an insured person due to an occupational disease or while the person was in receipt of a disablement benefit because of an occupational disease.

Dependant's Benefit: payable to dependants upon the death of an insured person due to an occupational disease. The total benefit payable is equivalent to the full rate. The dependants are the widow or widows and children of the insured person. In the absence of widow(s) and children, the benefit is payable to other dependants (parents, grand parents, minor brothers and sisters).

Medical Benefit: this benefit is provided to insured persons who suffer from disablement as a result of an occupational disease. It is provided free of charge to an insured employee for as long as the condition of his/her disablement requires it. Medical care (in-patient and out-patient) is provided through a system of panel doctors appointed by the Social Security Organisation, and in all government hospitals. Insured persons who require in-patient treatment are eligible for admission into second class wards at government hospitals. As at 31 December, 1986, 1,894 doctors in 1,394 clinics had been appointed throughout the country and there was a total of 99 government hospitals.

Rehabilitation Benefit: facilities for both physical and vocational rehabilitation are provided free of charge to insured persons suffering from permanent disablement due to an occupational disease. These rehabilitation facilities are provided by the Social Security Organisation in cooperation with government hospitals, the Ministry of Welfare Services, voluntary rehabilitation institutions, private suppliers of prosthesis, orthotic and other medical aids, and vocational training institutions (private and government).

Promotion and Prevention

The Social Security Organisation also has as an objective the promotion of occupational health and safety in the country in cooperation with relevant government and non-government organisations. To this end, it plays only a supportive role and its main form of participation is by providing financial assistance to other organisations.

The industrial hygiene division of the Factory and Machinery Department is responsible for the prevention of occupational diseases through inspection, monitoring of health hazards in the work environment and biological monitoring. The occupational health unit of the Ministry of Health is also responsible for the promotion and
maintenance of the highest possible levels of physical, mental and social well-being of workers and their protection from risks. This unit carries out data collection on occupational health, consultation and advisory services on occupational health, identification of occupational health problems by studies, training of medical health personnel in occupational health, preparation of suitable health education material and monitoring compliance with safety standards in order to protect workers' health.

The Government is planning to establish a National Institute for Occupational Health and Safety and to introduce a new Occupational Health and Safety Act in order to improve the occupational health and safety standards of Malaysian industries.

NEW ZEALAND

In New Zealand, the majority of enterprises are small industries. Health services are well-developed and are the responsibility of the central and local governments in co-operation with health practitioners. Occupational health services are provided by the State and the private sector.

Occupational Safety and Health Structure

About 160,000 persons (1 per cent of the labour force) work in locations which have private occupational health services; these are mainly medium or large industries. There is a close liaison between the staff of these services and the State occupational health services.

The country is divided into three regions and 18 health districts. State occupational health services are delivered through the head office, regions and districts within the framework of community health services. The head office is mainly concerned with the activities of policy, liaison and dissemination of information. The Government has constituted an Advisory Council on Occupational Safety and Health (ACOSH), which is responsible to the Minister of Labour. The Council is responsible for advising on national policy in the area of occupational safety and health. It is a tripartite body with representatives of employers, trade unions and government departments, such as Health.

The Department of Health maintains close liaison with government departments interested in occupational health such as the Ministry of Agriculture, the Department of Labour, the Ministry of Energy, the Ministry of Transport and the Accident Compensation Corporation. Close liaison is also maintained with employers' and employees' organisations.

The head office is closely associated with various resource groups, whose expertise is available in matters of toxicology, occupational hygiene, occupational medicine, health protection, health statistics and health information. There is a National Institute of Health which has a special group called the Occupational Health Task Force comprising physicians, nurses and occupational hygienists. This Task Force investigates in depth occupational health problems and makes recommendations for improvements.

In each of the three regions, there is a base laboratory which provides general laboratory services to the region and expertise in a particular area such as noise, radiation, etc. The scientists of this laboratory also visit the workplace for environmental samplings.

Each district is headed by a medical officer of health and has an occupational health triad consisting of a nurse, a health protection officer and clerical personnel. In larger districts, a physician also works with this triad. This group reports to the medical officer of health of the district.

In accordance with statutory obligations, in each district the workplaces are visited on a regular basis in order to obtain information on occupational health problems and basic data on each industry which is recorded in a register of the health profile of the district.

Special procedures developed to remove the imbalance in the provision of occupational health services to large and small industries include the establishment of occupational health centres, group occupational health services on a visiting basis and the development of priority area programmes for which the costs are covered by the Central Government.

Plans for the formation of a self-financing
group service to provide occupational health services for small industries are underway, in which the participating units will contribute on a per capita basis and a managing committee of employers and employees will operate the service on a non-profit basis.

Organisations

The investigation and control of occupational diseases and the regulation of the exposure level of substances hazardous to health in the workplace is the responsibility of the Department of Health. The responsibility for physical hazards and safety vests with the Department of Labour. Compensation is administered by the Accident Compensation Corporation. The situation is thus one of multiple responsibility

Schedule of Occupational Diseases

There is no schedule of occupational diseases prescribed. However, there is a list of notifiable diseases which covers a wide variety of diseases including communicable diseases and a number of occupational diseases. This list is revised every few years by the Department of Health. Cases of all listed diseases (including those which are only suspected) are required to be notified by the medical practitioner to the local medical officer of health. Although notification is a statutory obligation, there are many cases of occupational diseases which are unrecorded and are never reported to the medical officer of health.

Compensation

The system of compensation for an occupational disease or injury arising from a person's work, as part of a larger comprehensive scheme of coverage for the whole population, is based on its own merits and no claim acts as a specific precedent for others. This system of compensation is administered by the Accident Compensation Corporation—a body set up by an Act of Parliament and which, in addition to its role in compensation, also has statutory responsibility for promoting occupational health. The Corporation has no investigatory role and no power of entry or inspection.

Compensation for occupational diseases is financed by the Corporation which draws its funds from a levy on employers and self-employed persons. The Corporation does not provide earnings-related compensation until after the first week of absence from work as a result of a compensable occupational disease or injury. There is no system of automatic compensation for occupational diseases. Compensation has to be claimed and the process requires documentation. The basic documents are the accident claim form completed by the claimant, the first medical certificate completed by the attending medical practitioner and the employee's earnings form. Earnings-related compensation is paid in relation to the loss of earning capacity which generally will equate with the relevant earnings as defined. The Corporation is required to ensure that the earnings on which the claim is based represent the normal average weekly earnings of the injured person on or before the date of the accident or the diagnosis of the disease.

The basic principle of the system is to ensure that for such time as the earner suffering from personal injury or occupational disease is incapacitated, he will be able to maintain a realistic level of weekly income assessed on pre-illness work and earnings history amounting to 80 per cent of his normal weekly earnings. In addition, there is compensation in respect of medical costs which arise from the injury or disease. The employer bears the cost of the first week's compensation. Thereafter, the earnings-related payments are made by the Corporation on a weekly basis which may extend over the complete working life of the injured or diseased person up to the age of 65 years.

The assessment of permanent incapacity is made after the injured person's condition has stabilised. The level of compensation is based upon the amount the person would have been earning on the date of assessment had the accident not occurred minus the amount he would be capable of earning at the present time. The resultant figure is expressed as a percentage of relevant earnings and this gives the permanent loss in earning capacity. Compensation is paid at the rate of 80 per cent of the earnings loss. In addition, there is also a system of lump-sum payments for non-economic loss up to a certain maximum limit. These payments are separate from and are awarded independently of any earnings-related periodic payments.
Treatment

The identification and treatment of occupational diseases is undertaken through the normal medical services. The first line of treatment is provided by the general practitioner. Those cases which require detailed investigation and treatment are referred to public hospitals. There are no separate institutions dealing specifically with occupational diseases. Occupational medicine is not recognised as a speciality and there is little scope for advanced training.

A large number of cases of occupational diseases remain unrecognised. There is need for better teaching in medical schools, refresher programmes for general practitioners and recognition of occupational medicine as a clinical speciality.

PHILIPPINES

In the Philippines, social security benefits are provided for occupational injuries and occupational diseases. Of the two, occupational injuries comprise the major part of the cases, conservatively estimated at 90 per cent and occupational diseases at about 10 per cent. The percentage of occupational injuries and occupational diseases during the last three years is given below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Occupational Injuries</th>
<th>Occupational Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>1985</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>1986</td>
<td>94</td>
<td>6</td>
</tr>
</tbody>
</table>

Organisations

Employees' compensation is administered by the Employees' Compensation Commission and implemented through the Social Security System (private sector) and the Government Service Insurance System (Government sector), which are all government agencies. An employee who falls sick receives 90 per cent of his daily wage as benefit along with reimbursement of all medical expenses in accordance with the prevailing rates. The costs reimbursed include doctors' fees, charges for room and board, laboratory tests, X-ray, ECG, drugs, medical supplies, operations and other services such as confinement, intensive care unit and rehabilitation.

Compensation

Occupational diseases resulting in permanent disability entitle the employee to a benefit paid in the form of a pension. A manual rating guides the medical evaluators in assessing disability benefit claims. The pension may be paid for a few months or for life depending on the degree of disability. The compensation for occupational diseases is funded by contributions from employers, who pay 1 per cent of the salaries of their employees.

Identification of Occupational Diseases

The identification of occupational diseases has been facilitated because of the assumption of responsibility, for administration of the disability benefits by the Social Security System and the Government Service Insurance System. The various benefit claims filed with these State entities are assessed, the co-relation of illness to job is established by medical evaluators and the following procedures are implemented:

1. Employees are asked to submit a copy of the report on their pre-employment physical examination along with a description of work duties;
2. Inspection of the workplace is undertaken for verification of hazards that could have caused the illness;
3. In doubtful cases, the opinion of medical specialists is solicited to decide whether the illness is work-related.

It has been felt that employers have not extended full co-operation in the identification of occupational diseases for the following reasons:

1. Lack of concern for the plight of workers;
2. Apprehension about the discovery of shortcomings in preventive and safety measures;
3. Refusal to acknowledge the existence of occupational hazards in their establishments;
4. Inadequate knowledge about the Employees' Compensation programme; and
5. Disinclination to complete the documentation required for compensation.
Prevention and Enforcement

The country aims to minimise occupational diseases by general improvement of the working conditions and enforcement of adequate preventive and safety measures. The National Safety and Prevention of Occupational Diseases, a State-run body, is responsible for the formulation of preventive measures and enforces the following:

1. Periodic inspection of factories/establishments to ensure that safety measures are adopted.
2. Analysis of toxicity levels of toxic gases and other material in workplaces.
3. Monitoring of hazards such as pollution and noise in workplaces.
4. Reporting of immediate remedial measures for poorly-lit work areas or poorly-designed and inaccessible controls.
5. Maintenance of required levels of cleanliness and tidiness in workplaces.
6. Employment of an industrial physician who is responsible for pre-employment and periodic physical examinations of the worker and who maintains the health profile of each worker.
8. Periodic training of paramedical personnel in first-aid techniques and rescue operations.
10. Periodic training of workers in identification and awareness of the hazards inherent in their occupation.

Legislation requiring industrial physicians to take up courses at the Institute of Hygiene in the University of the Philippines to enhance their capability to prevent, detect and treat occupational diseases has been passed.

SAUDI ARABIA

In Saudi Arabia, the Labour Department of the Ministry of Labour and Social Affairs is primarily concerned with the protection of workers against occupational hazards under the Workmen and Labour Law. The General Organisation of Social Insurance (GOSI) is responsible for the medical treatment of insured persons who contract an occupational disease. Compliance with the provisions of the law are supervised and controlled by labour inspectors of the labour offices operating throughout the country. The inspectors undertake field visits to the establishment premises and assess the work environment therein. They are empowered to collect samples of the material used or handled on the premises for analysis, to detect their effect on the health of the workers and also to instruct the employer to alter work procedures or modify the equipment in order to ensure the health and safety of the workers. The General Organisation of Social Insurance is headed by the Minister of Labour and Social Affairs. At the field level, there are four main regional labour offices and several other regional labour offices which administer the scheme.

Treatment

There is a schedule of occupational diseases containing 27 diseases as well as the causative processes or operations. The treatment of a person suffering from an occupational disease is continued if required even if the insured person is entitled to an annuity, disablement allowance, lump-sum compensation, or his daily allowance is stopped or he resumes employment or his capacity to work is restored or his contract for work has expired or has been suspended.

Medical treatment includes:

(a) treatment of disfigurement in cases decided by the Primary Medical Board as necessary;
(b) rehabilitation of a worker physically and professionally.

Medical care includes:

(i) services of physicians, specialists, medical aid and related services;
(ii) diagnostic examinations;
(iii) admission to hospital or treatment and medication in a convalescence centre;
(iv) provision of medicaments;
(v) transportation expenses to and from the medical centre, hospital, clinic, etc.
Legislation

Under the Workmen and Labour Law, the employer is required to:

(a) provide protection to workers from hazards and diseases resulting from work and machinery;
(b) provide clean, hygienic, spacious, ventilated, well-lit and safe working conditions and adequate water for drinking and washing;
(c) provide medical care and first aid services to the worker and maintain a medical file for each worker, containing results of all pre-employment and other medical examinations and treatment; these services are provided by the employers' physicians;
(d) inform the worker at the time of employment, of the hazards of his occupation and the precautions to be taken.

The worker is required to undergo such medical examinations as may be required prior to or in the course of employment and use protective appliances and carry out the instructions laid down for the maintenance of his health and for his protection from injuries. Any worker who fails to do so is punished as per penalty regulations.

Identification of Occupational Diseases

Identification of occupational diseases depends upon the related symptoms and signs being apparent in the worker and his medical records, which are maintained in the medical file. The labour offices have specialists, physicians, engineers and chemists specialised in the field of occupational health and safety and an occupational hygiene laboratory with modern equipment.

Special steps taken to facilitate the diagnosis of occupational diseases are:

(a) To maintain a worker's comprehensive occupational history, including his first employment and the successive employments he has undertaken in his lifetime until he has undergone the medical examination; also indicated is the period of employment in each trade or work.
(b) To be aware of the details of the worker's current occupation, period of employment, and the occupational hazards he is exposed to, and the results of the field monitoring of the hazards in the workplace.
(c) To check the results of the pre-employment medical examination undergone by the worker.
(d) To check the results of the periodic examinations undergone by the worker.
(e) To detect whether occupational symptoms and signs seem to appear in the worker as a result of his exposure to the occupational hazards inherent in his current occupation or previous occupations.
(f) To carry out medical tests, such as laboratory investigations, X-ray tests, physiological examinations, etc. to confirm whether the preliminary diagnosis of the occupational disease is positive or negative.

However, no cases of occupational diseases have been reported to the labour offices during the last three years.

Compensation

Compensation payable by the General Organisation of Social Insurance is as follows.

Daily Allowance

(a) The injured person has the right to receive the daily allowance for each day of work disability, including holidays. This right ceases on the day the injured person recovers his ability to work, is cured of his occupational disease, or dies.
(b) The daily allowance is payable equal to 75 per cent of the daily wages of the injured person or 50 per cent of such wages while he is under treatment at the expense of the General Organisation for Social Insurance.
Permanent Disability Benefit (annuity)

(a) In the case of permanent total disability resulting from employment injury, a monthly total disability benefit equivalent to 75 per cent of average monthly wages is payable. There is a minimum amount of 250 Saudi Riyals per month plus 10 per cent for the first dependent member of the worker's family and another 5 per cent each for the second and third dependent members. The amount of the benefit due is increased by 50 per cent if the injured person has permanent need of help from others in the performance of his everyday life activities.

(b) In case of permanent partial disability of and in excess of 30 per cent, the insured person is entitled to a monthly partial disability benefit. The amount of this benefit is a percentage of the amount of the permanent total disability benefit, proportionate to the degree of disability.

(c) The average monthly wage is computed by taking one-third of the total wages subject to contribution and paid during the three months preceding the month in which the occupational disease is discovered.

(d) Provision for lump-sum compensation also exists. In case of permanent partial disability which equals or exceeds 10 per cent but is less than 30 per cent, the injured person will be entitled to a lump-sum injury compensation equal to 36 times the monthly benefit for permanent partial disability which he could have claimed depending on the percentage of the resulting disability.

Survivors' Benefit (Dependants' Benefit)

In case of death due to an occupational disease, or death of the recipient of a permanent total disability benefit, the heirs of the deceased person will be entitled to the heir's benefit. A widow will qualify to receive the benefit only if her marriage was contracted prior to the date of discovery of the occupational disease, or if death occurred at least twelve months after her marriage was contracted after the discovery of the occupational disease.

A widow is given 50 per cent of the permanent total disability benefit her deceased husband was receiving, and each of other heirs prescribed hereunder is given 20 per cent:

(a) Male orphans under 20 years of age, and female orphans until they marry, provided the latter were supported by the deceased person at the time of death. For orphans in the first category, the age limit may be extended until they reach 25 years of age if they are pursuing their studies in an educational or vocational institution and there is no age limit if the orphan is unable to carry out any occupational activity due to a chronic disease or an infirmity.

(b) the brothers and sisters of the deceased person, the parents who were supported by him at the time of death, provided their father is over 60 years of age and is unable to work.

The total benefit of the heirs in no case may exceed the amount of the permanent total disability benefit. Should the total benefit exceed such amount, the benefit of each heir is reduced proportionately.

Marriage Grant

In case the widow, daughter or sister of the deceased person marries, she is given a marriage grant equal to 18 times the monthly benefit she was receiving.

Funeral Grant

If an insured person dies as a result of an occupational disease or an insured person entitled to a permanent disability benefit dies, a funeral grant of 1,000 Saudi Riyals is given to the person who undertakes the funeral expenses.

Prevention Enforcement

Labour inspectors of the labour offices on placement receive basic training on the principles
of each industrial technology and the rules for prevention of occupational diseases. They are able to effectively enforce the provisions concerning prevention of occupational diseases on their field visits. The Government is planning to set up a graduate programme in the faculties of medicine for Saudi physicians to obtain a Master's degree in occupational health so that they can be appointed in the Labour Department to work in association with existing non-national experienced and specialised physicians.

CONCLUSIONS

In many countries, occupational diseases are considered as a part of occupational injuries. The injuries arising out of and in the course of employment far outnumber occupational diseases. In most of the countries, compensation for occupational diseases is covered by rules which govern occupational injuries. Legislations, rules, regulations and procedures to identify, treat and compensate workers meeting with occupational accidents or contracting occupational diseases differ from country to country. However, it is apparent that generally these are administered by the Government or a separate social security organisation (corporate body).

