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INTERNATIONAL LABOUR ORGANISATION

Employers' Activities

EMPLOYERS' ORGANISATIONS
AND
THE ENVIRONMENT

Working Document for Meetings of Employers' Organisations
on the Environment



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INTERNATIONAL LABOUR ORGANISATION

EMPLOYERS' ORGANISATIONS
AND
THE WORKING ENVIRONMENT

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Foreword

The second item on the agenda of the ILO/UNEP Regional Meeting of Employers' Organisations on Environment and Development in Africa is devoted to the working environment. The present document is intended to serve as background material for the discussion of this item. It includes three working papers.

The first of these papers describes the major features of the ILO's International Programme for the Improvement of Working Conditions and Environment (PIACT), and selected activities carried out within the region. These serve to highlight various areas of emphasis which have emerged as priorities for action. A recurrent theme is the need for tripartite participation in the resolution of working conditions and environment problems.

There is now widespread agreement that the promotion of a safe and healthy working environment is an integral part of the responsibilities of management. The second paper discusses occupational safety and health and the close connection between the conditions pertaining in this respect and productivity.

The provision of adequate welfare facilities is known to reduce absenteeism and turnover and have a positive impact on industrial relations within undertakings. The third paper reviews those welfare facilities for workers which prove particularly useful as means of improving the working environment.

What can individual employers do to improve working conditions and environment in their undertakings? What can employers' organisations do to support their members' improvement schemes? What can employers'

organisations do to become ever more active partners in national policy formulation? What can the ILO do to assist them in discharging both roles? These are some of the broad questions which this meeting will wish to consider.

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The International Programme for the
Improvement of Working Conditions
and Environment

Major features of PIACT in Africa

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The International Programme for the Improvement of
Working Conditions and EnvironmentMajor features of PIACT activities in Africa

This working paper first describes the International Programme for the Improvement of Working Conditions and Environment and its general relevance to Africa. It then describes some of the concepts and means of action which are being developed within PIACT to promote and support national action.

PIACT - The International Programme

The International Labour Organisation has a constitutional mandate to promote good working conditions and prevent occupational hazards to health or safety. As a result, occupational safety and health and general conditions of work have always been central concerns of the ILO. As an example, it may be recalled that since the adoption by the first session of the International Labour Conference, in 1919, of the Hours of Work (Industry), Convention, 1919 (No.1), questions relating to conditions of work and occupational safety and health have represented a very high proportion of the items on which international labour standards have been adopted. Of the 159 ILO Conventions, some 70 focus directly on conditions of work or occupational safety and health, as is the case with 64 of the 168 ILO Recommendations. Others deal with essential aspects of the protection of workers in these fields, such as labour inspection and labour administration. Still other instruments cover working conditions and environment as one of several points affecting a particular industry or category of workers, while some deal with matters, such as remuneration, that are closely related to working conditions and environment.

However, in 1976, a new programme was launched to give renewed impetus to ILO action in those fields. It is the International Programme for the Improvement of Working Conditions and Environment, known as PIACT after its French acronym.

Why a new programme? Because, in spite of past efforts, many workers were still employed in dangerous, unhealthy, unsatisfying conditions. Technological change was bringing in its wake new hazards (e.g. toxic chemicals, stress) while, in the context of industrialisation, too little attention, and resources, were devoted to working conditions and environment concerns.

At its 60th Session in 1975, the International Labour Conference had before it a report by the Director-General entitled "Making work more human". The discussion was particularly extensive. Some speakers felt that improvement of working conditions might be a distraction from efforts to promote employment: "The masses of the developing countries need work; they have no time to be choosy about the content of the work". Most, however, agreed with the Director-General that an "organic link exists between the volume and quality of employment". Several delegates also spoke about the possible contribution of improved conditions to a better industrial relations climate and higher motivation and productivity. The many concrete suggestions which were made were reflected in a resolution supporting the new programme suggested by the Director-General and solemnly reaffirming that "the improvement of working conditions and environment and the well-being of workers remains the first and permanent mission of the ILO". The resolution outlined the objectives, means of action, technical approaches and many of the substantive and sectoral priorities

the Conference wanted in the new programme. This same resolution invited the member States themselves to establish policies, set objectives and redirect scientific research in the field of working conditions and environment.

After thorough technical preparation and discussion with members of the ILO's tripartite constituency, intergovernmental organisations and specialists from various circles, detailed proposals on an international programme for the improvement of working conditions and environment were submitted to the Governing Body, which at its November 1976 Session approved the broad lines of the programme.

Objectives and scope of the Programme

The broad objective of PIACT-the improvement of working conditions and environment and the well-being of workers - was subdivided into three main themes:

- that work should respect the worker's life and health; this is the problem of safety and healthiness in the workplace;
- that it should leave him free time for rest and leisure; this is the question of hours of work and their adaptation to an improved pattern for life outside work;
- it should enable him to serve society and achieve self-fulfilment by developing his personal capacities; this is the problem of the content and the organisation of work.

It is clear from the objectives of the programme that the scope is very broad. It includes safety and health in the work process and at the workplace; ergonomics; hours of work and other problems of working time; specific aspects of remuneration, such as payment

by results; work organisation and job content; working conditions and choice of technology; and the living environment as it relates to work. Furthermore, in order to have a practical impact PIACT activities must take into consideration not only the whole range of factors which affect the situation of working men and women, but also all the institutional means (legislation, labour administration and inspection, collective bargaining and other forms of employers' and workers' participation) through which improvements can be brought about.