Although safety provisions and monitoring of hazards at work, industrial hygiene, prevention of occupational diseases, promotion of occupational health, diagnosis and treatment, rehabilitation and compensation are closely interlinked, there is no unified agency or legislation which covers all these aspects. Multiple agencies work in the field with overlapping responsibilities and lack of co-ordination.

Schedule of Diseases

A number of countries have laid down a list of occupational diseases drawn out in schedules. Where schedules are available, a double column system usually exists showing the names of diseases and the employment in an occupation related to the disease is prescribed. In some cases, the period of employment is also laid down. Certain countries do not have a separate schedule of occupational diseases but a list of notifiable diseases is prescribed which also includes some occupational diseases. It is interesting to note that there are countries in which the responsibility for identifying the occupational disease rests with the employer. In most of the countries, there is a fair amount of flexibility to add new diseases to the schedule of occupational diseases already established.

In laying down the list of occupational diseases, most of the countries follow the ILO list. Some of the developing countries have, however, not included diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or nerves), some tropical infections or parasitic diseases which are endemic and some carcinomes.

Diagnosis and Treatment

Facilities for diagnosis and treatment of occupational diseases are provided as part of the general health services by most of the countries. Specialised institutions for such services are few in the developing countries, which suffer from a shortage of manpower and material resources. The low level of education, poor nutrition, lack of sanitation and hygiene and the prevalence of endemic diseases add to the hardship of workers in many developing countries. Moreover, there is reluctance on the part of physicians to diagnose with authority an occupational disease and there is also a tendency to mislabel occupational lung diseases as pulmonary tuberculosis. The reasons for this appear to be lack of knowledge and training, absence of a universally acceptable criterion of diagnosis and the required diagnostic equipment, besides the will and the immense labour required in completing the task. Industrial medicine is not even recognised as a speciality in some countries.

Documentation of Occupational Diseases

Even in developed and advanced countries, reported cases of occupational diseases are insignificant. Most countries indicate that reported statistics are unreliable. This, in fact, does not point towards an absence of a large number of cases of occupational diseases, but is indicative of the absence of a proper, organised and reliable system of collecting statistics. The fact that in some countries the employees and in some others the employees and employers, are reluctant to report cases of occupational diseases
is also perhaps a factor which results in the small number of officially-known cases.

Compensation

All countries have provisions for compensating disabilities arising out of occupational diseases. Compensation is usually the responsibility of the employers or the social security institutions. Lump-sum payments as well as periodic payments are popular. More stress is laid on periodic payments (pensions), and rightly so.

From time immemorial, workers have been exploited by the employers in the poorer countries. However, times are changing and public awareness is on the rise. An editorial from a popular daily newspaper in India, the Indian Express of Monday, 13 July 1987, is quoted below to illustrate the point.

"Occupational Diseases

For the mica miners of Koderma in Hazaribagh, Bihar, there is no escape from the occupational disease of silicosis, a lung affliction that can lead to death. They are, however, better off than their counterparts in the pencil factories of Mandsaur in Madhya Pradesh or the agate workers of Khambat in Gujarat. Despite one of the Directive Principles of State Policy of the Constitution of India laying down specifically that the Government should ensure ‘that the health and strength of workers are not abused’ millions of workers in mines and factories daily face the inevitability of debilitating and sometimes fatal occupational diseases. A multiplicity of laws dealing with the issue allows for too many loopholes. For, while factory workers may be covered by one law, miners are not. The informal and unorganised sector remains outside the purview of many laws.

Furthermore, even though the Factories Act recognises 22 work-related diseases and lays down that the owner shall be responsible for the worker’s health or compensate for any work-related ill health, the provision is regularly bypassed by a refusal to acknowledge that the disease is, in fact, related to working conditions. For example, it took years of study, research and lobbying for byssinosis, a common lung affliction amongst textile workers caused by breathing in cotton dust, to be accepted as an occupational disease. Even today although silicosis is recognised worldwide as an occupational disease, management use the fact of the general poverty and ill-health of workers to pass off their lung ailments as tuberculosis as in Koderma. Lack of organisation and knowledge of health hazards amongst workers makes them even more vulnerable to such exploitation. Worse still is the indifferent enforcement of the law which abets managements in their disregard for the health of their workers. Thus, apart from the small and informal sector, where safeguards are minimal, even bigger industries can ignore safety laws without any compunction.

Although more laws will not necessarily improve matters for workers given the present state of affairs, it is essential that there is a comprehensive legislation dealing specifically with occupational work hazards. At the present moment, there are far too many avenues of escape for employers who attach little value to human life”.

In conclusion, it should be underlined that all countries are fully convinced of the need to check occupational diseases and to provide specialist treatment and compensation in the event of workers contracting occupational diseases. There is a general awareness regarding the necessity to undertake further and deeper studies both with a view to making identification simpler and prevention effective. The role that the State has to play in prevention, identification, diagnosis and provisions for compensation appears to be universally appreciated and accepted. To achieve these objectives, it is necessary to adopt a systematic and organised approach, learning from the experience of more developed and advanced countries who are able to use more and more sophisticated systems for prevention, detection and cure of occupational diseases. One area in which almost all countries seem to be equally lacking is in the collection and preparation of statistical data in this field.
Chapter V

The treatment of occupational diseases and provisions for rehabilitation

The subject of the Treatment of Occupational Diseases and Provisions for Rehabilitation was discussed on the basis of the report presented by Dr James Keir Howard, Medical Adviser at the Accident Compensation Corporation of New Zealand, which was compiled from the information furnished in national monographs, received from ISSA member organisations in Australia, India, Indonesia, Malaysia, New Zealand, the Philippines and Saudi Arabia.

The report mentioned that the principle that treatment and rehabilitation for occupational diseases should be freely available and not be a burden on the worker seemed to be recognised and accepted. In the countries covered by the report, the treatment of occupational diseases was generally a part of the normal medical services in the form of either out-patient or in-patient care and was provided for as long as necessary, depending upon the nature and extent of the disability. The institutions in the region had limited resources for recognition, diagnosis and treatment of occupational diseases and for implementing effective rehabilitation programmes.

Social security institutions and social services departments were responsible for implementing rehabilitation programmes. There was frequently a multiplicity of rehabilitation agencies with no proper structure for coordinating their activities. Everywhere, rehabilitation, as a process of maximum physical, mental, social, vocational and economic restoration, occupied a low status, low funding priority and much lower prominence in the health services than it deserved and, therefore, social security organisations could play a part in raising the profile of these services and improving their status. The social and economic importance of treatment and rehabilitation was generally accepted but in actual practice there was a variability in the extent to which this principle was expressed in action throughout the region, which was partly due to limitations of resources, conflicting priorities and the general lack of commitment to this area, which had held back development.

The report raised the issue whether treatment and rehabilitation should be dealt with separately from recognition and prevention of occupational diseases. Treatment for occupational diseases was only likely to be freely available for a worker in a system where such treatment was fully integrated into the national health care services. Such an arrangement would remove the problem of limited and exclusive definitions of occupational diseases and also make treatment freely available in a universal health care system.

The report mentioned that it was important to give consideration to the level and type of services to be offered where there were financial and manpower constraints and concluded with an emphasis on the need for education and training in various disciplines related to occupational and rehabilitation processes.

The text of the report follows.
THE TREATMENT OF OCCUPATIONAL DISEASES AND PROVISIONS FOR REHABILITATION

By

DR KEIR HOWARD

INTRODUCTION

This report on the treatment of occupational diseases and the provisions made for rehabilitation in Asia and the Pacific is compiled from information supplied in the national monographs on social protection against occupational diseases received from ISSA member organisations in Australia, India, Indonesia, Malaysia, New Zealand, the Philippines and Saudi Arabia.

For the purposes of this report, occupational diseases are defined as those diseases which arise out of or in the course of employment, a form of words which has been enshrined in legislation for many years. This definition is broader, however, than that used in some countries where occupational diseases may be restricted only to conditions which are listed in the national schedule of prescribed occupational diseases. Such a limited and exclusive definition of occupational disease is likely to operate to the disadvantage of the worker in many circumstances.

It should be emphasised that there will always be problems in the definition of occupational disease, since the disease entity itself is frequently not specific to a working situation. For example, extrinsic asthma is a common condition in most populations, but only a small proportion of all cases have an occupational aetiology. It is also frequently the case that standards of proof for establishing the association between workplace conditions and disease or disability are difficult to meet. In this respect, occupational diseases tend to present a very different set of problems from those of traumatic accidental injuries. For the most part, traumatic injuries present few uncertainties in respect of an occupational cause. Witnesses frequently are present and there is usually little doubt about the nature and extent of the injuries sustained. It is therefore generally a straightforward matter to link injury and the nature of the employment. On the other hand, it is frequently much more difficult to link illness with the nature of the employment and establish a causal relationship, particularly in those conditions with long latency periods between initial exposure to the harmful agent and the onset of clinically apparent symptoms and signs.

For these reasons, various concerned groups in many countries are questioning whether, under existing systems of workmen's compensation, it is possible for those with occupational diseases to receive equitable treatment. This is particularly true in those situations where the onus of proof rests with the affected worker and the particular disease is not listed in a national schedule of prescribed diseases. While these issues chiefly affect the problems of recognition of occupational disease, they also have a bearing on treatment and rehabilitation, particularly in countries where there is no universal system of health care and individuals are required to pay for medical treatment. A failure to demonstrate that the illness arises out of the nature of employment for whatever reason, will result in loss of benefit for work-related "injury" and the necessity for the worker to shoulder the burden of all treatment. Such problems have led to the view that, in order to ensure an equitable scheme, all forms of sickness and injury should be treated alike with equivalent levels of benefit irrespective of causation or liability. Such a universal system of benefit and care would be extremely demanding both on human and economic resources.

Existing approaches to the treatment of occupational diseases in Asia and the Pacific are outlined in the present document. The report extracts only the salient points from each of the national monographs and deals with treatment and rehabilitation issues under separate headings.

TREATMENT OF OCCUPATIONAL DISEASES

It has been an established principle of worker
compensation schemes throughout the world that all workers should have reasonable and fair access to benefits, among which is the treatment of occupational diseases. Further, the benefits provided by any scheme should also cover the costs of such necessary treatment, as well as providing appropriate rehabilitation measures. The following paragraphs outline the situation in respect of these principles, as well as in general terms in those countries in Asia and the Pacific which provided the requisite information in their national monographs.

Australia

The concept of universal provision of benefits for all work injury, either as income replacement or income support combined with the necessary medical and rehabilitative care, is only developing gradually in Australia. Reforms are occurring at the level of individual States and, in general, these have followed the prescriptions of overseas countries, particularly New Zealand. Victoria introduced a scheme designed to meet the broad policy aims outlined above in 1985 and other States are moving in the same direction. Reform, however, has been described as "haphazard" and universal standards and models are not being applied across all States.

Treatment of occupational diseases comes within the general provision of health care and as such is within the jurisdiction of Federal and State governments as has also been the provision of most rehabilitative care.

India

The Employees' State Insurance Corporation provides a system of medical benefit to the injured person and his family. Medical care is provided in the form of medical attendance, treatment, specialist referral and hospitalisation if necessary. Such medical care includes the treatment of occupational diseases as part of the comprehensive service. The Employees' State Insurance Corporation provides a network of treatment centres which includes 1,224 dispensaries offering out-patient facilities at a general practitioner level. This figure includes 33 mobile dispensaries and, in addition, there are 302 specialist centres and provision for hospital care in 23,250 beds. Most beds are in the 90 hospitals run by the Employees' State Insurance Corporation. Facilities are expected to improve with the setting up of occupational disease centres in four of these hospitals.

Indonesia

Treatment of any medical condition, whether occupationally or otherwise induced, comes under the supervision of the Department of Health. However, under the regulations of the Ministry of Manpower, each worker is entitled to medical services designed both to prevent occupational disease and also to provide treatment, care and rehabilitation for workers suffering from such diseases.

Malaysia

Medical benefit is provided to insured persons who suffer from disablement as a result of an occupational disease and it is provided free to the employee for as long as is necessary in terms of the nature and extent of the illness. This medical care is in the form of either out-patient or in-patient treatment, through a system of panel doctors appointed by the Social Security Organisation or in all government hospitals. Those employees who are insured with the scheme are entitled to admission into second class wards in government hospitals.

New Zealand

The treatment of occupational diseases is undertaken largely through the normal medical services of the country. There are no institutions which deal specifically with occupational diseases, as is the case in some countries. The first line of treatment, other than emergency treatment at the place of work or in hospital, is usually the general practitioner. Cases which require more detailed investigation or extensive treatment are dealt with through the public hospital system. In addition, some of the larger and medium-sized companies employ full-time or part time nursing staff and may also utilise the services of a local general practitioner. In these circumstances, there will usually be the provision for the initial or limited on-site treatment of uncomplicated or simple cases of occupational disease.

Such medical treatment is provided virtually
without cost through the Accident Compensation scheme, which is all-embracing and includes all forms of accidental injury, not merely those that are work-related. Treatment by general practitioners for occupational disease is noted on the bulk billing claim forms which are sent to the Accident Compensation Corporation in order that the general practitioner may receive reimbursement for treatment costs of all conditions which may be categorised as personal injury by accident. The treatment of all illness is free in the public hospital system. Although the non-emergency treatment and traumatic accidental injury may be undertaken in the private sector under certain circumstances and paid through the Accident Compensation Scheme, it would be very rare for this to occur in respect of an occupational disease.

The Philippines

No details of medical and other services available for the treatment of occupational diseases were supplied in the national monograph, which concentrated on rehabilitation provisions (see below).

Saudi Arabia

Treatment for occupational diseases is the responsibility of the General Organisation of Social Insurance and is available to all insured persons who contract such conditions. This includes the provision of all medical services at general practitioner or specialist level, all diagnostic examinations and all forms of treatment, whether in hospital or elsewhere.

PROVISION OF REHABILITATION SERVICES

There has been a large number of definitions given of rehabilitation. While these may vary in emphasis and points of detail, they all agree that the aim of rehabilitation is to ensure the return of injured or sick persons to the maximum physical, mental, social, vocational and economic functioning of which they are capable, together with their reintegration into normal life to the greatest extent possible commensurate with any residual disability. Irrespective of the cause of the disability, which may or may not result in a functional handicap, it is generally recognised that the management of rehabilitation requires input from a number of disciplines.

Rehabilitation is best considered as a process, a series of connected positive activities which are undertaken in order to improve the circumstances of the life of the disabled person. Among these activities, vocational rehabilitation forms a major part of the rehabilitation process. In order to achieve successful vocational rehabilitation, it may often be necessary to develop new skills or restore old skills through training, education and the provision of special equipment. There is ample evidence of a general lack of willingness to supply the resources needed for the successful implementation of such programmes, in spite of their economic and social importance to the community. In most countries, both in economic and human terms, such services have low status, low funding priorities and are generally given a much lower prominence in the health services than they deserve.

The following paragraphs outline the existing rehabilitation services in Asia and the Pacific for those suffering from occupationally-related illnesses, based on information supplied in the national monographs.

India

Responsibility for rehabilitation of workers is divided between the Employees' State Insurance system which handles the provision for medical rehabilitation and the Ministry of Social Welfare which deals with social and vocational rehabilitation as part of general social measures. The Employees' State Insurance scheme provides all necessary prostheses and other aids, including the provision of mobility aids such as wheelchairs, etc. These provisions for medical rehabilitation are available to all insured persons and their families irrespective of whether the disability and resulting handicap is due to occupational causes or not and forms part of the total provision of medical care through the scheme. No details of the provisions for vocational rehabilitation were provided in the national monograph.

Indonesia

There has been growing interest in rehabilitation in Indonesia with a number of both national and international projects being currently developed. Those suffering from occupational
diseases do not have special provisions, but they are encouraged to avail themselves of the facilities available through the general public services and participate fully in such programmes to which they have full entitlement.

The total rehabilitation process is carried out by programmes which are unified at the national level and which involve medical, vocational and social rehabilitation services. The Social Services Department provides the umbrella of a permanent organisation which arranges effective collaboration and co-operation between the medical and other technical specialists in the field and is also responsible for the organisation of the regional centres which provide both medical and vocational rehabilitation.

Malaysia

Facilities for both physical and vocational rehabilitation are provided free of charge to insured persons who are suffering from permanent disability as a result of an occupational disease. The Social Security Organisation is responsible for the provision of these services in co-operation with government hospitals, the Ministry of Welfare Services and various voluntary rehabilitation institutions as well as the private and government vocational training institutions and the suppliers of orthotics, prostheses and other aids.

New Zealand

In New Zealand, there are over 100 voluntary organisations, excluding government agencies and hospital boards, which play some part in rehabilitation or provide services for the disabled. The multiplicity of such agencies has meant that effective co-ordination of the rehabilitation process and adequate inter-agency liaison has been generally lacking. The situation is not helped by the fact that services are maintained by different government departments, such as Social Welfare, Health and Labour, and thus tend to operate in isolation from one another. This lack of co-operation and co-ordination with the resultant loss of efficiency and wasted resources has been justifiably criticised.

It is against this background that the Accident Compensation Corporation has developed its role in promoting the medical and vocational rehabilitation of all those incapacitated as a result of personal injury by accident, which includes occupational diseases. In order to achieve this, the Corporation aims:

(i) to develop schemes for better job placement of the disabled;

(ii) to become an effective partner with other agencies in providing counselling, training and job placement;

(iii) to improve service delivery in rehabilitation and compensation in order to reduce the time taken for a return to full effectiveness in the community.

The Corporation does not provide rehabilitation services as such, but rather attempts to ensure that existing facilities are used effectively in order that rehabilitation takes place to the optimum reasonable level of attainment. If the patient returns to the previous occupation there are no problems. On the other hand, should a work trial be thought necessary or should the patient be thought suitable for selected work, then the Corporation provides make-up pay until he or she is restored to full working capacity. In situations where there may be some doubt about a person's functional ability, then it is likely that a vocational assessment would be carried out through the facilities of the Rehabilitation League. In addition, New Zealand is fortunate in having the Disabilities Resource Centre in Palmerston North which specialises in identifying solutions to problems which are inhibiting those with disabilities from returning to the workforce.

The Corporation employs a number of rehabilitation co-ordinators whose task it is to assess the personal, social and vocational needs of the injured person and to ensure that, as far as possible, their financial needs are met, together with needs for aid and appliances, mobility and employment. The Rehabilitation League also employs rehabilitation officers and the League, the employment office of the Department of Labour and the staff of the Accident Compensation Corporation all see themselves as having a role in re-employment.

The entitlement to such rehabilitation services belongs to all those suffering from an occupational disease.
The Philippines

Rehabilitation services have been available through tertiary hospitals in the Philippines, but in 1980 a Workers' Rehabilitation Centre Complex became operational, having been established under legislation passed in 1975. Services provided by the Centre include the carrying out of referral programmes using community rehabilitation facilities and serving as a core centre for a comprehensive programme, embracing both physical and vocational rehabilitation.

At the present, however, vocational rehabilitation is not being undertaken at the Centre itself and a number of vocational schools throughout the Philippines have been accredited for vocational training. During the training period, allowances are paid and performance is monitored regularly by the Centre staff. Following completion of the programme, there is a period of evaluation, counselling and then referral for job placement.

Inevitably, there have been problems in implementing all the aims of the programme. These have been occasioned by lack of facilities and staff and loss of interest by patients who have found the required level of commitment in time, travel and expense more than they are prepared to give. In addition, there is still considerable lack of awareness of the programme and many patients would prefer to receive cash benefits rather than undergo rehabilitation and retraining. It is estimated that only about one-third of the patients actually avail themselves of the facilities of physical rehabilitation for these and other reasons.

Saudi Arabia

Rehabilitation of the injured worker, both physically and vocationally, is the responsibility of the General Organisation of Social Insurance. Details of the provisions available were not, however, provided in the national monograph.

CONCLUSIONS

The relatively small number of national monographs which form the basis of this report means that inevitably any conclusions drawn will be of limited validity. Nonetheless, a number of issues are raised by the considerations in the report which should be addressed, both in the context of the broad principles of approach for Asia and the Pacific as a whole and in respect of the development of specific national strategies.

The principle that treatment and rehabilitation for occupational disease should be freely available and not be a burden on the worker seems to be generally recognised and accepted. There is variability, however, in the extent to which this principle is expressed in action throughout the region. Undoubtedly, part of the reason for this lies in the very limited resources both in regard to the recognition, diagnosis and treatment of occupational diseases and those that are available for implementing effective rehabilitation programmes. Because of conflicting priorities, it would also seem that there has been a general lack of commitment to this area which has played a part in holding back development.

It may also be argued that issues of treatment and rehabilitation should be dealt with separately from the recognition and prevention of occupational diseases. Treatment for occupational disease is only likely to be freely available for the worker in a system where such treatment is fully integrated into national health care services. This would resolve the problem of "proof" so that no disease could be specifically excluded as occupational and benefits would be available on the balance of probability. This would also remove the problem of limited and exclusive definitions of occupational disease which may arise from the use of a schedule of prescribed diseases, which in turn would make treatment freely available in a universal system of health care.

A major limiting factor in the development and improvement of existing services which has to be taken into account is the lack of trained personnel, both occupational physicians and those of various disciplines involved in the rehabilitation process. The development of suitable national or regional programmes for education and training in these areas would seem to be a priority which needs special emphasis in parallel with any approaches improving national services.

A further issue which should be addressed, in view of the limitations in available resources, is
the type of services, both for treatment and rehabilitation, which should be provided to meet the greatest need. Consideration should also be given to the level at which such services should operate and consequently thought should be given to what models are the most appropriate to follow where both financial resources and the availability of suitably trained personnel are limited.
Chapter VI

The prevention of occupational diseases

The last item on the agenda on the Prevention of Occupational Diseases was examined by means of four reports presented by Dr Harald Maruna, Assistant Head of Accident Prevention and Occupational Diseases, General Institute for Insurance against Employment Accidents and Occupational Diseases, Austria; Mr Bernard Moncelon, Director, National Research and Safety Institute, France; Mr Sentanoe Kertonegoro, Director, Social Insurance System Astek of Indonesia; and Dr Alois David, Medical Officer at the Occupational Safety and Health Branch of the International Labour Office.

Dr Harald Maruna, presented Dr Franz Prügger’s paper on an Overview of the Principles of Diagnostic and Prevention Strategies in the Field of Occupational Diseases which stated that most occupational diseases had manifestations that were not specific but were characteristic of the exposure. In most European countries guidelines for diagnosis of occupational diseases had been developed. The report emphasised the importance of determining the nature of exposure and of a preliminary assessment by the physicians of toxic hazards and risks in relation to the exposure, although such evaluation was frequently very difficult; and highlighted the need for the physician to be familiar with the industry, the plant, the product, the ingredients of the product and the general operations and procedures as all this information was helpful in forming an overall impression of the possible exposure. Dealing with the control measures the report mentioned that permanent removal from a job should be the last resort, especially in highly skilled occupations and should not be undertaken lightly. Protective devices could be helpful in selected cases of intermittent usage but could not effectively reduce or eliminate the hazard. The report laid great emphasis on controlling environmental factors and stress; and the isolation of the process or equipment which caused sickness or significant discomfort to the worker, or impaired health. It was also underlined that the role of good house-keeping and orderly and controlled disposal of all hazardous material was essential for occupational health protection. In conclusion the report emphasised the need for an effective medical control programme parallel to an industrial hygiene programme formulated on the basis of the hazards and the seriousness of the exposure, appropriate routine environmental monitoring, medical surveillance, educational programmes concerning individual risk factors and environmental and biological measuring of exposures.

Mr Bernard Moncelon’s report on Research Undertaken in the Prevention of Occupational Diseases drew a distinction between occupational diseases in which there was a direct cause-and-effect relationship and others in which the occupation simply aggravated or exacerbated pathologies which were not necessarily caused by work place factors. Diseases in the former category were well known and easier to approach whereas those in the latter category were harder to comprehend. The report described the corrective approach to prevention on the part of the researchers and the need for predictive research on prevention of further risks in the light of the emerging technological, industrial and sociological trends. The report dwelt upon the research activities carried out by the ISSA International Section for Research, on the prevention of occupational risks, since it was founded some 15 years ago, referred to the data bank set up by the Section and indicated the vast information it aimed to provide to the members so as to encourage exchanges of ideas and encounters between researchers. The report mentioned the projects undertaken to study occupational skin disorders which accounted for 60 to 70 percent of all cases of occupational diseases. Occupational cancers had also mobilised a major share of international research.
effort in recent years. With regard to the transfer of experience from the international scientific community to the developing countries, the view was expressed that it was not easy to transpose results of research to fit the needs prevailing in developing countries, since the general context was rarely identical. The report stressed the need to consider the risk factors in their overall context, to avoid the division of research into the economic sectors such as agriculture, mining and industry and to make the application of research findings more independent of the influence exerted by political and economic environment. The conclusion emphasised a community approach in the field of prevention of occupational risks so as to avoid unnecessary duplication of research and to gain instead from theories, ideas and work undertaken by others.

The report on the subject of the Prevention of Occupational Diseases in Countries in Asia and the Pacific by Mr Sentanoe Kertonegoro, described prevention as the most important single aspect in the field of occupational diseases. It stated that a number of ministries and departments in various countries, especially labour ministries, had important roles to play in the area of prevention of occupational diseases; and social security organisations were also being drawn more and more in the preventive field. In the Asia and Pacific region social security institutions were involved in activities such as running educational campaigns in close cooperation with the factory inspectorates; making financial grants to institutions engaged in preventive work, research studies, and experimental work in industrial medicine; and promoting safety and improvement of the working environment. Tracing the history of the prevention of employment injury which was specifically inscribed for the first time in the ILO's Income Security Recommendation, (No. 67), 1944, the report went on to describe the occupational safety and health programme in Indonesia and concluded with the view that improved health care facilities and housing programmes for workers as experimented in Indonesia could make a real contribution to occupational health and safety.

The fourth report on Prevention of Occupational Diseases was presented by Dr Alois David. Basing his presentation on the list of occupational diseases listed in the Employment Injury Benefits Convention, 1964, as amended in 1980, the report explained the main causal agents of occupational diseases, - physical, chemical, airborne and biological, - and the two main approaches to the prevention of occupational diseases namely elimination or control of the causal agent in the work place and surveillance of the health of the workers. Effective preventive measures included early detection of occupational diseases, identification, evaluation, management and control of the hazards, appropriate work practices and preventive health examinations at various intervals, which could be handled efficiently only through comprehensive institutional and organisational arrangements. Referring to the ILO activities and concern in the area of the protection of workers' health, the report mentioned the international standards set by the ILO Conventions and Recommendations, technical cooperation extended to member states and research and advice provided through the ILO's large information system. The report ended with the mention of a large number of projects of technical cooperation and training activities carried out in the Asian region, which upgraded the capacity of the countries to deal with the protection of the workers' health, and had a direct impact on the prevention of occupational diseases.

The texts of the four reports follow.
AN OVERVIEW OF THE PRINCIPLES OF DIAGNOSTIC AND PREVENTION STRATEGIES IN THE FIELD OF OCCUPATIONAL DISEASES

By

Dr Franz Prügger

The World Health Organization has proposed that there are at least four categories of occupational disease syndromes:

—diseases that are only occupational in origin (e.g. pneumoconiosis);
—diseases in which the occupation is one of the causal factors (e.g. bronchogenic carcinoma);
—diseases in which the occupation is a contributing factor in complex situations (e.g. chronic bronchitis); and
—diseases in which the occupation may aggravate a pre-existing condition (e.g. asthma).

Occupational diseases may affect any system of the body. The target organ or system may respond in a way that is quite specific or peculiar to the type of exposure. For example, silicosis and coal miner's pneumoconiosis have pathological findings that are reasonably specific for these diseases; these findings would enable a diagnosis by the pathologist from a biopsy or autopsy specimen. Exposure to other types of toxic substances may not result in characteristic pathological findings but in reasonably specific clinical symptomatology which, when combined with laboratory findings indicating exposure to the substance, create a specific set of manifestations. For example, in the case of carbon monoxide intoxication, headaches, weakness and dizziness (characteristic but non-specific responses) combined with a laboratory finding on carboxy haemoglobin of 35 gm/100 ml (specific laboratory finding) constitute a reasonably specific set of manifestations of lead intoxication.

Most occupational diseases have a set of manifestations that are not specific but are characteristic of the exposure. The organs of the body have a limited variety of responses to various external factors and may respond in a single way to a large number of agents. These responses usually take the form of inflammation, necrosis, tissue proliferations, such as fibrosis granuloma or carcinoma, and these characteristic responses may be indistinguishable from those produced by a wide variety of other agents. For example, the chronic bronchitis produced by exposure to cotton dust is indistinguishable clinically and pathologically from that produced by cigarette smoke and the toxic hepatitis produced by trichloroethylene is indistinguishable from that produced by alcohol.

In most European countries, lists of specific, notifiable occupational diseases, as well as guidelines for diagnosis, have been developed. For example, the list of occupational diseases in the Federal Republic of Germany consists of:

(a) Diseases from chemical exposure
   (i) Metals: lead, mercury, chromium, cadmium, manganese, arsenic, beryllium, phosphorus, thallium and vanadium;
   (ii) Toxic gases: carbon monoxide and sulphuretted hydrogen;
   (iii) Solvents, pesticides and other chemicals: halogenated hydrocarbons, aromatic carbon compounds, benzene and the compounds, carbon disulphide and many others.

(b) Diseases due to physical agents
   Decompression sickness, vibration disease, hearing loss from noise, effects of ionizing and non ionizing radiation.
(c) Infectious diseases from bacteria or viruses and from contact with animals.

(d) Diseases of the respiratory system from inorganic dusts, organic dusts, chemical irritants and irritant gases.

(e) Diseases of the skin and occupational cancer of the lung, skin and bladder.

Physical examinations should include a general examination, with special emphasis on the organ system likely to be affected and specific physical findings likely to be seen in the disease under investigation. Laboratory tests carried out in connection with occupational diseases fall into four categories:

1. General assessment of health. Evaluation in cases of suspected intoxication should routinely include a complete blood count, chest X-ray, electrocardiogram and urine analysis.

2. Non-specific test of exposure. The liver tests in exposure to liver toxines, pulmonary function tests as FEV₁, when the patient is exposed to pulmonary irritants, deltaaminolevulinic acid in lead intoxication. It should be emphasized that these tests are not specific for a particular exposure but do indicate anatomical or physiological alterations that may be present in a variety of conditions, including occupational exposure.

3. Tests for the agent or its metabolite that indicate exposure. There are a number of such tests based on a knowledge of the metabolism of the substance involved. For example, it is known that gradual absorption of inorganic lead is characterised by increased lead in the blood. Exposure to toluene may be detected by an analysis of hippuric acid in the urine and exposure to trichloroethylene by trichloroacetic acid in the urine. Most of these tests only indicate absorption of the substance into the body and/or its metabolism, because of the variability of responses by patients, they do not necessarily indicate intoxication. However, with some substances such as carboxy-haemoglobin, there are levels of concentration at which intoxication is expected. Certain tests are not specific, such as trichloroacetic acid in urine. Others, such as lead in blood, generally indicate prolonged exposure, whereas yet others, such as detection of the substance on the breath, are associated with recent exposure of long or short duration.

4. Tests, that establish a hypersusceptibility to a disease condition, that may be stimulated, precipitated or aggravated by occupational exposure. For example, hereditary serum antitrypsin deficiency and chronic obstructive pulmonary disease or immunological screening tests for hypersensitivity to organic isocyanates and others.

The evaluation of exposure, which is necessary in diagnosing work-related conditions, adds a dimension to occupational medicine usually not found in other clinical practice. Yet, many physicians are inexperienced and uncomfortable in this area. Nevertheless, the application of several principles and knowing where to obtain help will result in a satisfactory diagnosis in most cases.

The nature of the exposure, namely, the generic name or the type of chemical, dust or physical agent, must be determined. In addition, the state of the substance or agent to which the patient was exposed should be identified, whether it was dust, vapour, fume, gas or solid. The physician should make a preliminary assessment of the toxic hazard by determining the site of action of the agent and the likely contact that may have occurred under the circumstances. For example, an employee exposed to 100 decibels of noise is not likely to have combined deterioration of his hearing due to noise if he is wearing adequate protection in a satisfactory manner. Even though he is in a noisy environment, harmful amounts would not reach the cochlea under these circumstances. Likewise, a substance that is toxic upon contact with the respiratory system cannot make such contact unless it is in an inhalable form.

How can a physician who does not practise within a large corporation obtain the information needed? The process may be difficult and time-
Information about occupational exposure is obtained from the occupational history of the patient and the industrial hygiene data.

Diseases that can be caused by occupational exposure are often among those regarded as multifactorial in their etiology. In addition, they may require a long period of time between initial exposure and the onset of detectable or disabling abnormalities. For example, carcinogenic effects may become apparent only after decades. Recognition and evaluation of a particular health hazard demands an assessment of the risk in relation to the exposure. This determination is frequently very difficult.

Airborne concentration varies with the process, time, control technology, maintenance, work practice, etc.

In addition to natural toxic agents, an enormous variety of man-made toxic substances from cigarette smoke to new genetic materials may be present as aerosols, vapours, gases and fumes.

A variety of particulates may have toxic potential for airways irritation, fibrogenesis, obstructive lung disease or carcinogenesis. The actual delivered dose will be affected by a particle's surface area, crystalline or chemical structure, size, length, shape, deposition, retention, etc.

Emission source is generally amenable to control by industrial hygiene measures and may be regulated by standards.

The physician should determine where the patient works and how long he has worked in the place. If the physician is not familiar with the company or plant, he should determine the product they produce and it is important that this information is as specific as possible. For example, in textiles, it will make a great deal of difference whether the product is cotton textiles or one of the various types of synthetics; if the company makes castings, whether they are made from iron or brass; and if they make metal products, whether they merely assemble the products or whether they actually mould the metal in question. Other general information that is helpful concerns the company's safety and hygiene practices - does the company have an occupational health programme and are the employees given periodic health examinations and pre-employment examinations?

The above information is helpful in formulating a general impression of possible exposure.

A description of the job should include the materials with which the employee works. He may or may not know the materials with which he is in contact. Often he will only know of a trade or slang name for the substance in question. In this case, the physician may be able to obtain more specific information from the employer or from the manufacturer. The physician should visit the plant and observe the operations and procedures.

A more precise indication of exposure can be obtained from industrial hygiene surveys of the work site, but only large companies often have industrial hygiene staff.

Since there are many situations in which diagnosis is difficult and fraught with pitfalls, the physician should avail himself of qualified consultants whenever necessary. This aspect appears to be more neglected by practising physicians in the area of diagnosing occupational conditions than other types of illness. Many of the large medical schools have competent staff who are trained to deal with special occupational disease problems.

Control of exposure, of course, is usually necessary; however, a common mistake is to envisage only one type of control of exposure, namely, removal from the job. Permanent removal should be a last resort, especially in more highly-skilled jobs, and should not be undertaken lightly.

Protective devices are another means of control of exposure. There are problems related to their use and they are not considered as an acceptable means of control of exposure over long periods of time when feasible engineering controls are available. Also, it is not infrequent that protective devices, especially respiratory protective devices, are most difficult to wear for those who are most in need of them. For example,
an employee showing signs of a chronic obstructive pulmonary disease would be most affected by exposure to dust and would consequently be most in need of wearing a respiratory protective device. However, resistance to respiration is increased by the respirator and since the employee is already impaired, additional resistance to respiration is often not well tolerated and is quite fatiguing. Nevertheless, the use of protective devices can be particularly helpful in selected cases, especially where short-term or intermittent usage is required because of heavy intermittent exposure.

General methods for controlling environmental factors or stress that may cause sickness, impaired health or significant discomfort among workers include the following:

1. Substitution of a less harmful material for one that is dangerous to health

Replacement of a toxic material by a harmless one is a very practical method for eliminating an industrial health hazard. In many cases, a solvent with a lower risk of toxicity or flammability may be substituted for a more hazardous one. For example, carbon tetrachloride can be replaced by such solvents as methyl chloroform, dichloromethane, aliphatic petroleum, hydrocarbons or one of the fluorochlorohydrocarbons. Benzene can be replaced by toluene in most lacquers, synthetic-rubber solutions and paint removers. Foundries using parting compounds that contain free silica can minimize the silicosis hazard by substituting them with relatively harmless powders. Silica-containing sandstone grinding wheels have been largely replaced by artificial abrasive wheels usually made of aluminium oxide, considered inert.