Thus the technical scope of PIACT covers some of the earliest preoccupations of the ILO, together with some of the newest problems and concerns confronting the world of work.

A promotional programme

Considerable emphasis is placed on heightened awareness of the importance of improving working conditions and environment. A fundamental thesis of "Making Work More Human" is that neglect "is likely, far sooner than we realise, to lead to disruption and disorder in social systems on a scale quite out of proportion with the economic cost of any lucid measures to improve conditions of work taken at an earlier stage". The Conference discussion provided an echo of the Director-General's point. At its 61st Session in 1976, the International Labour Conference adopted a resolution on working conditions and environment in which, referring to PIACT, it considered "as fundamental the principle that the improvement of working conditions and environment cannot be pursued as an isolated goal,

that it must accompany the process of industrialisation and of social and economic development, and that it must be pursued in times of economic recession as well as in times of economic upturn".

In a world of competing priorities, such an awareness is a necessary condition for action. Just as a prudent manager would not make an investment on which he did not expect a reasonable return, so a prudent government would not take action unless it were fully aware of the problems at stake and of the value of potential improvements.

The 1975 Resolution of the International Labour Conference had noted that the slow progress realised in the past was due primarily to "the absence of a general strategy relating to an improvement of working conditions and environment". There is no doubt that in the absence of a stated policy at the highest level, working conditions and environment concerns will tend to fail to be reflected in development plans, national programmes and concrete action.

PIACT therefore seeks to promote and support the activities of member States. In particular, it focuses on action designed:

- to provide governments, employers and workers' organisations and other relevant bodies with the necessary assistance for the preparation and implementation of programmes for the improvement of working conditions and environment corresponding to their potential;
- to promote the full participation of employers and workers and their organisations in the design and implementation of such programmes; and
- to promote the adoption by member States of the objectives set in international labour standards by encouraging their effective application.

Approach

PIACT encourages a comprehensive and articulated approach to the problems of working conditions and environment.

The need for such an approach derives first from the human orientation of any action aiming at improving working conditions and environment. Such action is centred on the worker and therefore necessarily on the total impact on the individual of poor working conditions and environment. This total impact must be approached from a multidisciplinary point of view because the sources of the impacts interact.

Any task will vary in its "load" on the worker based on the length and arrangement of the time during which it is executed, the environmental conditions, the physical and mental content of the task, the pace of work, etc. Moreover, many of the concepts used to measure the effects of workload - such as fatigue, stress, dissatisfaction - are in themselves multidisciplinary concepts requiring measurements along many dimensions developed by differing specialists.

A second reason for multidisciplinary relates to the action-orientation of any policy aiming at improving working conditions and environment. PIACT is directed at diagnosis and analysis of occupational safety and health and conditions of work and life because these are necessary steps in making improvements. It is usually more difficult to make improvements than to point to problems, especially where detailed regulation has not proved successful and resources are limited. Thus an important approach within any action

aiming at improving working conditions and environment is the analysis of how to make improvements. This is necessarily based on a clear technical understanding of the separate problems which may be involved.

Thirdly, comprehensiveness should be clearly distinguished from "generalised" approaches. Because multidisciplinary analysis must be based on an integration of results utilising the skills of several different disciplines, it is necessarily more difficult, more time-consuming - but, if properly applied, more effective - than an approach based on a single discipline. For example, technological choice to improve or at least prevent further deterioration of working conditions and environment (e.g. installation of a machine, the adaptation of a tool or workpost, a new rice harvesting technique, the building of housing complexes or irrigation systems, etc.) must necessarily consider the inter-relationships between these proposed improvements and their social, moral, economic or political implications.

"Generalised" approaches, on the other hand, try to provide a minimum of useful knowledge about a number of different subjects to a single individual. While such an individual cannot be expected to eliminate the need for specialists, he may make the work of specialists much more effective. In resource-constrained developing countries, for example, small and medium enterprises may not see an inspector of any kind for years at a time. If an industrial extension worker has received some minimal information about critical working conditions and environment problems, he may be able to alert specialists

from the factory inspectorate to urgent cases and as well to provide simple advice as part of his own services.

The evaluation of PIACT

In the resolution which called for the launching of PIACT, the International Labour Conference had also requested the convening of an international tripartite meeting to evaluate the programme, whose results would later be submitted to the Conference in order to allow it to take stock of ILO action and decide on a future programme of activities.

The Tripartite Meeting on the Evaluation of PIACT was held in 1982; it recommended that the evaluation of PIACT be placed on the agenda of the International Labour Conference for a general discussion.

The Governing Body subsequently decided that such a discussion should take place in 1984 and indicated that it could serve the purposes of (a) mobilising attention and support for the subject; (b) providing a comprehensive review of the actual situation; (c) evaluating the impact within member States of activities carried out under PIACT; and (d) providing tripartite guidance for the future orientation and development of the programme.

Working Conditions and Environment
in an African Context
The relevance of PIACT

The African region represents an extremely heterogenous group of countries. Conditions vary widely, not only among countries but also among sectors, occupations and categories of workers within the same country. It is therefore difficult to present a coherent description of existing working conditions in Africa. This difficulty is exacerbated by the lack of information about working conditions and occupational safety and health problems.