2. Change in process

A change in process often offers an ideal chance to improve working conditions. Most such changes, of course, are made to improve the quality or to reduce the cost of production – only occasionally are they introduced to improve the in-plant environment. In some cases, a process can be modified so as to reduce the exposure to dust, or fumes, and thus markedly reduce the hazard. In the automobile industry, the amount of lead dust created by grinding solder seams with small, rotary, high-speed sanding disks was greatly reduced by changing to low-speed, oscillating-type sanders. Brush painting or dipping instead of spray painting will minimize the concentration of airborne contaminants from toxic pigments. Other examples of process changes are arc welding in place of riveting, vapour de-greasing with adequate controls to replace hand-washing of parts in open containers, airless spraying techniques and electrostatic devices to minimize overspray as replacements for hand-spraying and machine application of lead oxide to battery grids, which reduces lead exposure to operators involved in making storage batteries.

3. Isolation or enclosure

Some potentially dangerous operations can be isolated from the people nearby, which solves the exposure problems. The isolation can be by a physical barrier (such as an acoustic box to contain noise from a whining blower or a screaming rip saw). Isolation is particularly useful for limited operations where control by any other method is too difficult or too expensive. In the chemical industry, the isolation of hazardous processes in closed systems is a widespread practice, which illustrates that the manufacture of toxic substances is often less hazardous than their use under less well-controlled conditions. In mechanical industries, complete enclosure is frequently the best solution for the control of severe dust or fume hazards, such as those from sand-blasting or metal-spraying operations.

4. Wet methods

Dust hazard frequently can be minimised or greatly reduced by the application of water or other suitable liquids at the source of dust, a method often used for silica and loose dust. Wetting of floors before sweeping to keep down the dispersion of harmful dust is advisable when better methods, such as vacuum cleaning, cannot be applied. “Wetting down” is one of the simplest methods of dust control. Its effectiveness, however, depends on proper wetting of the dust. This may require the addition of a wetting agent to the water and proper disposal of the wetted dust before it dries out and
is redispersed. Tremendous reductions in dust concentrations have been achieved by the use of water forced through the drill bits used in rockdrilling operations. Many foundries successfully use water under high pressure in place of sand-blasting for cleaning castings. Airborne dust concentrations can be controlled if moulding sand is kept moist, if castings are wet down before shake-out and if the floors are wet intermittently.

5. Local exhaust ventilation

A local exhaust system traps the air contaminant near its source so that a worker standing at the process is not exposed to harmful concentrations. This method is preferred to general ventilation, but should only be used when the contaminant cannot be controlled by substitution, changing the process, isolation or enclosure. Even though a process has been isolated, it may still require a local exhaust system. The system's performance should be checked periodically as a maintenance measure.

6. General or dilution ventilation

General or dilution ventilation - adding or removing air to keep the concentration of a contaminant below hazard levels - uses natural convection through open doors or windows, roof ventilators and chimneys, or artificial air currents produced by fans or blowers. Dilution ventilation is practicable only if the degree of air contamination is not excessive and particularly if the contaminant is released at a substantial distance from the worker's breathing zone. General ventilation should not be used where there are major, localised sources of contamination (especially highly toxic dusts and fumes); local exhaust is more effective and economical in such cases.

7. Personal protective equipment

When it is not feasible to render the environment completely safe, it may be necessary to protect the worker from the environment. Personal protective equipment normally is considered to be secondary to the controls mentioned previously. Where it is not possible to enclose or isolate the process or equipment, provide ventilation or other control measures and where there are brief exposures to hazardous concentrations of contaminants, personal protective equipment should be provided and used.

Personal protection devices have one serious drawback - they do not reduce or eliminate the hazard. Their failure means immediate exposure to the hazard, so the fact that a protective device may become ineffective without the knowledge of the wearer is particularly serious. Excellent equipment is commercially available in great variety.

Eye and face protection includes safety goggles, face shields and similar items used to provide protection against corrosive solids, liquids, vapours and foreign bodies. Shaded lenses are used to screen out ultra-violet and infra-red radiations.

Ear protection, protective devices against noise-induced hearing impairment, such as ear-plugs or ear-muffs often may present difficulties. First, as with air contaminants, the real answer is to reduce the exposure. But in plants with old machines and processes, and even in new plants, this problem may loom as insoluble. It may be overwhelmingly costly to lower the noise. In such cases, the wearing of ear protection may be mandatory.

Protective clothes, such as gloves, aprons, boots, overalls and other items made of impervious materials should be worn to control or eliminate prolonged or repeated contact with dermatitis-producing solvents or chemicals that may cause systemic poisoning through skin absorption. Moreover, care must be taken in choosing the correct article for the specific application.

Protective creams and lotions help minimise skin contact with irritant chemicals. Their effectiveness varies but, if selected properly and used correctly, they can be very helpful. The cream or lotion must be selected on the basis of competent medical advice. The worker must then be instructed in the value of the protection and its proper application (three or four times a shift).

Respiratory protection devices normally are restricted to intermittent exposures or those that
cannot be controlled by other methods. Respiratory protection should not be substituted for engineering control methods. Exceptions are air devices for protection in sand-blasting or for operations in confined spaces, where an oxygen deficiency may exist. There are two types of respiratory protective devices:

(a) Air purifiers, which remove the contaminant from the air by filtering or chemical absorption before inhalation.

(b) Air suppliers, which provide clean air from an outside source of oxygen from a tank.

Since a respirator often becomes uncomfortable after being worn for extended periods, the worker must fully realise the need for protection or he will not wear the device. In order to obtain the worker's co-operation, it is important to explain the situation fully to him, to fit the respirator carefully, and to instruct the worker in its proper use.

8. Housekeeping

Good housekeeping plays a key role in occupational health protection. Basically, it is another tool in addition to those already listed for preventing the dispersion of dangerous contaminants. Housekeeping is always important, but where there are toxic materials, it becomes paramount. The immediate cleaning up of toxic material which spills is a very important control measure. A regular clean-up schedule using vacuum cleaners or lines is the only truly effective method of removing dust from the work area. Good housekeeping is also essential where solvents are stored, handled and used. Leaking containers or spigots should be remedied immediately by transferring the solvent to sound containers or by repairing the spigots. All solvent-soaked rags or absorbents should be disposed of in air-tight metal receptacles and removed daily from the plant. It is impossible to have an effective health programme unless maintenance housekeeping is good and the worker has been informed of the need for these measures.

9. Waste disposal

Orderly and controlled disposal of all hazardous materials should be carried out by highly-trained individuals under strict supervision. Most regulations prohibit the disposal of dangerous substances in any sewer system. Procedures should be established for the disposal of unused dangerous chemicals, toxic residues and contaminated waste, containers for chemicals that are no longer required and containers whose labels have been lost or obliterated. The final disposal of dangerous chemicals should be carried out at a disposal area remote from inhabited areas by controlled burning by specialised enterprises. If possible, there should be a remote disposal area, adequately-designed containers to collect the materials and trained personnel to dispose of them safely without creating a nuisance or hazardous pollution problem.

Medical programme

An effective medical control programme will help prevent cases of occupational diseases. Such a programme may also serve as a check on the engineering controls because symptoms of exposure in a group of workers will indicate a shortcoming that must be corrected. The scope of the medical programme will depend on the hazards and seriousness of the exposures. An industrial hygiene programme should be organised parallel to the medical programme. Both are essential to protect the health of employees.

Routine periodic clinical examinations, including analysis of blood and urine samples are practical methods for checking employees exposed to harmful materials. The importance of personal hygiene should not be overlooked. The periodic medical examinations provide a good opportunity for the instruction of employees in various personal hygiene measures.

Good washing facilities, clean lunch rooms, and clean work clothes can help prevent additional, although minor, exposure to toxic materials. Also, contaminated work clothes should not be taken home, where toxic dust could contaminate the home or expose other members of the family.

The degree of health hazard to an individual arising from exposure to environmental factors or
stress depends on four factors:

1. the nature of the environmental factors;
2. the intensity of exposure;
3. the duration of exposure; and
4. human variability or individual differences.

The type of provisions that must be made to provide protection against health hazards will vary from plant to plant, from one toxic material to another and from process to process. It is not possible to lay down formal rules or standards that would cover every type of operation in every kind of plant.

Ideally, a large industrial health programme should include appropriate routine environmental monitoring, medical surveillance, in addition to educational programmes concerning individual risk factors, such as work practices and personal habits. Health hazard evaluation in such a programme would be approached by a routine review of medical surveillance screening tests of early and reversible health impairment, and environmental and biological measuring of exposures.
1. General introduction on occupational diseases

When the job is perfectly suited to man, his aspirations, his capacities and his limits, and steps can be taken to reduce occupational risks, work undeniably plays an important part in promoting both physical and mental health: physical work usually helps to improve fitness and for the worker who enjoys and succeeds in his job, work becomes a source of personal satisfaction and fulfilment.

There are situations, however, when physical, chemical and biological factors at the workplace create unacceptable levels of stress and pollution. In conjunction with other risk factors, the work environment then plays a role in determining diseases with complex, multiple aetiologies, which we generally term occupational diseases.

Before we go any further, it is important that we distinguish, on the one hand, those diseases in which there is a direct cause-and-effect relationship between the risk and the ailment, i.e. those we can really qualify as being “occupational diseases” and, on the other hand, those in which the occupation simply aggravates, accelerates or exacerbates pathologies which are not necessarily caused by workplace factors. This type of multi-factor disease is said to be occupation-related or to contain an occupational component.

The first type, i.e. those diseases in which work environment factors play a predominant and aetiologically essential role, are retreating on all fronts: as they are easier to approach they have been thoroughly studied and preventive measures are well known. This is the case, for example, with silicosis, pleural mesothelioma, lead poisoning or angiosarcomas of the liver directly related to the presence of silica or asbestos particles, lead vapours or vinyl chloride.

The second type, however, is much more frequent and harder to comprehend. The link between working conditions and disease can be loose, irregular, and difficult to discern; there is definitely a causal relationship between the two, but with a varying degree of strength and intensity, even in the same individual. This is what happens, for example, when epidemiological studies show an increased risk or prevalence amongst certain working population groups of disorders such as high blood pressure, musculo-skeletal disorders, chronic, non-specific respiratory diseases, gastro-duodenal ulcers or certain behavioural disorders. The occupational component in multi-factor diseases acts in conjunction with the worker's living conditions at home, at work and in his or her leisure activities, continuously, with no break between general environment and occupational environment; hereditary factors and those associated with general lifestyle do not cease their effects when the worker enters the factory. There is still much to be done in the way of research to help us comprehend the occupational component of these disorders.

After underlining the contribution research is making to the fight against occupational diseases, we shall take a closer look at the work carried out in this field by the ISSA International Section for Research, whose activities include providing better information in the organisations involved in order to help them co-ordinate their efforts.

We shall then situate the studies which have been undertaken in the vast field of research which needs to be carried out, before going on to expand upon a highly topical example of such a field of study: occupational cancer research.

Finally, we shall conclude by touching on the problems of transferring experience in these areas, including the difficulties inherent in comparisons at the international level.

2. Occupational disease prevention and research

Is the fight against occupation-related diseases a subject of research? The answer is definitely
affirmative, as we shall see if we take a brief look into the past.

2.1. The situation in the past

To date, most of the preventive action which has been undertaken to control occupational diseases has been of a corrective nature. Researchers have tried to detect and recognise risk situations in order to combat them more efficiently. We are now aware of the immediate effects of gross exposure to various pollutants and fighting them is a matter of technological improvements which are now within our grasp: this was in fact the gist of the opening remarks in this report.

The specific problem has thus been solved and our approach now consists in determining the extent of the problem (the number of pathological cases), setting up safety mechanisms and assessing their efficiency (epidemiological feedback).

This effort to protect man from these self-inflicted evils has obviously borne fruit over the last few decades and many of the most exaggerated intoxications have been prevented. If we are to make further progress in the years to come, however, we shall have to give ourselves the wherewithal to pursue and develop the efforts which have already been initiated and at the same time change outlooks:

— chemical analysis and biological monitoring methods need to be refined, miniaturised and simplified;
— toxicological experiments should take into account long-term effects. For they alone are representative of occupational aggression;
— epidemiological studies will have to strive to detect effects at an ever-earlier stage, including neurosensory disorders as well as respiratory or cardiac diseases.

The corrective approach to prevention which has prevailed thus far will gradually give way to prevention at the design stage based on predictive research going beyond the concrete problems of today to speculate on the risks involved in future developments. In this sense, we can say that prevention in the field of occupational hygiene is a subject of scientific study and sometimes even of basic research.

2.2. New research prospects

If we look at research on occupational risk prevention in the next few years, as well as the continuation of actions already undertaken, three distinct types of research stand out quite logically in connection with three development trends: technological development, the developing industrial world and sociological developments.

2.2.1. Any new technology obviously gives rise to new risks which we have to foresee and understand in order better to keep them under control wherever we cannot eliminate them altogether.

Reliability in the design and operation of nuclear power stations has already been and will continue to be a subject of theoretical research justified by the dangers of radiation and the pressure of popular concern.

The boom in the use of data processing and, more recently, office automation equipment and in computer-assisted activities in general also gives rise to new problems and generates studies on working conditions and work organisation. More specifically, the increasing use of robotics in industry is substituting new risks against which we must arm ourselves for risks linked with handling activities which we had come to recognise without being able to eliminate them.

It is worth pointing out that establishing some sort of safety coverage does not necessarily mean introducing increasingly stringent constraints. Due reflection allied to improved mastery of technological processes can, on the contrary, help to relax initially severe controls: biological engineering is a good example.

2.2.2. There is nothing new about the constantly-changing face of the industrial world. A number of characteristics of this world are directly linked with the hazards facing workers, and research on occupational health and safety must constantly adapt to new data.

In too many cases, industrial activities still go on in production units inherited from the late nineteenth or early twentieth century and many hazards are due to the misuse of the plant. In coming years, we shall no doubt see a
development of useful predictive studies in industrial architecture.

Moreover, the concentration of workers required in certain production units, the increasingly sophisticated equipment used, the fact that certain technologies previously considered highly advanced are now becoming commonplace, all these factors will lead quite naturally to new research or show up existing research results in a new, hitherto unsuspected light.

2.2.3. Finally, we must not underestimate the role of sociological factors in future research. Research can no longer concentrate solely on protecting life, or even health, as we can see if we look at the World Health Organization definition of the word health. Henceforth, health research will consider comfort and well-being as important factors in the quality of working conditions.

Certain studies already under way on working conditions in open-plan offices or at visual display screens are a step in this direction; the approach will no doubt expand to include studies centred primarily on neurosensory system aggressions or even premature ageing phenomena related to occupational activities.

3. The ISSA and occupational disease prevention

Since it was founded some 15 years ago, the ISSA International Section for Research on Prevention of Occupational Risks has kept a constant inventory of scientific research related to occupational safety and health. As a result, it has been able to set up a data bank which can, of course, be consulted on a key word basis by users wishing to check on a given problem which might arise or on a subject of general interest to researchers at a given moment in time. Under the very general heading "occupational disease" or "occupational pathology", for example, 800 research projects are listed.

3.1. A few comments regarding the data bank

The data bank can only supply information which has been fed into it. It would therefore be presumptuous to claim that these 800 projects cover all the research projects in this particular field in the 17 countries covered by the bank. A number of organisations, some of them quite important ones, have not responded to our questionnaire survey, despite repeated requests by the Section to comply.

The utmost care is taken when entering the information into the data bank and in general this information can be considered valid: it is regularly cross-checked, the results of successive surveys are compared and there is an increasing amount of direct contact between the Section and the organisations which correspond with it. However, it should be kept in mind that the very terms "occupational disease" or "occupational pathology" are so vast, so general, that there is no guaranteeing the uniformity of the sub-set of studies thus formed or that each research project listed is as interesting or original as the next.

The aim of the Section is to provide its members with a maximum amount of information in order to encourage exchanges of ideas and encounters between researchers. The data bank thus provides the titles of research projects currently under way or on the agenda, a brief summary, where appropriate, of the aims pursued and essential information on the organisations involved. It does not indicate the results of the research which are, of course, published at the appropriate time through the usual channels: research reports for internal or external use, articles in general or specialised scientific journals, etc. It is worth noting that all these publications are generally relayed through the International Occupational Safety and Health Information Centre (CIS) of the International Labour Office in Geneva.

In spite of these reservations, however, the Section's work can be said to provide a fairly accurate picture of the current research situation concerning occupational diseases in 17 industrialised nations.

3.2. It is, of course, no easy matter to classify 800 studies out of a total of 4,500 currently listed in the Research Section's data bank. Attempts were made on the basis of:

(a) the physical, chemical or biological nature of the risk;

(b) the type of disorder (respiratory tract, cardiovascular system, etc.);
but they proved fruitless. The former type of classification proved too crude and uninformative, whereas the latter was difficult to use in view of the small amount of information conveyed by the project title or summary.

Consequently, it was decided to make this whole selection of 800 studies available to interested parties while indicating that many of them concern problems such as:

—dusts and respiratory disorders;
—contact dermatitis;
—allergic phenomena;
—back pain;
—the toxicity of new and known chemical substances;
—the determination of biologically acceptable exposure limit values;
—occupational cancer;
—epidemiological studies by occupation or by specific population group; etc.

3.3. Moreover, most of the projects concern the detection and recognition of the risk, understanding the biological mechanisms involved, establishing cause-effect or dose-effect relationships and, of course, the search for preventive measures, be they of a technical, medical or legal nature or based on regulations, training or information (drawing up toxicological alertness files, for example). This research fits quite well into the logical overall approach which the National Research and Safety Institute (INRS) decided upon a few years ago and which it might be worthwhile outlining here by way of an illustration and a proposed classification scheme:

* The first stage in this approach consists in exploring the different documentary and bibliographical sources available to us. Whenever possible, epidemiological surveys are carried out in the different companies involved, for example, in the manufacture, processing or utilisation of a certain chemical, or in companies where a physical stressor becomes apparent; ideally, although such cases are unfortunately rare, these surveys enable us to draw up real epidemiological files. Epidemiological surveys precede and necessarily complement toxicological surveys. When conducted with due rigour, an epidemiological study can constitute a sort of symptomatic toxicology, supplying qualitative data which serve to orientate the systematic toxicological tests which are conducted on laboratory animals.

* The second stage consists in studying how the substance is formed and escapes into the atmosphere. It is indeed important to know how toxic substances are generated or emitted and by whom, as well as what physical or chemical properties they have.