Problems and priorities

The difficulties of improving working conditions and environment in African countries should not be underestimated. The report to the Sixth African Regional Conference (Tunis, October 1983) on Conditions of Work and the Working Environment refers to some of the fundamental problems which limit the effectiveness of action directed at making improvements. First, economic pressure conditions possibilities for action, whether envisaged by governments, employers or workers. In situations of high unemployment it is easy to see how the improvement of working conditions can be ignored, compromised or considered superficially. Workers without jobs or in precarious positions can hardly be expected to give high priority to the qualitative aspects of jobs or to be concerned with improved conditions. In many instances, they feel obliged to tolerate sub-standard conditions - undercutting minimum wage, working excessive hours, foregoing overtime compensation, allowing their children to work in violation of minimum age laws - out of economic necessity.

Employers also face serious problems. International competition, lack of capital, inefficient technologies and poor access to markets force them to concentrate their efforts on increasing productivity to survive. Enterprises often lack the expertise required to design low-cost or productivity-related improvements.

Second, the scope of existing protective measures is limited, frequently excluding large segments of the workforce, and indeed often those workers most in need of protection. Those workers include, for example, those in small and medium enterprises, rural and agricultural work (except plantations) and the informal sector. Even in the modern sector, the scope of legislation is far from comprehensive in view of the various exemptions and exclusions for which it provides. How to reach out to those workers who may well be among those most in need of help is emerging as a major concern in some countries of the region.

A third major problem is the effectiveness of the application of legislation. The machinery which exists in all African countries is frequently confronted with several obstacles. Legislation is often complex, enforcement procedures tend to be slow and complicated, and labour administration lack resources, so that the number and technical training of inspectors, as well as the required technical and material support, are rarely adequate.

Having considered this report, the Sixth African Regional Conference adopted a comprehensive resolution on the improvement of working conditions and environment in Africa, which gives PIACT an African dimension.

The resolution urged member States to include the progressive improvement of working conditions and environment among their development objectives, and to define and implement coherent and integrated national policies with the full participation of employers and workers and their organisations. It suggested detailed programmes of action for the improvement of working conditions and environment in the modern, the rural and the informal sectors, and for sub-regional and regional co-operation in those fields. It underscored the importance of PIACT and called for effective PIACT action in the region.

The Conference emphasised the potential for more effective international co-operation in this field, and invited the ILO to take a leading role in such co-operation, which should include the development and harmonisation of national policies for the improvement of working conditions and environment; the reinforcement of existing institutions in this field at the national and international levels; the development of regional and subregional training programmes; the management and control of technology transfer; pilot projects concerning rural areas, the urban informal sector and small enterprises; exchange of information and co-ordination of research; and the expansion of technical co-operation financed by the UNDP and multilateral sources.

PIACT Areas of Emphasis

The launching of PIACT had led to the development of innovative means of action as well as the reinforcement of those which already existed. These are discussed by reference to the areas of co-operation which the Regional Conference had outlined.

National policy formulation

Those countries which have chosen to develop national policies within the framework of PIACT have in general begun with a multidisciplinary team mission or a national tripartite seminar. These devices have encouraged tripartite participation in the formulation of policies and the setting up of standing tripartite machinery to oversee follow-up of the seminar and implementation of the policy.

Multidisciplinary team missions visited Angola, Ethiopia, Morocco, Senegal and Tunisia. National seminars were held in Burundi, Congo and Niger. A national tripartite conference was organised in Senegal.

The multidisciplinary teams and the national seminars have covered a wide range of information-gathering and analysis in a variety of specific work situations. Reports have covered, for example, various industries, activities of labour inspectorates and occupational safety and health specialists, small and large enterprises and rural areas.

The content of these national policies, of course, varies from country to country, but certain similarities represent emerging trends in the priorities and means of action preferred in Africa for the improvement of working conditions and environment. One interesting trend is a broadening of the scope of concern of labour administrations. The policies and recommendations tend to include some reference to agricultural work, agro-industry, the urban informal sector, small enterprises and similar work situations which traditionally have been difficult to reach and often have been ignored.

In line with this broadening of scope, numerous references are made in these policies to inter-ministerial co-operation, particularly with ministries responsible for industry, agriculture, health and development planning. Since the problems in rural areas are often different from those in industry, some new areas of concern are also mentioned, including nutrition, poisoning from fertilisers and insecticides and ergonomic design of agricultural implements and work methods.

Much of the analysis which has been required to develop policies and programmes for the improvement of working conditions and environment has been multidisciplinary. Contributions have been made from specialists in occupational hygiene, ergonomics, safety engineering, industrial psychology, labour law, economics and other disciplines. Multidisciplinary work derives from the idea that the working environment is a whole, which commands an integrated approach emphasising the linkages between and within various aspects of occupational safety and health and conditions of work.

A focus on tripartite participation in the development and implementation of national policies for the improvement of working conditions and environment has resulted, in a number of countries, in the establishment of standing tripartite bodies. Thus in Kenya, the National Committee for the Improvement of Working Conditions and Environment was formed in 1979 with members from employers, labour, government and the academic community.

Re-inforcement of institutions

Much of PIACT's work at the national level entailed the strengthening of institutions. Nearly always, the institutions concerned were labour ministries or specialised institutes.

Labour inspection plays a pivotal role in the improvement of working conditions and environment. In accordance with the Labour Inspection Convention (1947) (No. 81), its main functions are to secure the enforcement of the legal provisions relating to conditions of work and the protection of workers; to supply technical information and advice to employers and workers concerning the most effective means of complying with the legal provisions; and to bring to the notice of the competent authority defects or abuse not specifically covered by existing legal provisions. It constitutes a vital link between government and work-place and is a valuable instrument for monitoring and evaluating government policy and for collecting information upon which new policies can be formulated.

Two work shops on effective labour inspection as a means of improving working conditions and environment were organised for English-speaking (Nairobi, 1981) and French-speaking (Yaoundé, 1982) countries. These workshops were tripartite, enabling employers' and workers' organisations to contribute their views and experiences. It was noted that the effective functioning of labour inspection services was often hampered by the lack of adequately trained and paid staff, proper office equipment and transport. The status of labour inspection within the hierarchy of labour administration was considered to be too low in relation to the importance of the duties entrusted to it.

A number of projects were undertaken to strengthen government services for occupational safety and health, including factory

inspection. Labour inspection services were strengthened in Ethiopia, Kenya, Mauritius, and Tanzania. Such projects were designed to strengthen existing structures, systems, procedures and technical capabilities, and to establish new ones where appropriate.

PIACT training activities in several countries contributed to a shift towards greater use of advisory measures by labour or factory inspectors in addition to their enforcement role. Training was made available to labour inspection staff as well as employers and workers; the former group needs better training to discharge their advisory function, while workers and employers also require training to put the advice into effect.

Labour institutes and specialised occupational safety and health institutes which undertake research; provide training to government officials (including labour inspectors), employers' and workers' representatives and management personnel; and offer consultancy services were established or strengthened for example in Algeria and Egypt.

In a number of African countries, the social security institution, which handles the compensation of occupational accidents and diseases, also holds the mandate, under the legislation, to undertake preventive activities. When PIACT was launched, very few social security bodies did in fact engage in meaningful preventive activities. It has been a feature of PIACT in the region to help strengthen this function by providing advice on the structure to be set up and training, such as, e.g. in Cameroon, Ivory Coast, Mali and Senegal.

A sub-regional round-table on the prevention of occupational hazards in the framework of social security was organised to provide

an opportunity for examining ways of ensuring better co-ordination with prevention activities carried out by labour inspection services, employers' organisations and trade unions and of considering steps to be taken for the establishment of integrated national prevention programmes.

As in other contexts a major feature of training activities has been to develop training material suited to local conditions and culture; the successful experience of Mali in this direction was published as a brochure.

As part of its drive to encourage tripartite participation in the improvement of working conditions and environment, not only did PIACT encourage the establishment of tripartite institutions, but it also endeavoured to reinforce the technical capabilities of employers' and workers' organisations in its areas of concern. All meetings and a vast majority of training courses had tripartite participation. In addition, a number of activities are being developed specifically for employers' and workers' organisations.

Examples for employers include a seminar for employers' organisations in the Indian Ocean, which considered, inter alia, the relationship between prevention, production and productivity. Plans are being made for a seminar on the role of workers and their organisations in the improvement of working conditions and environment.

Training

The activities undertaken within PIACT have demonstrated the key role of training in any strategy aimed at improving working conditions and environment. How could improvements be achieved if at every stage of work design, planning, organisation and execution, consideration were not given to the impact of the decisions taken on the conditions under which man works? How could there be a will to act if all concerned were not aware that action is needed and possible? Great emphasis has therefore been placed on activities geared to create awareness or impart knowledge. It has been found that training is required at all levels; this includes national policy makers, employers' organisations and trade unions, management at the enterprise level and workers on the shop-floor, technical specialists and professionals (engineers, doctors, occupational hygienists, etc.), labour inspectors, social security administrators, industrial and agricultural extension workers and farmers. Ultimately, some form of information should also reach the general public.

The variety of potential recipients of training shows that training needs are extremely varied. Furthermore, the ILO can only provide direct training to a few of those who need it. It has therefore proved necessary (a) to make available a basic core of programmes; (b) to develop different training methods and programmes corresponding to different needs; (c) to emphasise the "train the trainer" approach.

In order to meet the first of those needs, a manual was produced, bringing together basic information on the major features of working conditions and environment and their various components. It is intended for all those who, in any way, are responsible for

educational programmes in this field. Working Conditions and Environment: An Introduction (such is its title) is intended as a book of reference and guidebook. It presents an overall picture of working conditions and environment as a comprehensive subject, with a succinct presentation of individual components. It also aims at generating action, through a simple presentation of concepts and an emphasis on basic guiding principles. It is the result of group work by a number of specialists, and consultations with as broad as possible a range of potential users. Plans are now being made for the production of a work-book and other training materials and teaching aids for use in various PIACT training programmes for the benefit of a variety of users.

A large bulk of direct training activities was directed at government officials, principally labour inspectors, specialists in occupational safety and health, and general labour inspectors. The contents of training varied with the specific target groups and ranged from highly technical training for specialists to introductory courses for non-specialists. Training activities were organised within technical co-operation projects (fellowships and study tours became important components of such projects), by regional labour administration centres (ARLAC and CRADAT) and by the ILO itself. For example, courses were developed in co-operation with the Centre of Advanced Technical and Vocational Training in Turin. Two six-week courses (one for French-speaking participants and one for English-speaking participants) were organised to up-date the knowledge of policies, principles and methods in the field of working conditions and environment of participants from government, employers' and

workers' circles in selected African countries. The course included lectures, visits, group work, and field visits to an industrialised country and a country of the region.