Determination and analysis methods may be developed at the same time. This is a major concern of the staff responsible for workplace monitoring, for they need suitable, proven analysis techniques. The same applies to studying the kinetics of toxic substances in living organisms: the analyst's task is almost always a hard one, for the substances he is attempting to detect are generally present in very small quantities diluted in a considerable inorganic or organic mass from which it is very difficult to extract and isolate them. A number of the studies required are still in this metering phase.

Finally, one cannot sufficiently stress how important it is for the hygienist and the toxicologist to understand the mechanisms of deposition, penetration and elimination of toxic substances in the body, particularly in the respiratory tract. These mechanisms eventually determine the lung retention of the pollutant, i.e. the balance of what goes in and what comes out, which in turn enables us to assess the doses of toxic or carcinogenic substances the body accumulates and thus accurately predict the effects on workers of certain pollutant concentrations directly recorded in the workplace atmosphere.

* The third stage of the INRS approach also covers a large number of research projects related to biological monitoring and toxicology; it involves:

—determining the concentration of pollutant which passes into the blood of
exposed workers. This is the direct result of the information gathered in stage two above and involves problems of sampling and analysis;

—determining the intrinsic toxicity of the pollutant: toxicological animal experiments are a vast and very complex subject, and necessity rather than chance causes many research centres today to draw up a minimum general list to toxicological investigations.

The result is an evaluation of the overall toxicity and discomfort at workplaces, which it is quite logical to consider in a first approximation as the mathematical product of intrinsic toxicity times the concentration of the pollutant.

* Finally, the technical pollution control measures are the culminating point of all the preceding types of research; they involve the technical and medical preventive measures we touched upon earlier. It must be remembered that before this struggle becomes effective, certain preliminary problems have to be ironed out, particularly those relating to the representativeness of measurements or the definition of strategies for the use of sampling equipment.

When the final checks are carried out, those responsible for workplace atmosphere monitoring, be they engineers, safety officers or physicians, attempt to assess the effects of their efforts, i.e. to ensure an epidemiological feedback, which may lead them to review the preceding checks in part.

4. The case of occupational cancers

Amongst the occupational diseases which are the subject of research, there are those which stand out by their frequency. This is the case, for example, of occupational skin disorders which, according to some experts, account for 60 to 70 per cent of all cases. It is often a delicate subject to cover because of the extremely wide variety of skin lesions encountered and the highly ubiquitous nature of a number of the allergens involved. But skin disorders have been the subject of important, often exemplary research projects.

Other diseases, simply because of their severity at the time of diagnosis, acquire a highly symbolic value. This is the case with occupational cancers in particular, which have mobilised a major share of international research efforts in recent years. We shall develop this theme in the light of a number of achievements, looking also at the difficulties and costs involved, before going on to pinpoint some prospective trends for the next few decades.

4.1. Some established facts

It is now an established fact that certain physical agents, particularly ionizing radiation, have caused serious skin disorders and above all leukaemias amongst workers handling radiological equipment without suitable protection. Ore extraction workers are also exposed to these bone marrow disorders. At present, radiation protection standards have considerably reduced the risk amongst occupationally exposed populations. We also know that inorganic compounds primarily cause cancers of the respiratory tract. Metals like chromium, ferrous oxide and nickel attack the lung, the larynx and the nasal cavity, and that miners are at risk as well as metalworkers.

Arsenic is known to be dangerous for the lungs, but it also causes skin and liver tumours in workers in the chemical industry, in refineries and in pesticide production plants. Furthermore, it is dangerous to miners and foundry workers. The asbestos mineral fibre is clearly responsible for pleural cancer but also for lung and peritoneal cancer, and it is a threat not only to workers who manufacture it but also to those who use it in the course of their work. Wood dust can cause cancer of the nasal fossa and sinuses in cabinet makers.

Certain organic compounds (soot, tar, coal and petroleum derivatives, etc.) are responsible for cancers of the skin, the lung, the larynx and the scrotum, amongst chimney sweeps, for example. Benzene is a somewhat different matter; it can cause leukaemia in workers who manufacture explosives or use glues. Inhaled amines act at a distance from the absorption site; their metabolites can be stored in the liver and
cause hepatomas. When eliminated in the urine, they can cause bladder cancer. Dye, paint and rubber manufacturers are amongst the most highly exposed groups, as are dry cleaners.

Another chemical, vinyl chloride, exposes workers in the plastics industry to a particular form of liver cancer called angiosarcoma, as well as to brain tumours.

Every year the International Agency for Research on Cancer in Lyons, France (IARC) systematically tracks down the suspected substances. The impressive sum of its compilations and findings is published in its interesting and voluminous monographs. Researchers classify factors and risks in three groups. The first includes chemicals and manufacturing processes which epidemiological surveys have found with certainty, to have carcinogenic effects on man, as is the case of the substances mentioned above. The second group comprises those substances whose effects on man are as yet uncertain in so far as there exists the possibility of interference from another cause in the aetiology of the cancers. This leaves group three, made up of products which appear to be innocent for the time being but which we must nevertheless keep an eye on for any signs of noxious effects. Indeed, we have every reason to believe that certain suspicions could well be borne out in the future.

Man is exposed to over 60,000 chemical substances, mainly through industrial activities. Less than 10,000 of these are thought to have undergone tests for possible carcinogenic effects. Eight hundred of these substances have been found suspect. In 1979, 142 of the 442 compounds covered by the IARC study were found to have irrefutable carcinogenic effects in animals. Moreover, industry invents hundreds of new products every year. One every twenty minutes, they say. These figures show how researchers are racing against time to warn us of nascent dangers.

4.2. The different approaches

All this research has given rise both to toxicological studies, which are often long and costly, and to epidemiological surveys, which are the only means of providing definite proof.

The usual approach for detecting new carcinogenic substances is by animal experiments. Cohorts of rats and mice are sacrificed in this cause. The research projects usually take several years and require major infrastructures for, according to international standards, each substance must be tested on several–hundred animals. The substances are administered in the same form as in real or potential human exposure situations and via the same channels. At the National Cancer Institute in the United States, only 252 chemical compounds have been tested so far, because of the high cost of such research: 300,000 to 400,000 US dollars per compound. How, then, in view of the time required and the cost of the experiments, can we test the thousand or so new substances that come on to the market every year?

Some researchers nowadays carry out simpler screening tests on animal cell cultures (in vitro studies). Others, like Bruce Ames in California, experiment on bacteria colonies. These tests are infinitely less costly – between 300 and 1,200 US dollars – and faster. But scientific opinion still differs with regard to the efficiency of the techniques used. The question also arises as to whether the results of animal experiments are directly applicable to man. Some scientists believe them to be 95 per cent reliable and efficient.

Epidemiological studies play a decisive role in the detection of occupational cancers and are the best way of tracking down carcinogenic risks to man. The connection between cancer and tobacco was established largely through epidemiological studies. The Anglo-Saxon countries have been conducting this type of investigation for some decades and have come up with some valuable results: when applied to the work environment, conventional epidemiological methods provide us with a picture of safety and health at the workplace (descriptive ergonomics), improve our knowledge of occupational hazards (analytic epidemiology) and guide us in preventing disease (intervention epidemiology).

These two complementary approaches, toxicology and epidemiology, have given considerable impetus to our understanding of the mechanisms of cancer development. But it
seems that we still have a lot to learn with regard to determining and quantifying the respective roles of environmental and nutritional factors, lifestyle, drinking and smoking, congenital factors, therapy, geographic factors and, of course, the occupational environment in a phenomenon as multi-factorial as the onset of most types of cancer.

The complexity of the chemical environment to which man is exposed, the possible interactions between the various endogenous and exogenous factors, the latency associated with the mechanism of cancer all have a masking effect on any genuine evaluation, making it all the more urgent that we take preventive action. In the occupational field, this prevention takes place at the level of all the factors which contribute to generating the phenomenon, including the determination and enforcement by the authorities of exposure limit values and also, of course, the search for substitution products.

4.3. A look at the prospects

It is no easy task, needless to say, to list all the studies which remain to be carried out in the vast field of occupational cancer if we are to eradicate the scourge. Indeed, the prospects which are opening up today will probably have to be reviewed tomorrow in the light of new results or scientific progress achieved in the meantime in medical and analytical research. All we can do is follow up a few paths and indicate certain trends by consulting the data bank which the ISSA International Section for Research has set up.

In terms of fundamental research first of all, much remains to be done before we fully understand the mechanisms of cancer development; even if this type of research does not seem to be specific to the occupational environment, the presence of occupational hygiene experts should make itself felt in international research in so far as they alone represent the concern for the work environment and the corresponding research component.

Similarly, we should continue the efforts which have already been undertaken to clarify the relationship between mutagenic and carcinogenic substances and to open up research to cover physiological functions and systems which have received little attention to date, such as the reproductive function.

In the more practical field of research directly concerned with risk prevention, numerous countries have taken determined steps to establish exposure thresholds and limit values. There is still much room for improvement with regard to limit values, particularly in relation to chemical substances which can irreversibly damage essential biomolecules and with regard to toxicological co-factors (initiation, memory, promotion). When we realise how important it is to study associations of substances (for workers are rarely exposed to only one stressor at a time) we have a measure of the magnitude of the task before us. This would involve studying not 1,000 pure substances per year but combinations of studies taking substances two by two varying concentrations at first, then three by three, which would keep the toxicologists busy for many years to come. It is therefore necessary to limit this research on substance associations to the major antagonists, antidotes or co-factors, like the main carcinogenesis promoters and perhaps the main medicines or toxic substances used by adults in their everyday life outside work.

The same criteria of need and availability justify a number of attempts to explore the correlation between structure and activity. This is a highly promising branch of research, even if it is still at the exploratory stage and the results still leave much to be desired. It could lead eventually to the setting up of computer programmes to provide a real support for industrial toxicological alertness.

Finally, we must mention the need to pursue research on substitution products; whenever possible these will be an asset to prevention, but here, too, the solution is not universal. We must proceed with the utmost caution before replacing well-known toxic substances by substances whose effects, particularly in the long term, we are not yet fully familiar with. Take, for example, the case of some chrysotile miners in Cyprus, who were discovered not to be suffering from the pleural cancer characteristic of asbestos exposure but rather from excess lung cancer probably attributable to a glass fibre of the zeolite family which occurs naturally in the local rock. Man-made mineral fibres also give cause for suspicion
and the utmost caution is recommended until the findings of the numerous research projects currently under way come to light.

5. Difficulties in international comparisons and transfer of experience

It is not easy to make comparisons between different countries in terms of occupational accidents and diseases of a possibly occupational origin. With regard to diseases, we might expect the same causes to produce the same effects whatever the geographical location: a substance which is toxic in one country is toxic in another. But this is not strictly true of the specific toxicity of substances used in industry; most of the time there is an individual susceptibility in a population considered to be homogeneous. What happens, then, when we compare several ethnic groups? Furthermore, the effective toxicity of these substances depends largely on how they are used, what processes are involved and what precautions are taken. Also, the pathological effects of industrial pollutants cannot be studied without taking into account the way of life of the exposed persons, their general state of health and the medicines they use, etc.

Having made all these reservations, however, it is undeniably in the best interest of those responsible for safety and health in the developing countries to follow developments and results of research carried out elsewhere.

With regard to transferring experience, the type of help the developing countries can expect from research carried out by the international scientific community in the field of occupational diseases is generally a matter of transposing the results to fit the needs prevailing in their own countries. This is not always easy, of course, since there are certain elements which are not so directly transposable. Errors committed by certain countries in the course of their industrial development cannot always be avoided by others: the general context is never identical; opposition must be overcome at every decision-making level if people are to change their way of thinking, and it may be necessary to increase the mean level of education of executive staff and workers alike. There is also the problem of decisions affecting a particular area but which are taken on the other side of the world.

Finally, it goes without saying that living conditions and, a fortiori, survival take precedence over concerns such as working conditions and job satisfaction, and that where such priorities exist there is little scope for making provision today for problems which are likely to arise in the future.

6. Closing remarks

If there is a field in which excessive nationalism is to be condemned, it is the field of research and, in particular, research on occupational risk prevention and the improvement of working conditions. The technical and scientific efforts required, not to mention the cost of research, are such that it is unthinkable that we should knowingly indulge in the unnecessary duplication of research. At least when it comes to taking action, we should base ourselves on the work which is being undertaken or envisaged by others: it is interesting to note, in this respect, that theories and ideas generally follow a parallel course in countries at the same level of industrial development and that concrete efforts to put them into practice in any one part of the world should be widely publicised.

There are two practices which can hinder research efforts in occupational risk prevention. One is to attempt to isolate a risk; risk factors must be considered in their overall context, which is where combined stressor studies become useful. Equally arbitrary and counterproductive is the practice of dividing research by economic sector: agriculture, mining, industry, etc. Risk detection and prevention methods are almost invariably general in their scope.

Finally, it is important to note the major influence exerted by the political and economic environment on the induction and dynamics of occupational safety and health research: it would be helpful if research findings and their application were more independent in this respect. Research results will obviously be of practical interest if they are not hampered by economic pressures and if regulations are evenly balanced. Overcoming these final problems will require considerable insight and determination.
THE PREVENTION OF OCCUPATIONAL DISEASES IN COUNTRIES IN ASIA AND THE PACIFIC

By
Mr Sentanoe Kertonegoro

1. INTRODUCTION

It is clear from the national monographs and other papers submitted by ISSA member organisations from various countries in Asia and the Pacific that the systems designed to identify, treat, rehabilitate, and compensate occupational disease victims can vary enormously.

The present report concentrates on prevention; arguably the most important single aspect in the field of occupational diseases.

Social security legislation and employment injury prevention legislation which both started many years ago, have in recent times followed parallel or converging courses. Social and technological progress also required improved occupational disease legislation and control methods which are apparent today. Indeed, in several countries, it may be seen that provisions made for prevention and/or compensation are so closely allied that social security bodies have become directly involved in preventive measures.

What is evident is that directly or indirectly social security organisations are being drawn more and more into the preventive field. We can see this development, for example in France, Germany and some Canadian provinces where relatively recent legislation requires agencies responsible for employment injury insurance to actively and directly engage in injury prevention programmes. We also find that in Australia, the Accident Compensation Act (Victoria) includes provisions for reducing the incidence of accidents and diseases in the workplace.

The range of activities carried out by social security bodies is very broad and includes assistance and advisory services to employers, control of enforcement of safety rules, research, statistics, etc. Social security staff dealing with prevention may include safety technicians, prevention specialists and inspectors whose findings may eventually be passed to government ministries which also have responsibilities for occupational safety and health.

II. LEGISLATION

Prevention of occupational disease legislation is not always easy to identify, perhaps because responsibilities lie in different hands in different countries. In most cases, identification is fairly clearly defined in lists associated with social security legislation but prevention of such diseases is often another matter.

Government ministries such as health, social services and labour usually have large parts to play in prevention which may be defined in national legislation. Coupled with this, we often find ministerial and regional decrees, negotiated agreements between employers' and workers' representatives, as well as provisions which may be included in social security laws. These may be national, regional and local or, to make the picture even more confusing, appropriate only to particular trades or industries.

The Accident Compensation Corporation in New Zealand carries out safety and accident prevention programmes through its safety division, the functions of which are:

(i) stimulating interest in safety and accident prevention by means of education and publicity;

(ii) publishing and disseminating safety information;

(iii) sponsoring, assisting and conducting safety promotion and campaigns;

(iv) stimulating and supplementing the work of other bodies concerned with safety promotion; and

(v) research into cases of accidents.

An occupational safety advisory council was set up under the auspices of the Corporation for
the co-ordination of accident prevention activities carried out by many organisations, including several government departments such as those of labour, marine, works and mines.

Direct involvement of social security agencies in accident prevention is also common in developing countries, especially in countries where other agencies (e.g. the Ministry of Labour or other specialised bodies) tend not to be very developed. Many examples can be found in Latin America, where a fairly broad mandate to implement accident prevention activities is given by legislation to the social security agencies of Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Nicaragua and Venezuela.

The degree of actual implementation of such statutory provisions varies from country to country depending on available resources both in terms of finance and of technically qualified personnel to carry out the various functions of research, standard setting, inspection and enforcement. There is, however, no doubt that in the last few years some countries have made substantial progress in this direction.

In Asia, relevant legislation can be found, for instance, in Burma, Malaysia, and Japan. Under the Burmese law, the Social Security Board may organise educational campaigns for employers and employees in close cooperation with the factory inspectorate and other public and private bodies concerned, with regard to measures for the prevention of employment injuries. The Malaysian law provides that the administrative agency for the social insurance scheme may promote measures or cooperate with existing institutions for the improvement of occupational safety of insured persons. The Workmen's Compensation Insurance Law of Japan also contains similar provisions allowing the scheme to carry out preventive activities, among which the most important is the provision of financial grants to different organisations actually engaged in preventing employment injuries.

It is obvious that the link between compensation and prevention is stronger within the framework of social legislation than in countries where compensation is simply based on individual employer's liability for compensation (Australia and the United States). For example, in Australia many insurance companies employ inspectors and safety surveyors who recommend improvements in safety precautions which may constitute conditions for acceptance of the risk.

There are also many examples of employment injury benefit legislation containing no reference at all to prevention especially where individual employer's liability still exists. In these countries, occupational safety and health are carried out under the sole responsibility of prescribed government departments or other agencies specialising in preventive work. The interesting feature is, however, that even in such situations, social security may be called upon to contribute indirectly to prevention. In Indonesia, for example, financial assistance has been given to the provision of improved health care facilities and workers' housing, both of which may be regarded as indirect contributions to disease prevention. Assistance may also be given to employers for educational and training activities designed to reduce the risk of industrial injury.

In some countries, financial support has been provided to various organisations concerned with the prevention of employment injuries; the different projects have included the promotion of activities of national safety associations, research studies and experimental work in industrial medicine and safety, medical examination of workers being exposed to specific occupational hazards and improvement of working environments.

As previously stated, much is being done by social security organisations in the area of prevention of occupational injury, but it is difficult to identify many common trends.

III. INTERNATIONAL STANDARDS

The first specific provision regarding prevention of employment injury to be found in the International Labour Organisation's (ILO) international instruments concerning social security was included in the Income Security Recommendation, 1944 (No. 67). However, it is interesting to note that as early as 1929, the Prevention of Industrial Accidents Recommendation, 1929 (No. 31) suggested, inter alia, that the State should use its influence with accident insurance companies and institutions...
in order to obtain their cooperation for the purpose of accident prevention. The type of cooperation which was envisaged at that time was, for instance, the reporting of causes and consequences of accidents, collaboration with industrial and other safety committees and institutions, cash advances to employers for the improvement of safety appliances, etc.