To ensure a multiplier effect, an effort was made to prepare trainees to become trainers. Thus the training given to labour inspectors and other specialists has systematically included a pedagogical component.

In addition, there are very few trainers who are also specialists in working conditions. It is therefore necessary to enlist the help of other categories of persons, such as specialists in vocational training, management development or workers' education, agricultural or industrial extension workers, supervisors in establishments, trade union leaders and workers' representatives in plant-level or safety or productivity committees, etc.

To be effective as trainers, such persons need to have at their disposal training materials. As an example, training material is being developed with the Swedish Joint Industrial Safety Council concerning the basics of occupational safety and health and working conditions improvements. A methodology is being devised for small-scale enterprises, based on field work carried out in two Asian countries.

An effort is also made to reach the broadest possible audience by inserting occupational safety and health components in the curricula of vocational training institutions - and, ultimately, primary and secondary schools and universities. Tunisia can be quoted as an example in this regard: occupational safety and health components are being inserted in national education and training programmes at various levels.

Management and control of technology transfer

Technological change has brought in its wake positive and negative effects to African countries. The potential benefits ensure that countries will continue to encourage rapid technological change. However, there are several negative factors.

The aims of PIACT activities have been to clarify the effects of technological change on the nature of work, on the conditions under which it is performed and on those performing it in order to protect workers against possible harmful consequences.

Since technology is mostly designed in industrialised countries, it may not be appropriate to the climatic, anthropometric and operational conditions prevailing in countries of the region. In addition, because of economic constraints, African countries often must accept cheaper equipments and processes, which may be dangerous or even illegal in the exporting countries. Much of the technical co-operation activities tended to assist countries in avoiding negative consequences of technology transfer inasmuch as they aimed at strengthening safeguards in the use of equipment and machinery; at ensuring respect for safety and health standards in the transfer of technology and at enhancing knowledge and understanding of hazards in the recipient countries. An Inter-Regional Tripartite Symposium on Occupational Safety, Health and Working Conditions Specification in relation to Transfer of Technology to the Developing countries was organised.

However, the above should not imply a negative outlook on technology. On the contrary, the potential to improve working conditions and environment through appropriate technological choice has been an emerging theme in various PIACT activities. If technology is

appropriately chosen and adapted, it can provide opportunities to combine the social objective of improved working conditions and environment with the economic objectives of employment generation and increased productivity. Discussions at industrial committees and analogous meetings, research and the dissemination of information have featured as key activities in this area.

Pilot projects

It has proved difficult to develop programmes for those workers who are most in need of help - i.e. in the rural and informal sector and in small-scale enterprises. This has been due to two factors. First, at the time of launching the programme, the knowledge base concerning the problems confronting those workers, in particular those in the urban informal and rural sectors, and the means of solving them, was quite insufficient. It was, however, obvious that the involvement of agencies outside the ministry of labour would be essential. But, and this is the second point, the relative weakness of labour ministries within the government structure and the insufficient resources allocated to them hamper the development of a co-ordinating role at national level.

However, some progress was made. As regards rural and informal sector workers, a better insight into problems and delivery channels for improvements was gained through studies, although it is only fair to say that as regards the latter, activities are still at the earliest stages of fact-finding and research. As regards the former, in addition to the publication of a number of codes of practice, guides and guidelines (e.g. construction and operation of tractors, safe use of pesticides, design and use of chain saws, health and hygiene in agricultural work), a Seminar was organised in co-operation with CCAM and the WHO in Cotonou in 1979, in the course of which the problems of working women were also considered.

As regards small and medium-scale enterprises, the modest activities undertaken so far in another region suggest that significant improvements are indeed feasible. This is most

encouraging, since these undertakings typically represent by far the greater share of manufacturing output in developing countries, while they tend to have the highest accident rates and the least satisfactory working conditions.

These activities have consisted in a series of workshops and follow-up events in Bombay, Hyderabad and Manila, which led to an interesting new consultancy-oriented training programme. Designed with the constraints facing small enterprises in mind, the programme emphasises a set of techniques and principles which have proved in practice to be motivating. These include learning by doing, using "live" cases, reinforcement of positive experience instead of criticism, developing inter-enterprise co-operation and self-help and emphasising low-cost and productivity-augmenting improvements. The co-operation fostered by the programme with small-scale industry institutes promises to encourage insertion of working conditions and environment concerns into a broad range of small industry promotion and training activities. The methodology is being reviewed and a programme adapted to African needs is under consideration.

Exchange of information,
co-ordination of research

The exchange of information was encouraged through the organisation of national or regional meetings. Their topics ranged from the general (African Consultations in connection with the launching of PIACT, Yaoundé, 1976) to the very specific (e.g. Radiation protection in exploration, mining and milling of radioactive ores (Libreville, 1983)).

In addition, the dissemination of information function of the ILO was strengthened by two new systems to complement the International Occupational Safety and Health Information Centre (CIS).

The International Occupational Safety and Health Alert System became fully operational in November 1982. It can disseminate rapidly, through 100 focal points in member States, information on newly discovered or suspected occupational hazards and new methods of prevention or protection, or undertake a global search for information at the request of a country. Members of the network select the communications to be circulated thereby ensuring that only information of interest to them is disseminated. It has also become a useful mechanism in encouraging tripartism. The Hazard Alert System has already contributed in several countries to tripartite assessment and dissemination of information on occupational safety and health. Substantial arrangements for disseminating the information provided through the system to all concerned and for initiating tripartite consultations on communications circulated within it have been made in several countries including Kenya.

The Clearing-house for Information on Conditions of Work was established in 1979. Its main output is the semi-annual publication Conditions of Work: A Cumulative Digest, which contains brief fact sheets on legislation, policies and practices on conditions of work topics; selective, annotated bibliographies on specific subjects; listings of research in progress in various countries; and information about forthcoming meetings. The data on research in progress and forthcoming meetings are supplied by a network of over 500 governmental and non-governmental institutions in some 50 countries. Computerised

data bases containing information about these institutions and their activities are maintained. A Directory of Institutions, which provides information on the activities of more than 230 institutions in 54 countries, was published.

PIACT also sought to support and strengthen national institutions engaged in research on working conditions and environment. Many national tripartite seminars examined the status of research activities in individual countries. Important among the resulting recommendations were the need for strengthening and expansion of labour statistics and research activities through the reinforcement of existing institutions or the establishment of new ones. Technical co-operation activities in the field of occupational safety and health often included an important component on research and development of laboratory facilities.

Expansion of technical co-operation

Given the great number, and at times the technical complexity, of problems in the field of working conditions and environment, technical co-operation has a particularly significant role to play in promoting PIACT objectives at national level. The Office has made a special effort to intensify and to reinforce the effectiveness of its technical co-operation programme in PIACT-related fields.

Technical co-operation has been pursued through various types of projects (i.e. national tripartite seminars or multidisciplinary team missions; regional seminars and workshops; and national projects), examples of which have been discussed in the preceding sections.

Considerable effort was expended in order to develop project designs which take systematic account of the approach and characteristics of PIACT. They emphasise combination of occupational

safety and health and conditions of work in a single institution-building project; development of inspection, training and information techniques which attempt to maximise impacts through multiplier effects; extension of protection concerning working conditions and environment to poorly protected sectors such as small enterprises; and development of procedures and training materials which are specifically adapted to the local situation.

In some cases, projects have been sectoral in scope. Thus projects have dealt with mines' safety in Morocco, Dock Safety in Cameroon, Djibouti and Senegal, and problems in the harbour of Port Louis in Mauritius. Such a sectoral approach was in fact recommended by the Sixth African Regional Conference.

Technical co-operation among developing countries (TCDC) has so far played a limited role in Africa. Essentially, it has involved bilateral arrangements whereby countries endowed with efficient national institutions such as the factory inspectorate or an occupational safety and hygiene institute have offered training to the nationals of other countries. In Asia, plans are being finalised to set up a Regional Network for the Improvement of Working Conditions and Environment. The project will bring together existing national institutions concerned with working conditions and environment issues from eleven developing countries in Asia, and aims at strengthening the training provided by member institutions, improving their information disseminating function and providing a facility for the regional exchange of information and expertise. The Sixth African Regional Conference has called on the ILO to encourage the development of inter-African co-operation by reinforcing competent national

institutions and by setting up a permanent network of such institutions for the exchange of information and experience. In this connection, the lessons learned from the implementation of the Asian project will no doubt be useful.

Conclusion

This brief survey of activities conducted in Africa within the framework of PIACT is by no means complete, nor was it intended to be. Its aim was to highlight some major features of the action taken by - and within - African countries to improve working conditions and environment.

A recurrent theme has been the need for tripartite participation in the resolution of working conditions and environment problems. This has been a major objective of PIACT in Africa as in other regions.

There are several reasons for this. Ultimately, in practice, the improvement of working conditions and environment at the plant-level depends on the action taken by employers and workers. In fact, a fundamental change of approach to occupational safety and health problems is taking place throughout the world. Whereas, traditionally, activities in this field were primarily conducted or directed by the State, employers and workers and their organisations are becoming increasingly involved in the planning and implementation of such activities. This approach underlines the principles laid down in the Occupational Safety and Health Convention (No. 155), 1981. In addition, working conditions and environment subjects, which are important because of their substantive effects in terms of workers' welfare and productivity, can also become key issues in labour-management relations.

Some activities have aimed to strengthen the capacity of employers' and workers' organisations to deal with problems of working conditions and environment and play their role fully at the level of policy-formulation, during collective bargaining and at the plant-level. The Office hopes to develop these activities further. Suggestions from employers' organisations on the type of activities best suited to assist them, and on the scope and contents of such activities will be of considerable help to the Office in this regard.

Occupational Safety and Health and Productivity

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1. INTRODUCTION

Before attempting to define and analyse the relationship between Occupational Safety and Health and Productivity, it appears appropriate to define and describe the basic concepts of the two subjects appearing in the title. This is all the more necessary since these two simple terms above are often understood by the reader as denoting different ideas and subject matters.