The Income Security Recommendation, 1944 (No. 67), to which reference is made above, provided, among other things, that “persons exposed to the risk of an occupational disease of gradual development should be examined periodically and those for whom a change of occupation is indicated should be eligible for compensation”. More recently, the ILO Employment Injury Benefits Convention, 1964 (No. 121), which has revised pre-war Conventions concerning workmen’s compensation, requires in its Article 25 that each member State ratifying should “take measures to prevent industrial accidents and occupational diseases”.

IV. PROTECTION MEASURES

We have noted that despite considerable advances in some areas towards the greater involvement of social security organisations in the field of prevention, the part played by other agencies is still very significant. In each of the country monographs presented in connection with this Meeting, the Labour Ministry seems to take the lead in prevention measures. Labour inspectors aided by various specialists are the front line troops and the Indonesian experience is so similar to that of the majority of countries in the region that it is worth recording here.

The occupational safety and health programme is an aspect of labour administration, which should be viewed as an integral part of national development. This programme in Indonesia has been constantly striving to become an effective means for labour protection and the Minister of Manpower has indicated that the occupational safety and health programme is to be afforded high priority in the Department of Manpower.

In the current Five-Year Development Programme, some problems in the field of occupational safety and health have been noted. Industrial development in which new technology and hazardous substances are introduced has created new environmental and industrial hazards for workers, who may be exposed to harmful substances, processes and environments. The Government realises that these industrial hazards must be controlled through a continuous development programme in occupational safety and health. One of the programmes, i.e. a safety campaign, is launched every year, and such campaigns have significantly improved the awareness of workers and employers.

For supporting the occupational safety and health programmes, internal and external resources are used. Regional and international collaboration is needed for programme development. Such collaboration may be in the form of technical cooperation, exchange of information, training and education, advisory services etc. In some cases, assistance of experts and cooperation among the developing countries have been found to be necessary and useful.

In Indonesia, the policy of occupational injury prevention is mainly based on the following laws:

(i) Act No. 4, 1969 on the Basic Provisions respecting Manpower;
(ii) Act No. 1, 1970, on Safety.

These two Acts mention that:

1. Every worker has the right to protection in the fields of safety, health and morale.

2. The Government should develop measures for the protection of workers including their safety and health.

3. There should be a system of safety and health inspection which has functions as follows:

(a) to secure compliance with the provisions of the safety and health laws and regulations;
(b) to provide technical information and advice to workers and employers through their organisations or directly to individuals, on the Occupational Safety and Health Act and regulations;
(c) to collect data on industrial injuries for the development of policies and actions; and
(d) to report to the Government on violations of the norms.

The Director General for Industrial Relations and Labour Standard Supervision has the responsibility to inspect every workplace and for that purpose he appoints safety and health inspectors. The Director General also has the right to appoint safety and health experts to support the activities of the occupational safety and health inspectors.

To supplement the government agency, safety and health committees in industry should be established. The members of the committees would consist of representatives of employers and workers. Safety and health committees should be established in any industry which employs 100 or more workers, and in other industries with 50 or more workers depending on the degree of the existing hazard. For industries with less than 50 workers, there should be a safety officer. With the establishment of the safety and health committees, the participation of employers and workers in accident prevention programmes would be encouraged. These committees are extended to the regional level in the form of Regional Safety and Health Councils and to the national level as the National Safety and Health Council. The Councils are the consultative bodies to the Government in the form of the Ministry of Manpower, and the members of these Councils may be from Government, employers' and workers' bodies, i.e. tripartite.

When an injury occurs, it must be reported to the Department of Manpower within 48 hours. The next action is to investigate the causes of the injury and start the process for compensation. The main policies for accident prevention are in the hands of the Ministry of Manpower, while the accident prevention programmes in mining sectors are dealt with by the Ministry of Mining and Energy, and for radioactive hazards by the Directorate General for Atomic Energy.

In 1986, there were 91,700 approved undertakings with a total of 4,134,904 workers divided into 3,016,376 male and 1,094,422 female Indonesian workers, and 23,018 male and 1,088 female foreign workers. For inspection of these undertakings, there were 513 safety and health inspectors and a very limited number of safety and health experts. The inspectors specialise in different fields such as boiler safety, fire safety, electrical safety, mechanics, occupational health, etc. and are distributed throughout Indonesia. These numbers represent the total number of technical and professional occupational safety and health officials and do not include clerical staff. There were 3,959 safety and health committees established; a small number compared with the total number of undertakings.

The injuries in the workplaces reported in 1986 involved 508 victims (35 fatal accidents, 98 serious injuries and 375 minor injuries). Since the 1984 safety campaign, the number of industrial fatalities has decreased significantly. These data are based on the reports of the employers, in accordance with the Act No. 1, 1970 on Safety; although it is quite possible that many injuries were not reported for various reasons. Included in these figures were some 40 occupational disease victims.

Compared to the situation of some years ago, occupational safety and health inspection has achieved much in terms of fulfilling its functions, despite the fact that there are still problems which must be solved by further improvement in inspection activities. The major practical difficulties encountered are listed below:

(i) The rapidly-growing number of industries and progress in new technology create a situation where the number of inspectors cannot keep up with the needs.
(ii) Awareness by the community in general and by employers and workers in particular of the legislation still needs further development in order to ensure that compliance with the safety and health laws and regulations becomes a way of life for all those concerned.
(iii) So far, penalties for violation have not been seriously considered.
(iv) The process of development is fast, whilst occupational safety and health legislation sometimes lags behind.
(v) Educational levels of workers are relatively low and therefore they are not always aware of their rights and obligations.

(vi) Distribution of the inspectors to the regions is imbalanced and the inspection work in many areas is in arrears.

(vii) Some undertakings are difficult to reach (geographical distances).

(viii) Inspectors find it difficult to keep abreast with the development of science and technology.

(ix) Lack of equipment and other facilities.

In order to solve these problems, the policy and programmes in the field of occupational safety and health development and supervision have been improved, as follows:

1. Change to an Integrated Labour Inspection System, based on the Minister’s Regulation No. 03/1984, a System which is expected:
   (a) to optimise the labour inspection activities: the new inspectors will become general inspectors covering labour and occupational safety and health standards, senior inspectors will become specialised inspectors;
   (b) to improve the goals and frequency of inspections;
   (c) to monitor and handle cases more rapidly;
   (d) to give better service to the enterprise community, etc.

2. To improve the quality of the inspectors, especially with regard to the development of science and technology.

3. To concentrate inspection on the vital, important enterprises, especially on the enterprises that can support the government income, using high technology and high risk.

4. To improve the facilities which support inspection activities.

5. To complete and improve the Labour Act and regulations.

6. To support the establishment of safety and health committees in the enterprises.

7. To give safety awards to companies with the best safety record.

8. To provide safety and health campaigns for improving the safety and health awareness of employers and employees.

9. To improve the role and function of the National and Regional Safety Councils.

10. To consider other ways of carrying out the technical inspection of certain aspects of safety and health in order to help labour inspection activities generally.

11. To make the best use of technical assistance and collaboration with regional and international agencies.

To improve the role and activities of the labour inspectors, we obtained technical assistance from the UNDP\textsuperscript{1}/ILO through the Improvement of the Working Conditions (PIACT) Project. By means of this Project, we have provided training, symposia, workshops and fellowship programmes for the labour inspectors in the fields of mechanical safety, construction and fire safety, chemical safety, welfare facilities and service and labour inspection systems.

In addition, we are examining the possibility of obtaining technical assistance from certain developed countries. One of the ideas is based on the result of the symposium concerning technical cooperation among Asean countries in which assistance from ILO and ARPLA\textsuperscript{2} could be applied to developing countries in areas such as:

1. Facilities for training in the field of occupational safety and health which could be shared among the developing countries in the region in order to remedy the acute shortage of competent labour inspectors in all the member countries.

2. The methods to undertake evaluation of new hazards being introduced into the

\textsuperscript{1}UNDP—United Nations Development Programme.

\textsuperscript{2}ARPLA—Asian and Pacific Project for Labour Administration.
countries are very limited, therefore efforts to avoid duplication through exchange of research results should be promoted in order to maximise the use of very scarce technical expertise in the region.

3. Developing countries may find it feasible to establish a "hazard alert system". In view of similarities in their requirements for controlling industrial hazards, many countries may be asked to provide assistance in developing such a system.

4. Resources should be made available from multilateral and bilateral sources in order to enable the ILO or another suitable body to serve as a "clearing house of information" for the region on such matters as pertinent legislation, practices, organisational arrangements, and other information of interest to member countries.

5. The assistance and advice of ILO should be sought to strengthen the organisation and management of labour administration bodies responsible for industrial safety and health programmes.

V. CONCLUSION

In reviewing the measures which social security schemes might adopt for promoting the prevention of occupational diseases, it is desirable to recall the various factors which may lead us to determine the best course of action to follow.

Firstly, we have the scope and organisation of the scheme itself, including the:

(i) type of liability (social insurance, employers' liability, etc.);
(ii) extent of the coverage of persons protected (newer schemes are unlikely to have universal coverage);
(iii) financial soundness (schemes with cash surpluses are more likely to engage in prevention activities);
(iv) efficiency of administration (within the scheme and within other appropriate authorities required to engage in prevention activities);
(v) degree of autonomy (with the best will in the world, no scheme may participate in activities if controlling bodies will not give permission).

Secondly, we have the problems of competence. Industrial injury prevention is a very specialised area and it would be virtually impossible to separate disease and accident in this context. We must also take into account the levels of education and training, the wishes of workers, employers and government.

What does seem possible is that social security schemes should be in a position to provide:

1. Data (from claims records which often contain extensive information regarding incidence, dates, degree of disablement, location, etc.).
2. Access to employers (regular contacts are often maintained with employers who are sometimes rarely visited by heavily burdened labour inspectors).
3. Education (for employers and workers in the form of talks, leaflets, etc.).
4. Financial support and incentives (this may be the most important role for many schemes. The compulsory nature of social security contributions can be a major factor if seeking resources to engage in preventive activities. The role may be direct or indirect, concentrating on all or some employments according to size, nature, location or degree of risk, depending on the perceived needs in the country concerned).

As a final comment, we have seen that there are many aspects of social security which have a bearing on the prevention of occupational diseases. We have focused on preventive programmes at the place of work, but the national monographs show that pre-employment health screening, periodic checks and health care programmes also exist in many countries. Moreover, it is considered that housing programmes for workers can make a real contribution to occupational health and safety and some schemes, including in Indonesia, are stepping up their activities in these areas.
1. Definition of occupational diseases

In this presentation, the prevention of those diseases which are defined in the List of Occupational Diseases appended as Schedule I to the Employment Injury Benefits Convention, 1964 (No. 121), amended 1980 (Annex 1) will be considered. Legal definitions of occupational diseases at the national levels may differ from this list, but the principles of prevention of occupational diseases remain valid in all cases.

In the Schedule, occupational diseases are listed according to the respective causal agents. Some other factors of the working environment or working processes not mentioned in the list can also cause impairment of health to workers, of productivity at work or their well-being. Examples of such factors are unfavourable microclimatic conditions, inappropriate design or construction of the workplace and machinery, imposed work posture or excessive workload. Adverse effects of stress at work are frequently debated in this connection and the term of work-related diseases is sometimes used when it is found that the prevalence of some general disease is increased in the working population, presumably caused by harmful factors at work. Some of the adverse effects of the above factors can also be reduced or prevented by control measures aiming at the prevention of occupational diseases; however, different approaches have to be applied in most instances which will not be discussed in this paper.

2. Causes of occupational diseases

The main causal agents of occupational diseases (and examples of the relevant health impairment) are the following:

2.1. Physical factors:

—noise (hearing impairment, deafness);

—vibration, in particular segmental vibration transmitted from vibrating tools such as chipping hammers, drilling machines and other pneumatic tools or motor chains to arms and hands holding the tools (disorders of muscles, tendons, bones, joints, blood vessels or nerves of the arms and hands);

—ionising radiations (radiation dermatitis, eye cataract, bone marrow damage, cancer of various organs).

2.2. Chemical substances:

—toxic (acute and chronic poisoning);

—corrosive (irritation of the skin, eyes, or respiratory tract);

—allergenic (dermatitis, bronchial asthma);

—carcinogenic (cancer of various organs).

2.3. Airborne particulate matter:

—inorganic fibrogenous dust, such as silica, coal or asbestos (silicosis, coal workers’ pneumoconiosis, asbestos-related diseases);

—organic dust, such as vegetable textile fibres: cotton, flax, hemp, jute (byssinosis) or other animal or vegetable dust (farmers’ lung, bagassosis, bronchial asthma).

2.4. Biological agents (infectious and parasitic diseases).

3. Prevention of occupational diseases

The prevention of occupational diseases is based on two approaches: elimination or control of the causal agent in the workplace, and surveillance of the health of the workers.

Primary prevention means the elimination of the exposure of workers to the harmful agent, or its reduction to a level considered as innocuous. For various reasons, mostly technical, sometimes of economical nature, this target cannot always be achieved and secondary prevention is utilised.

Secondary prevention indicates early detection of occupational diseases in pre-symptomatic or reversible stages by means of medical examinations.
**Tertiary prevention** signifies management of identified cases of occupational diseases.

It is generally accepted that priority should be given to primary prevention. It should be kept in mind that even detection of an occupational disease at its earliest discernible stage cannot always prevent further progression or deterioration, in particular in the case of cancer, pneumoconioses or allergic diseases.

3.1. **Primary prevention of occupational diseases**

Primary prevention of occupational diseases is the main field of occupational hygiene. The procedure basically consists of identification, evaluation, and control of health hazards at the workplace.

3.1.1. **Identification of a hazard** may be an easy task if the exposure to a hazard is clearly evident, such as when working in a noisy environment or in a lead smelter, when spraying toxic pesticides, or taking care of patients suffering from communicable diseases. On the other hand, the identification of the hazard may be very difficult in the case of exposure to agents which are not perceptible by our senses, such as ionising radiation, or to materials of unknown composition. Material safety data sheets which give the composition of commercial products, as well as appropriate labelling of the products, shall be required to be provided by the manufacturers or suppliers. Personal experience of an industrial hygienist is of invaluable help; however, it may not be sufficient for the appraisal and literature searches or advice and expertise from specialised occupational health institutions may be necessary.

3.1.2. **Evaluation of the hazard** is a step which follows after its identification, and shall result in quantification of the level of exposure and assessment of the risk to the health of the workers.

The evaluation can be based on sound estimates, but usually some instrumental measurement is needed. For example, workplace noise levels are recorded by noise dosimeters, levels of exposure to ionising radiation by radiation dosimetry. Environmental monitoring of air pollutants, i.e. air sampling, can show the concentration of airborne particulates, gases or vapours that workers may inhale, and biological monitoring, i.e. analytical estimation of toxic substances in blood, urine and rarely in other biological material sampled from the workers, can assess the amount of the toxic substances actually absorbed through inhalation, penetration through skin, or by ingestion.

The evaluation of whether a workplace complies with accepted hygienic criteria and whether a risk of health impairment due to the exposure to a hazardous agent exists or not, is based on several sources of information, in particular:

—comparison of the measured data with the legal provisions of the national occupational health and safety regulations such as exposure limits, etc.;
—scientific literature and guidelines, issued either at the national level or recommended by international organisations;
—co-operation with other health professionals who have examined the exposed workers and evaluated their health status in relation to work.

3.1.3. **Control of the hazard** consists of measures taken at three levels: at the source of the hazard, during its transfer to the worker, and at the route of entry in the worker's body. The principles are illustrated in a scheme (Annex 2) concerning toxic substances, but are valid in general.

Control of the hazard at the source is the most efficient way of prevention. The method of choice, whenever possible, is the replacement of harmful materials or processes by harmless or at least less harmful ones. For example, the dangerous benzene can be replaced as a solvent (of rubber glues or paints) by the less toxic toluene. Dry-drilling in mines can be mostly replaced by wet-drilling which reduces the formation and release of airborne dust.

If substitution is not possible, the next step is to attempt to control the release of the harmful agent from the source and its transfer to the workers by engineering control measures. The source can be fully enclosed or separated from the workers. In the case of airborne pollutants, local exhaust systems and general ventilation of
the workplace can be installed. Careful maintenance must be performed on the systems if efficiency is to be provided.

The third important approach to controlling exposure to harmful agents is to limit their entry into the body by providing workers with personal protective equipment such as respirators, goggles, gloves and protective clothing.

It is a frequent misunderstanding that personal protective equipment is the cheapest and safest way to control workers' exposure to occupational hazards. However, there is discomfort in wearing them, sometimes poor worker acceptance, and variable levels of protection achieved. The requirement must be adequate to the existing hazard (e.g. the filter of a respirator must correspond to the substance which shall be absorbed) and properly fitted, a condition impossible to achieve, e.g. wearing of respirators by a bearded man. An important component is the requirement that protective clothing be changed as frequently as appropriate and not worn outside the work area. This effort is to be facilitated by providing showers or other washing facilities after the work shift.

Some reduction of exposure can be obtained by administrative controls such as schedules where workers spend limited amounts of time in areas with potential exposures, with the overall result that the average exposure is at or below the recommended exposure limits.

Ideally, all these control approaches should be used together to develop an overall control strategy that will deal with all aspects of potential exposure to harmful agents at the workplace. Engineering control measures shall play a predominant role. Short-term measures such as extensive use of personal protective equipment may be adopted immediately after a problem is recognised in order to allow time for developing engineering controls or process modifications that will provide more long-term control. Personal protective equipment shall not be considered as replacement of engineering control, although it must be recognised that respirators or fresh-air supplied hoods may be the only effective control device for some exposures such as those faced by maintenance or clean-up workers.

3.2. Secondary prevention of occupational diseases: preventive medical examination of workers

3.2.1. General

As indicated above, medical examinations represent only a part in a comprehensive system of activities aiming at protection of workers' health. The first priority should be given to engineering control measures at the workplace and appropriate work practices. These measures may be complemented by the use of personal protective equipment, and this whole complex shall keep the worker free from exposure to health hazards. Only if this is not possible should health examinations of workers start to play their major role.

The main purposes of health examinations are to assess the ability of a worker to carry out certain jobs from the medical point of view, to assess any health impairment which may have been related to exposure to harmful agents inherent in the work process, and to identify cases of occupational diseases in accordance with the national legislation. It shall be underlined that medical examinations cannot protect workers against health hazards and that they cannot substitute appropriate control measures. Medical examinations can only help to identify health conditions which may make an individual more susceptible to the effect of hazardous agents or detect early signs of health impairment caused by these agents. In some instances, e.g. in cases of pneumoconioses or cancer, even this early detection may be too late to prevent further deterioration of the disease.