1.01 Occupational Safety and Health

Occupational safety and health forms, as will be shown later, a multi-disciplinary entity which evaluates and qualifies, or in some cases even quantifies, the conditions at work as related mainly to the number of accidents or occupational and work-induced diseases. To simplify matters, the generic term 'safety' will be used often throughout this paper, it being understood that it stands for 'occupational safety and health' in its broadest context (as will be defined under 1.2.1), unless the meaning makes it clear that it only refers to the safety component of the term.

In practice, we often use the term 'prevention', i.e. prevention of accidents (including incidents and dangerous occurrences) and diseases at work which in itself is a means of improving and increasing the level of safety and health at a given workplace or in a broader field. The two terms, prevention and safety, will be used interchangeably. Thus in the context of this paper, "prevention" refers to the prevention of accidents (including incidents or dangerous occurrences) and diseases at work; it thus covers all activities, means and measures being taken in order to prevent, or at least reduce the number of occupational accidents and diseases. As will be discussed later, such preventive steps may be of a technical, managerial, training or other nature; all of them aim at providing a safe and congenial place of work, free from safety and health hazards.

1.0.2 Definitions

It may well be worth recalling the most commonly used definitions of the terms in questions (some of which already were used):

- accident: a sudden, unexpected, unplanned occurrence which leads to an injury;

- incident: (also called dangerous occurrence) differs from an accident in that it does not result in an injury but may lead to material damage;
- work related disease: those are health impairments caused, in full or in part, by working conditions; occupational diseases constitute one part of work related diseases;
- occupational disease: an illness or impairment of health brought about by the nature of the work carried out or of materials used; mostly of a cumulative type, i.e. requiring continuous exposure or an exposure spread over a longer period of time.

The difference between an accident and an occupational disease derives from the very first word in the definition of an accident: "sudden", which excludes any impairment caused by a longer lasting influence; the latter, can, however, result in an occupational disease.

By way of illustration of the difference between an occupational accident and disease: an ingestion (whether accidental or not) of a toxic substance will constitute an accident: exposure to the effects of the same substance, often in minute amounts, over a certain period of time may lead to an occupational disease;

- hazard: a manifest or latent condition which may cause an occupational accident, incident or disease;
- safe and safety: taken in its absolute meaning denotes complete freedom from hazard; in practice this goal cannot be fully realised and thus "safe and safety" become a matter of protection from hazards; we are thus left with a relative value which can be expressed as the actual degree of the absolute safety achieved.

This differentiation between various possible results (accident, incident, disease) and even more so between absolute safety and relative safety has a major bearing on the relationship safety-productivity and forms one of the difficulties - often amounting to a stumbling block - in evaluating the resulting economic implications.

1.1 Productivity

From the purely economic point of view, productivity denotes the relationship between output produced and the sum of inputs which go into producing that output. While the ratio can be measured in terms of any of the inputs used, in most cases the parameters of "value of output" to "units of labour" (most commonly expressed as numbers of respective man-hours worked), are usually being used to that end. Thus, when we talk of productivity, we subconsciously understand it to mean productivity of labour.

1.1.1 The importance of raising productivity

This is of particular importance in the developing countries where one of the most urgent needs is that of raising the standard of living. The latter in itself is a difficult task, and in the developing countries it is further being compounded by the generally high population growth rates in these countries. Temporary factors such as foreign aid, a bumper crop, etc. may help but a permanent increase in the standard of living can only be achieved through higher productivity and the resulting augmentation of production.

Presently, the economic situation in many countries has become more difficult in the face of sluggish economic growth rates, recurrent bouts of inflation, growing unemployment, rising costs of production and increasing incidence of protectionism in world trade. Since many countries have hardly any influence on externally-induced factors which serve to raise production costs, like higher prices for petroleum and industrial inputs, their businessmen have to exert every influence over the factors within their control. They have to strive for higher productivity so as to lower those production costs within their control and thereby partially offset those other rising costs beyond their ambit.

Moreover, increases in productivity make possible wage increases without upsetting the economic balance. Fundamentally, the businessman is more interested in his unit labour cost of production (defined as labour cost per 100 monetary units, for instance, of output) rather than wages as such. Unit labour cost is determined, of course, by total labour costs and productivity. If productivity rises, the businessman can raise wages without increasing his unit labour cost. Thus, if productivity doubles and wages double, unit labour cost will remain the same. Unit labour cost can even fall when wages rise if productivity makes possible simultaneously higher wages and stronger competitive position of establishments.

1.1.2 Sources of productivity growth

The use of physical capital (in the form of buildings, machinery, equipment and tools) in the production process is an important source of productivity growth. Since the first fisherman devoted a part of his time not to fishing but weaving a fishing net with which to catch more fish, the contribution of physical capital to higher productivity has been recognised.

If physical capital formation consists simply of adding more factories and more machines of the same type to produce the same products, productivity would not have risen as fast as it historically did in industrialised countries. Another major source of productivity increase is continuous development of new and improved machines, production methods and products. It is technological change which generates new, faster and better ways of producing old products and makes possible the manufacture of completely new products. It is technological change which constitutes a major source of higher productivity.

Technological change can also have serious consequences for employment creation in the Third World. Much of the technology presently available is capital-intensive and labour-saving and consequently not always well adapted to the resource endowment of the Third World, which has an abundance of labour and a shortage of capital. Blind mimicry of the technology developed in industrialised countries can increase the already overwhelming problem of unemployment and underemployment in the developing world.