Several important ILO Conventions and Recommendations in the field of occupational safety and health provide that workers exposed to the health hazard in question shall undergo medical examinations, provided free of charge to the workers and, as far as possible, carried out in their regular working hours, without loss of earnings.

3.2.2. Types of preventive examinations

Details about health surveillance are given in the Occupational Health Services Convention, 1985 (No. 161) and Recommendation, 1985 (No. 171). Accordingly, surveillance of workers' health in relation to work shall include, in the
cases and under the conditions specified by the competent authority, all assessment necessary to protect the health of the workers, which may include the following types of preventive examinations:

(a) health assessment of workers before their assignment to specific tasks which may involve a danger to their health or that of others;

(b) health assessment at periodical intervals during employment which involves exposure to a particular hazard to health;

(c) health assessment on resumption of work after a prolonged absence for health reasons for the purpose of determining its possible occupational causes, of recommending appropriate action to protect the workers and of determining the workers' suitability for the job and needs for reassignment and rehabilitation;

(d) health assessment on and after termination of assignment involving hazards which might cause or contribute to future health impairment.

Provisions should be adopted to protect the privacy of the workers and to ensure that health surveillance is not used for discriminatory purposes or in any other manner prejudicial to their interest.

3.2.3. Indications for preventive examinations

Although the Occupational Health Services Convention and Recommendation, 1985, provides that occupational health services shall be progressively developed for all workers, in all branches of economic activity and all undertakings, the relevant international labour Conventions and Recommendations do not provide that every worker shall undergo health assessment. Health examinations apply to those workers who are potentially exposed to certain occupational health hazards, or who are liable to put the health of others in danger.

The latter provision is a clear indication to professions such as airline pilots, bus drivers or crane operators. As a rule, competent authorities prescribe the obligation for health examinations of workers in such professions, the type of examination and the level of health required, e.g. minimum visual or hearing acuity, physical and mental ability.

The implementation of the former provision—examinations in case of potential exposure to certain occupational health hazards—requires some more consideration. It must be decided whether a certain occupational health hazard exists in a workplace to such a level that it may impair the health of a worker and that for this reason a health examination of the worker is necessary.

As a basic checklist for the identification of potential health hazards (as discussed under 3.1.1), the List of Occupational Diseases (Amended 1980) appended to the Employment Injury Benefits Convention, 1964 (No. 121) can be recommended. Although its main purpose is to provide guidance for compensation of occupational diseases, it can also well serve for their prevention. A few additional hazards, not mentioned in the list, can be added according to national conditions.

If the presence of an agent mentioned in the list is identified, the decision as to whether health examinations shall take place or not must be taken. It can be based on comparison of the actual level of the hazardous agent in the workplace with a well-established exposure limit. Exposure limits are levels of hazardous agents in the workplace, such as concentrations of toxic substances in the air, intensity of noise or ionising radiation which, according to current knowledge, do not cause health impairment of workers exposed to them during their whole working life. In fact, the relevant ILO Conventions and Recommendations provide that member States shall establish their exposure limits, or other criteria for the evaluation of working environments and exposure of workers. As an example of the use of exposure limits, work in a noisy environment can be given. It has been established that noise levels which may cause hearing impairment are about 85 to 90 dB (A) as whole-shift average. If workers are exposed to lower levels of noise, it would be superfluous to carry out an examination of their hearing, whereas at higher exposure levels such examinations are reasonable. Similar approaches can be applied in the case of toxic chemicals and other agents. In some countries, the competent authorities have prescribed so-called
action levels corresponding from about one-tenth to one-third of the exposure limit approved by the national legislation. Workers exposed to levels below such action levels do not undergo health examination.

3.2.4. Content of the preventive examination

The assessment of health shall be based on a full medical examination, i.e. taking the history of the individual, his clinical examination by a physician, taking blood pressure and routine urinalysis. Special attention shall be given to the status of the possible target organ or system susceptible to be damaged by the hazardous agents, and special examination or laboratory tests may be required for this purpose. For example, in the case of exposure to noise, an examination of the ears shall be carried out and the hearing acuity shall be recorded, even using an audiometer, if necessary. In exposure to silica or asbestos dust, a chest X-ray and elementary lung function tests shall be taken. If the toxic substance damages blood cells, such as lead or benzene do, or the liver, such as may be the case of carbon tetrachloride, blood counts or liver tests shall be performed.

It is evident that the decision about the content of the examination requires special knowledge and so does the interpretation of the results of the examinations. For this reason, preventive examinations shall be confined to specialised occupational health services which ensure a good quality of health assessment. Only qualified specialists in occupational medicine shall be authorised for the interpretation of abnormal results, health intervention and notification of occupational diseases. It is highly recommendable that health assessment of workers be concentrated to a limited number of specialised occupational health clinics or departments in a country.

3.2.5. Frequency of periodic examinations

The frequency of periodic examinations shall correspond to the nature of the hazard and probable development of the related health impairment. Even in high-level exposure to noise or silica dust, the first signs of hearing impairment or dust-related lung disease – silicosis – rarely appear earlier (in present industrial conditions) than in a few years of work. It would be superfluous to request health examinations at intervals of a few months, except in the case where some reason is found in the individual’s health condition by the physician. Other types of occupational diseases, in particular poisoning, may develop in a short period, e.g. in the case of organophosphorous pesticides in several days of work. The application of pesticides is, however, rarely a regular daily task, and the potential of poisoning exists in particular in periods of high intensity of work. Preventive examinations of exposed workers should concentrate at such periods with higher probability of development of a poisoning and not be planned in advance for a fixed date.

These two borderline examples indicate that the decision of frequency of preventive examinations shall not be an administrative question, but a matter of operational decision of the occupational health physician in co-operation with an occupational hygienist and other responsible people.

If there exists a reliable indicator of the status of the target organ, appropriate screening tests can be inserted between the full medical examinations which can be carried out at more distant intervals. Examples of screening tests are audiogram in exposure to noise, blood count in exposure to benzene, blood cholinesterase activity in exposure to organophosphorous pesticides, liver function tests in exposure to carbon tetrachloride.

3.3. Case management

On completing a prescribed medical examination for the purpose of determining fitness for work involving exposure to a particular hazard, the physician who has carried out the examination should communicate his conclusions in writing to both the worker and the employer. These conclusions should contain no information of a medical nature; they might, as appropriate, indicate fitness for the proposed or held assignment and specify the kinds of jobs and the conditions of work which are medically contraindicated, either temporarily or permanently.

In the case of exposure to infectious agents, it may be appropriate to carry out vaccination of the workers against the respective diseases, taking into account his/her immunological status.

Occupational health services should record data on workers' health in personal confidential
health files. These files should also contain information on jobs of the workers, on exposure to occupational hazards involved in their work, and on the results of any assessment of workers' exposure to these hazards. Where the files contain personal information covered by medical confidentiality, access to the files should be restricted to medical personnel.

Where an occupational disease has been detected through the surveillance of the worker's health, it should be notified to the competent authority in accordance with national law and practice. The employer, the worker affected and workers' representatives should be informed that this notification has been carried out.

4. Institutional and organisational arrangements for the prevention of occupational diseases

Prevention of occupational injuries and diseases can be efficient only if it is carried out within a comprehensive system of organisational pattern and institutional arrangement. International experience has been expressed by the Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981, which provide for action to be taken at various levels.

The member States are requested to formulate, implement and periodically review a coherent national policy on occupational safety and health. At the national level, this policy shall be implemented by laws or regulations prescribing measures to be taken for the prevention and control of, and protection against, occupational hazards in the working environment. An appropriate inspection system shall secure the enforcement of laws and regulations. At the level of the undertaking, the employers shall be required to ensure that, so far as is reasonably practicable, the workplace, machinery, equipment and processes under their control are safe and without risk to workers' health. When necessary, the employer shall provide workers with appropriate personal protective equipment, but the working environment shall be primarily kept free from any hazard by engineering control measures.

Workers shall co-operate in the fulfilment by their employer of the obligation placed upon them and they shall comply with safety procedures. All people involved shall receive education and training in occupational safety and appropriate work practice at a level corresponding to their tasks.

Occupational safety and health is presented as a complex system with a diversity of responsibilities and activities at various levels. The eventual implementation of preventive measures takes place at the level of the undertaking and is in the hands of employers and workers and their representatives. Occupational health services play an important role as professional advisory bodies to employers and workers in preventive matters.

The Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985, provide that occupational health services carry out essentially preventive functions and shall be responsible for advising the employer, the workers and their representatives in the undertaking on the requirements for a safe and healthy working environment and on the adaptation of work to the physical and mental capabilities of workers. The main functions of occupational health services in view of prevention of occupational diseases are assessment and surveillance of the factors in the working environment and, working practices which may affect workers' health, and surveillance of workers' health in relation to work. Occupational health services may be organised as a service for a single undertaking (if this is large enough) or as a service common to a number of undertakings. In accordance with national conditions, they may be established by the undertakings concerned, by public authorities or official services, by social security institutions, or by other bodies designated or authorised by the competent authorities.

In practice, occupational health services at the plant level are frequently staffed by a simple team — an occupational health physician and a nurse. The multidisciplinary approach of occupational health services can be achieved by co-operation of the responsible personnel at the enterprise level with supportive institutions and specialists in various fields.

5. ILO activities in the field of protection of workers' health

The ILO has always had a great concern for
workers' health in view of the magnitude of health risks which workers face. Although exact statistical data are lacking, it is estimated that about 180,000 workers die yearly due to occupational accidents, and the incidence of notified occupational diseases in industrialised countries is reported to be about 1 to 3 new cases per 1,000 workers per year: the incidence in certain branches of economic activity is much higher than these average figures.

The activities of the ILO in the field of occupational safety and health are carried out in the general framework of the ILO's tasks, and concentrate on specific aspects of protection of workers' health. Since 1976, these activities are a component of the ILO's International Programme for the Improvement of Working Conditions and Environment, known under its French acronym PIACT.

The principal activities of the ILO consist in setting international standards in the form of Conventions and Recommendations and supervising their observance, expanding technical co-operation to member States, carrying out research and providing advice through a large information system.

As regards international standards, a list of Conventions and Recommendations in the field of occupational health and safety is attached as Annex 3. The basic provisions related to prevention of occupational diseases have been mentioned above.

Technical co-operation is the principal means of strengthening the potential of developing countries in occupational health and safety. Technical co-operation is carried out either under the regular programme and budget of the ILO or with the financial support of the UNDP, other donor organisations or multi-bilateral programmes of technical co-operation. Technical co-operation consists of expert assistance and budgetary support to development programmes at the national level. At present 18 projects for the development of various components of occupational safety and health are being executed in 11 countries, and many more are under consideration.

A great number of projects of technical co-operation have been carried out in the South Asian region, which have direct impact on prevention of occupational diseases. Two successful projects were accomplished in recent years; in India, a National Model Centre for Occupational Health Services was established in Bharat Heavy Electrical Ltd., Tiruchirapalli, and in Thailand, the National Centre for the Improvement of Working Conditions and Environment in Bangkok. The ongoing projects include the following:

- **India**: Strengthening of factory inspection and advice service. Establishment and initial operation of a Major Accident Hazards Control System.
- **Indonesia**: Improvement of Working Conditions and Environment.
- **Malaysia**: Promotion of training in occupational safety and health.
- **Pakistan**: Strengthening of the Centre for the Improvement of Working Conditions and Environment.
- **Singapore**: Strengthening of the National Institute for the Improvement of Working Conditions and Environment.
- **Thailand**: Establishment of Regional Centres for the Improvement of Working Conditions and Environment. Establishment of a Major Accident Hazard Control System.

A great number of training activities have been carried out in co-operation with national authorities, which upgrade the capacity of countries to deal with the protection of workers' health. Some of the recent ones are the following:

- Asian Tripartite Seminar on Occupational Safety and Health Policies, Bangkok, Thailand, January 1985;
- Inter-regional Seminar on Occupational Health Services at the Enterprise Level, Tiruchirapalli, India, April 1985;
—International Symposium on Ergonomics in Developing Countries, Jakarta, Indonesia, November 1985;

—Asian Regional Seminar on Safety in Coal Mines, Ranchi, India, March 1986;

—Malaysian Employers' Federation Workshops on Safety and Health, Penang-Kuala Lumpur - Johor Bahru - Kuantan, Malaysia, March-April 1986;


—All-China Federation of Trade Unions Seminars on Occupational Safety and Health, Beijing and Nanjing, October 1986;

### Schedule I. List of Occupational Diseases
(Amended 1980)

<table>
<thead>
<tr>
<th>Occupational diseases</th>
<th>Work involving exposure to risk*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pneumoconioses caused by sclerogenic mineral dust (silicosis, anthra-co-silicosis, asbestosis) and silicotuberculosis, provided that silicosis is an essential factor in causing the resultant incapacity or death.</td>
<td>All work involving exposure to the risk concerned.</td>
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<tr>
<td>2. Bronchopulmonary diseases caused by hard-metal dust.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>3. Bronchopulmonary diseases caused by cotton dust (byssinosis) or flax, hemp or sisal dust.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>4. Occupational asthma caused by sensitising agents or irritants both recognised in this regard and inherent in the work process.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>5. Extrinsic allergic alveolitis and its sequelae caused by the inhalation of organic dusts, as prescribed by national legislation.</td>
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</tr>
<tr>
<td>6. Diseases caused by beryllium or its toxic compounds.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>7. Diseases caused by cadmium or its toxic compounds.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>8. Diseases caused by phosphorus or its toxic compounds.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>9. Diseases caused by chromium or its toxic compounds.</td>
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<td>10. Diseases caused by manganese or its toxic compounds.</td>
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<td>11. Diseases caused by arsenic or its toxic compounds.</td>
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<td>12. Diseases caused by mercury or its toxic compounds.</td>
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<td>13. Diseases caused by lead or its toxic compounds.</td>
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<td>14. Diseases caused by fluorine or its toxic compounds.</td>
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<td>15. Diseases caused by carbon disulfide.</td>
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<tr>
<td>16. Diseases caused by the toxic halogen derivatives of aliphatic or aromatic hydrocarbons.</td>
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<tr>
<td>17. Diseases caused by benzene or its toxic homologues.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>18. Diseases caused by toxic nitro- and aminoderivatives of benzene or its homologues.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>19. Diseases caused by nitroglycerin or other nitric acid esters.</td>
<td>&quot; &quot; &quot;</td>
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<tr>
<td>20. Diseases caused by alcohols, glycols or ketones.</td>
<td>&quot; &quot; &quot;</td>
</tr>
<tr>
<td>Occupational diseases</td>
<td>Work involving exposure to risk*</td>
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<td>-------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>21. Diseases caused by asphyxiants: carbon monoxide, hydrogen cyanide or its toxic</td>
<td>All work involving exposure to</td>
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<tr>
<td>derivatives, hydrogen sulfide.</td>
<td>the risk concerned.</td>
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<tr>
<td>22. Hearing impairment caused by noise.</td>
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<tr>
<td>23. Diseases caused by vibration (disorders of muscles, tendons, bones, joints,</td>
<td>&quot;</td>
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<tr>
<td>peripheral blood vessels or peripheral nerves).</td>
<td>&quot;</td>
</tr>
<tr>
<td>24. Diseases caused by work in compressed air.</td>
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<tr>
<td>25. Diseases caused by ionising radiations.</td>
<td>All work involving exposure to</td>
</tr>
<tr>
<td>All work involving exposure to the action of ionising radiations.</td>
<td>the risk concerned.</td>
</tr>
<tr>
<td>26. Skin diseases caused by physical, chemical or biological agents not included</td>
<td>All work involving exposure to</td>
</tr>
<tr>
<td>under other items.</td>
<td>the risk concerned.</td>
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<tr>
<td>27. Primary epitheliomatous cancer of the skin caused by tar, pitch, bitumen, mineral</td>
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<tr>
<td>oil, anthracene, or the compounds, products or residues of these substances.</td>
<td>&quot;</td>
</tr>
<tr>
<td>28. Lung cancer or mesotheliomas caused by asbestos.</td>
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</tr>
<tr>
<td>29. Infectious or parasitic diseases contracted in an occupation where there is a</td>
<td>(a) Health or laboratory work.</td>
</tr>
<tr>
<td>particular risk of contamination.</td>
<td>(b) Veterinary work.</td>
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<td></td>
<td>(c) Work handling animals, animal</td>
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<td></td>
<td>carcasses, parts of such carcasses,</td>
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<td></td>
<td>or merchandise which may have</td>
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<td></td>
<td>been contaminated by animals,</td>
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<td></td>
<td>carcasses, or parts of such</td>
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<tr>
<td></td>
<td>carcasses.</td>
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<tr>
<td></td>
<td>(c) Other work carrying a</td>
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<td></td>
<td>particular risk of contamina-</td>
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<td>tion.</td>
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</tbody>
</table>

*In the application of this Schedule the degree and type of exposure should be taken into account when appropriate.*
EXAMPLES OF CONTROLS FOR AIRBORNE EXPOSURES

A. Workers with primary and secondary exposure to source emissions.
B. Ventilation and source isolation to control exposures.
C. Personal protection and source isolation to control exposures.
   (Harvard Occupational Health Program).

<table>
<thead>
<tr>
<th>Year</th>
<th>Convention</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921</td>
<td>13. White Lead (Painting)</td>
<td></td>
</tr>
<tr>
<td>1929</td>
<td>27. Marking of Weight (Packages Transported by Vessels)</td>
<td></td>
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<tr>
<td>1946</td>
<td>73. Medical Examinations (Seafarers)</td>
<td>79. Medical Examination of Young Persons</td>
</tr>
<tr>
<td></td>
<td>77. Medical Examination of Young Persons (Industry)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>78. Medical Examination of Young Persons (Non-industrial Occupations)</td>
<td></td>
</tr>
<tr>
<td>1947</td>
<td>81. Labour Inspection</td>
<td>81. Labour Inspection</td>
</tr>
<tr>
<td></td>
<td>92. Accommodation of Crews (Revised)</td>
<td>82. Labour Inspection (Mining and Transport)</td>
</tr>
<tr>
<td>1949</td>
<td></td>
<td>97. Protection of Workers' Health</td>
</tr>
<tr>
<td>1953</td>
<td></td>
<td>105. Ships' Medicine Chests</td>
</tr>
<tr>
<td>1958</td>
<td></td>
<td>106. Medical Advice at Sea</td>
</tr>
<tr>
<td>1959</td>
<td>113. Medical Examination (Fishermen)</td>
<td>112. Occupational Health Services</td>
</tr>
<tr>
<td>1960</td>
<td>115. Radiation Protection</td>
<td>114. Radiation Protection</td>
</tr>
<tr>
<td>1963</td>
<td>119. Guarding of Machinery</td>
<td>118. Guarding of Machinery</td>
</tr>
<tr>
<td>1964</td>
<td>120. Hygiene (Commerce and Offices)</td>
<td>120. Hygiene (Commerce and Offices)</td>
</tr>
<tr>
<td>1965</td>
<td>124. Medical Examination of Young Persons (Underground Work)</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>127. Maximum Weight</td>
<td>128. Maximum Weight</td>
</tr>
<tr>
<td>1969</td>
<td>129. Labour Inspection (Agriculture)</td>
<td>133. Labour Inspection (Agriculture)</td>
</tr>
<tr>
<td>1970</td>
<td>133. Accommodation of Crews (Supplementary Provisions)</td>
<td>140. Crew Accommodation (Air Conditioning)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>141. Crew Accommodation (Noise Control)</td>
</tr>
<tr>
<td>1971</td>
<td>134. Prevention of Accidents (Seafarers)</td>
<td>142. Prevention of Accidents (Seafarers)</td>
</tr>
<tr>
<td>1974</td>
<td>136. Benzene</td>
<td>144. Benzene</td>
</tr>
<tr>
<td>1981</td>
<td>152. Occupational Safety and Health (Dock Work)</td>
<td>160. Occupational Safety and Health (Dock Work)</td>
</tr>
<tr>
<td>1985</td>
<td>155. Occupational Safety and Health</td>
<td>164. Occupational Safety and Health</td>
</tr>
<tr>
<td>1986</td>
<td>161. Occupational Health Services</td>
<td>171. Occupational Health Services</td>
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<tr>
<td></td>
<td>162. Asbestos</td>
<td>172. Asbestos</td>
</tr>
</tbody>
</table>
Introduction

For convenience, the theme of the Round Table Meeting, namely Social Protection against Occupational Diseases was considered in three technical sessions, the first dealing with the aspects of identification and compensation, the second with treatment and rehabilitation and the third with prevention. However, these aspects are so closely interlinked that there was, understandably, a great deal of overlapping and almost all aspects of the agenda came to be discussed in every session. In a way this allowed for flexibility and a view being taken on the theme in its totality.

The Asia and Pacific region is one of the fastest growing in the world and its rapid development has been accompanied by the introduction of new industrial processes and large amounts of industrial material. There has been an increasing trend to raise production through the introduction of new and more sophisticated technologies replacing the traditional methods. In many countries the workforce is ill-prepared and ill-informed about the nature and extent of the hazards and risks involved especially in the handling of toxic substances. There is also frequently a lack of adequate legislative framework for regulatory controls, the absence of standards and a marked shortage of resources, especially of personnel with proper training, experience and expertise.

This summary attempts to present the discussions that were held across three days of the Round Table Meeting in an ordered manner, under the subject headings of the agenda. It was the expectation of the meeting that the issues and problems raised in the discussions and the various proposals put forward would generate fresh thinking throughout the region and thus act as a catalyst for change and progress, especially in the development of effective preventive strategies, which would operate to ensure the protection of the working population against occupational diseases.

Identification and Compensation

In the course of the Round Table Meeting the terms recognition, identification, and diagnosis, tended to be used synonymously. However, for the purpose of this report the term identification is taken to mean the specific identification of a disease entity and its occupational aetiology; an example would be the identification of cancer of the nasal sinuses as an occupational disease associated with exposure to hard wood dusts. Recognition is taken to refer essentially to the diagnosis and detection of occupational diseases in individuals and in communities. Most of the discussion at the meeting centred around diagnosis of occupational diseases in individual workers.

It was generally admitted that occupational diseases were both under-diagnosed and under-reported, which was attributable largely to the world-wide phenomenon of recurring failure on the part of the clinicians to link the origin of a work environment. Part of the problem was that the disease entity itself was frequently not specific to the work situation; for example extrinsic asthma was a common condition among most populations and only a small proportion of cases had an occupational aetiology. Frequently the standards of proof for establishing the association between the working conditions and the disease were difficult to meet, unlike traumatic accidental injuries where witnesses were generally

*Acknowledgement:
Synopsis of discussions prepared by Dr James Keir Howard, Medical Adviser, Accident Compensation Corporation, New Zealand.
present and there was usually little doubt about
the nature and extent of the injury sustained and
its link with the nature of the employment. It was
frequently more difficult to establish a causal
relationship between a disease or disability and
the nature of the patient's job particularly where
there was a long latency period between the
exposure to the harmful agent at the workplace
and the onset of the clinically manifest symptoms.
In some occupational cancers the latency periods
could be as long as 40 or more years.

It was agreed at the meeting that one of the
first priorities for improving the situation was to
provide better training and motivation at several
levels to physicians, consistent with the needs and
circumstances of individual countries. The
delegates felt that a number of factors in the
region were likely to impede an immediate
improvement in the situation. Firstly, there was
a general lack of statutory requirements for the
establishment of occupational health services, and
secondly, diseases were not diagnosed because
the worker was afraid of losing his job, the
employer was concerned in case the diagnosis
brought him into conflict with the authorities and
the doctor failed to diagnose because of the lack
of training, tools and interest. Traditionally the
Asian region had generally a young, mobile
working population which frequently changed
employment and sometimes this change was
deliberately encouraged by the industry to avoid
long term exposures so that the production
processes would not require a change. One
result was the likelihood that many occupational
diseases would not arise in this mobile working
population in the same way as they would in the
more static working populations of the developed
countries.

It was considered important that locally based
targeted training programmes should be
developed so as to provide the local practitioners
with full awareness and a working understanding
of the nature of the local industrial processes,
the likely health and exposure problems that
might arise out of them, the clinical knowledge
to diagnose and treat them and to render advice
on prevention. Such a training would also
equip the well informed practitioner to identify
possible old or new diseases in the face of the
multiplicity of exposures consequent upon rapid
technological changes. Apart from general
training, the need for specialised training
programmes in occupational diseases was fully
recognised. To make such specialised training
more efficient and more cost effective, regional
collaboration programmes were suggested in
which the social security institutions could play a
catalytic role.

As regards compensation, it was noted that
social security programmes had, from their
outset, been designed to compensate for
conditions already incurred and had rarely
concerned themselves with preventing these
conditions and that the time had come to take
a fresh look at the issues and not be content
with merely a compensation approach. Moreover,
it was noted that the benefit of compensation was
available to only a very small proportion of the
total work force in the Asian region. The
limitation on the definitions contained in the
national schedules of what constituted
compensable occupational diseases for the
purpose of social security benefits was brought
out and the need for flexibility in approach, to
preclude any loss of benefit to the worker through
difficulty in establishing that a non-scheduled
illness had arisen out of the nature of the person's
employment, especially in cases of newly
recognised occupational diseases or conditions
arising out of the development of the newer
technologies, was also mentioned. At the same
time, it was also felt that the concept of a quasi-
legal approach to each occupational disease
should be extended to all work-related sickness.

Treatment and Rehabilitation

On the question of treatment of occupational
diseases and provisions for rehabilitation, the
discussions were mainly concerned with the
problems of service delivery in the region.
Since universal health care systems either do not
exist or are only partially developed, it was felt
by several participants that provisions for
treatment and rehabilitation confined to the
diseases contained in the national schedules
were likely to operate to the disadvantage of the
worker.

There was considerable discussion on the
importance of providing total health care to the
working population which would ensure that all
forms of sickness and injury were treated alike with equivalent levels of benefits irrespective of causation, depending upon the availability of financial resources and trained personnel. The introduction of such programmes would be a move away from the historical approach to the workers' compensation and would guarantee a more equitable basis for treatment and rehabilitation. It was, however, recognised that universal systems of benefit and care would be extremely demanding both in human and economic resources and it was thus important for each country to address the problem of what type of services should be provided for treatment and rehabilitation, to satisfy the greatest needs, consistent with their available resources.

It was noted that among the multi-disciplinary inputs needed to restore a patient to normal functioning and reintegrate him into the society as fully as possible, vocational rehabilitation formed the major part of the overall rehabilitation process involving training, retraining, education and provision of special equipment. The meeting recognised the general lack of resources throughout the region which relegated rehabilitation programmes to a minor status, lesser prominence and low funding priorities. It was felt that social security organisations could play a part in raising the profile of the rehabilitation services and improving their status and while a meeting of this nature could not resolve such issues, members of the ISSA in the region should give due consideration to these problems.

**Prevention**

The broad principles of primary prevention have long been established but it is useful to outline them for the purpose of this report. By primary prevention is meant the removal of the work force from significant exposure to the harmful situation, whether the hazard is physical, such as noise or radiation, biological, such as fungal spores or bacteria, or chemical such as solvent vapours or metal fuels, or other miscellaneous hazards such as silica and asbestos. Prevention of such exposures will be dependent on the recognition of the hazard, the evaluation and quantification of the degree of risk that is present in any particular job and the control of the hazard to ensure that the exposure is kept to the minimum level commensurate with the absence of any health effects. Such control methods require constant maintenance to ensure their efficiency. The hazard may be controlled at source by replacing dangerous or toxic situations by others that are less harmful, or by engineering methods such as total or partial enclosure, adequate exhaust systems etc. to reduce the possibility of exposure or by the use of personal protective equipment, but in general the last method referred to is the least satisfactory approach and should not be considered as an adequate alternative to methods of engineering control which should always play the predominant role in primary protection.

An important feature of the meeting was the feeling of the majority of the participants that social security organisations should start looking beyond the compensation approach, at the issues involved in prevention. The imbalance developed, as a result of social security organisations being overburdened with the load of clinical work and curative care to the neglect of the preventive aspect was noted which needed to be redressed by measures depending upon different situations in different parts of the region. However, a number of important principles were enunciated for implementation in the light of the situations and social conditions in individual countries. These are:

- securing active and intelligent cooperation and participation of the work force by educational programmes in safe working practices, proper use and maintenance of equipment and the nature of potential health hazards and by their constructive participation in decision making about health protection measures;

- universal acceptance of the primary responsibility by employers and the management for prevention, safe systems, safe practices and for imparting adequate instructions to the work force in the operation of such systems and practices;

- integrating the role of physicians and hygienists working in parallel to monitor people and places to identify new problems, contain old ones and work towards their elimination; as the majority of the working
population in the Asian region is underserved by occupational health programmes, progress in this area will be achieved only as primary health care is developed and made responsible for occupational health also; primary health care workers should be equipped with qualifications and ability to detect specific health hazards and organise preliminary health surveys and hazard profiles in a compact group of factories and institutions in their charge, undertake the task of primary health care education and advice on health safety;

—formulation of a suitable regulatory framework with proper enforcement infrastructure to ensure compliance.

It was agreed at the meeting that social security organisations should play a part in preventive programmes by collecting information on the pattern of occupational diseases, by fostering the process of education of employers and employees and by providing significant incentives for improving working conditions through a system of penalties and bonuses in their scheme of contributions.

General Issues

The aspect of research studies as a part of the development of effective preventive strategies in occupational health was extensively covered in one of the papers and also kept featuring in the discussions which focussed on a number of issues that have been of general concern to the researchers for many years. One of the important points raised at the meeting was concerning the difficulties in attempting international comparisons and the transfer of experience owing to the differences in definitions and in the methods of keeping national statistics. There was a general concensus concerning the need for devising internationally agreed guidelines particularly with regard to the data required in the national statistical systems, primarily for the purpose of improvement of the workers' health. It was also noted that there was a need to establish suitable baseline statistics at the local level for proper epidemiological studies, for which purpose it was necessary to convince the employer of the need to maintain good systematic records

of employees, production processes and incidence and prevalence of diseases in the undertaking. It was important to be able to follow up workers after retirement due to the long latency periods of certain occupational diseases, especially cancers. Social security organisations could play an active role in encouraging the industry to maintain appropriate record systems, especially in the face of the rapid technological growth and consequent multiplicity of exposures faced by many workers. It was felt that epidemiological research throughout the Asian region had, in most cases, to begin at the very basic descriptive level.

Although it was important to avoid unnecessary duplication of research work, it was recognised that due to wide diversities in climate and racial differences in both build and metabolism, etc., studies conducted in European and other settings might not be relevant or transposable to the working population in the Asian region. It was, thus, necessary to repeat some of the studies in the context of Asian and Pacific societies and conditions and for similar reasons, specific and distinct need-oriented regional studies in the field of ergonomics were necessary.

The supportive role of social security institutions in the field of research also formed part of the discussions. It was felt that social security institutions could further the cause of occupational safety and health research by financial and other forms of support and by bringing about the pooling of resources through collaborative research studies.

In addition to the specific areas of discussion as reported in the foregoing paragraphs, a number of more general issues came up during the meeting. An important suggestion made was with regard to the need for greater collaboration between the ISSA and other concerned bodies to further the development of effective measures in the areas concerned, both at national and international levels and to prevent duplication of effort and wastage of resources.

Another priority issue that was mentioned was that only a very small proportion of the total work force in the region was covered for treatment, rehabilitation and compensation for occupational diseases. In this context particular
mention was made of certain disadvantaged groups such as agricultural workers, the unorganised labour force and child labour and it was emphasised that their plight should attract the special attention of planners and policy makers in the countries of the region.

Closing Formalities

The concluding session ended with an expression of heartfelt thanks on behalf of the participants, by Mr Sentanoe Kertonegoro, to the Government of India, the Union Minister of State of Labour, officials of the Union Labour Ministry, the Director General of the Employees' State Insurance Corporation and her officials and the National Organising Committee for the excellent arrangements made for the meeting. Mr Kertonegoro appreciated the knowledgeable presentations made by the reporters which had led to lively and useful discussions.

Speaking on behalf of the Secretary General of the ISSA, Miss Nayantara Pathmarajah appreciated the role of everyone concerned and underlined the importance of their respective contributions to the success of the meeting. She thanked Mrs Kusum Prasad for guiding the meeting efficiently in her capacity as Chairperson.

In her concluding remarks the Chairperson thanked Miss Pathmarajah and Mr Kertonegoro for their sentiments and expressed satisfaction that all participants had gained a great deal from the deliberations at the meeting. Thanking the experts and all participants, she expressed her special gratitude to the ISSA for providing the opportunity to her organisation to host the meeting in India.

The meeting concluded after the Chairperson's remarks.
Annex

List of participants

DELEGATIONS

SAUDI ARABIA

General Organization for Social Insurance
Mr Salem B H Al-Otaiby, Researcher (Insurance)
Mr Khalil Salim Daghistani, Director of Taif Social Insurance Office

REPUBLIC OF KOREA

Korea Medical Insurance Corporation
Mr Choi, Myung-Sub, Management Director
Mr Choo, Young-Kil, Chief of the Research Section
Mr Kim, Myoung-Kyu, Acting Chief of the Research Section

FIJI

Fiji National Provident Fund
Mr Ram B Mathur, Assistant General Manager (Operations)

INDIA

Employees' State Insurance Corporation
Mr H L Jain, Actuary
Mr Gautum Rishi Nayar, Director of Administration
Dr Ved Prakash, Medical Commissioner
Mrs Kusum Prasad, Director General (Chairperson of the Round Table Meeting)
Mr E K Rajakrishnan, Joint Insurance Commissioner
Mr S R Ramachandran, Joint Chief Accounts Officer
Dr Krishna Mohan Saxena, Medical Director
Mr Narottam Vyas Insurance Commissioner

Ministry of Labour
Mr Krishan Chand Gupta, Director General, Factory Advice Service and Labour Institutes
Dr Shri Kant Kashyap, Director, National Institute of Occupational Health
Dr C R Ramachandran, Director, Indian Council of Medical Research

Dr Prasanta Kumar Ray, Director, Industrial Toxicology Research Centre

INDONESIA

The Social Insurance System Astek Indonesia
Mr Sentanoe Kertonegoro, Director
Dr Erdwin Sukartanto, Head of Health Services Section

ISLAMIC REPUBLIC OF IRAN

Social Security Organisation
Mr Amir Emami, Deputy of Technical Department
Mr Esmaeel Varzandi, Chief of Insurance Extension Office

NEW ZEALAND

Accident Compensation Corporation
Dr James Keir Howard, Medical Adviser

NATIONAL OBSERVERS

Dr R Ayyaswami, Medical Referee, Employees' State Insurance Corporation
Mr Arun Kumar Bhattarai, Under Secretary, Ministry of Labour, Government of India
Dr B Dayal, Deputy Medical Commissioner, Employees' State Insurance Corporation
Mr Bal Krishan Gupta, Regional Director, Employees' State Insurance Corporation
Dr. Naresh Prasad Khare, Deputy Medical Superintendent, Employees' State Insurance Corporation
Mr Sandip Kishore Majumdar, Deputy Medical Commissioner, Employees' State Insurance Corporation
Mr S P Mehrotra, Deputy Central Provident Fund Commissioner, Employees' Provident Fund
Mr Virendra Lal Nagar, Regional Director, Employees' State Insurance Corporation
Mr K V Rajappan Nair, Regional Director, Employees' State Insurance Corporation
Mr M G Puri, Regional Director, Employees' State Insurance Corporation
Mr Jaiprakash Shukla, Section Officer, Ministry of Labour
Dr Aruna Sud, Pathologist, Employees’ State Insurance Corporation
Mr Shrinarayan Tiwari, Regional Director, Employees’ State Insurance Corporation

INTERNATIONAL ORGANISATIONS

International Labour Office
Dr Alois David, Medical Officer, Occupational Safety and Health Branch

International Commission on Occupational Health
Mr Tushar Kant Joshi, Member

Rehabilitation Co-ordination India
Dr Sharatchandra Damodar Gokhale, Chairman

GENERAL SECRETARIAT OF THE ISSA

Dr Harald Maruna, Adviser
(Assistant Head of Accident Prevention and Occupational Diseases, General Institute for Insurance against Employment Accidents and Occupational Diseases, Austria)

Mr Bernard Moncelon, Adviser
(Director of the National Research and Safety Institute, France)

Ms Nayantara Pathmarajah, Official in charge of Regional Activities for Asia and the Pacific

Mr Har Mander Singh, Director, Regional Office for Asia and the Pacific