In some basic heavy industries, such as petroleum refining, petrochemicals and steel, the most modern technology used in the West may still represent the best use of resources in developing countries. On the other hand, in the manufacture of consumer goods for the domestic market of developing countries, simpler technologies may generate more employment while using scarce capital resources more efficiently. .

Better management is another major source of productivity increase. Management's ability to organise and direct the work process, to take advantage of the new production methods thrown up by technological change, and to use more extensively productivity-raising practices (including job evaluation, work study and productivity incentive schemes) influences considerably the quantity and mix of inputs to produce a given level of output. Management thus plays a crucial, pivotal role in raising productivity.

The contribution of the labour force to productivity and general economic development had been under-valued by economists in the past. It is, however, increasingly recognised that, as an essential productive input, the quality of the labour force is an important determinant of productivity levels. Research on developed countries has shown that improvements in the quality of human resources as productive agents have been an important factor in raising productivity levels and fostering economic growth. The attitudes, discipline, education and skills embodied in the labour force do influence considerably productivity levels. However, while it can be useful to talk of labour as if it were just another productive input, it must never be forgotten that labour is not a commodity. We must never forget that workers are not inanimate appendages to machines, but human beings with their normal fears, dreams and aspirations.

1.1.3 Prevention in relation to productivity

Any discussion of prevention (contents, means of action, expected results) in the context of productivity must, necessarily, start with some basic notions on occupational safety and health; the need for it becomes even more obvious when related to the preceding passages on productivity dealing with the value and importance of the labour force.

1.2 Historical Background and Development

The very notion of occupational safety and health - to the achievement of which prevention is directed - developed as a concomitant of the industrial revolution of the 18th century. The introduction of power driven machinery into production processes led to a spate of previously unknown body injuries; similarly, the introduction of new and often potentially hazardous substances or materials has resulted in new occupational diseases affecting the workers using these substances.

In parenthesis, it may be said that the knowledge of occupational diseases preceded that of accidents and that some diseases of occupation, such as lung diseases of miners, anthrax, lead or mercury poisoning were diagnosed and described hundreds of years ago; the first classical works in this area being: "De Re Metallica" by G. Agricola, 1556; the description of occupational diseases of mine and smelter workers by Paracelsus in 1567, and the most important one by B. Ramazzini "De Morbis Artificum Diatriba" in 1770.

The causes of most of the early accidents lay in the improper (from the safety point of view) construction and/or operation of machinery, and were primarily due to pure lack of knowledge. The ever-growing recurrence of certain types of accidents on particular machinery or on particular tasks drew attention to their hazardous nature and led to steps being taken to correct the situation by making these machines or procedures safer. Whatever means were taken (fencing, guarding, change in process, etc.) were empirically arrived at, out of past experience of those killed, maimed or otherwise harmed by such machinery. Side by side with this, an administrative machinery (factory or labour inspection), backed by appropriate legislation, developed in most of the countries undergoing industrialisation, be it in the past centuries in Western Europe or the USA, or presently in the developing countries.

At the beginning, concern was mainly centered on the prevention of accidents caused by machinery and similar appliances, i.e. it only covered what is commonly called mechanical-safety (in the first instance the guarding of machinery) and the main remedy was in most cases the ensuring of a physical barrier or separation between the operator and the machine;

subsequently, much more advanced and sophisticated safety appliances were introduced, combining mechanical, electrical or electronic and optical means. The Second World War and the years thereafter brought an unprecedented explosion in the number of new substances (chemicals, raw materials, synthetics, etc.) being introduced into all kinds of industrial processes, for the most part before these substances could - and in fact rarely were - be examined as to the possible latent hazards; what made matters worse was the fact that often the ill-effects on the health of the operators manifested themselves at a much later date (for some substances after 5 or more years).

This has resulted in increased emphasis being put by all those concerned with this problem - be they on an official level or not - on the hygiene and health components of occupational safety and health programmes and activities.

Technological innovation is, clearly, not an unmitigated blessing. While technological development has greatly increased the technical means to reduce occupational accidents and facilitated the identification and treatment of occupational diseases, it has also created new safety and health hazards or intensified existing ones. Industrial poisoning presents us with new problems; emission of industrial gases and vapours is causing greater concern, while radiation hazards are becoming more serious because of the increasing use of radioactive substances in a wide range of manufacturing processes.

Nor is the agricultural sector insulated. Modernisation of agriculture has brought in its wake accidents involving power-operated machinery and increasing use of chemicals (such as fertilizers, weed killers and pesticides) by workers unfamiliar with their associated health hazards.

This part can best be concluded by recalling the results of relatively recent major disasters: Minamata, Itai-Itai or Seveso.

1.2.1 The present scope of safety and health

From the foregoing it becomes clear that prevention (recalling that it is a means of achieving safety), to be successfully conducted, must have recourse to the expertise and collaboration of specialists in various

disciplines such as engineering, physics, hygiene, medicine, ergonomics, statistics, nursing, management and nowadays ecology; it thus becomes a multidisciplinary concept. Some of the difficulties which often confront safety activities may well derive from this broadness of knowledge and practical experience needed. But, not only did the conceptual scope of safety grow; so did its coverage of economic activities. From the original concern with safety in industrial setting, it grew to encompass all fields of activity, such as agriculture, transport, services, etc. This has also led to the adjective "industrial" being changed to "occupational" (for safety, hygiene, health, etc.) to denote its broader limits of concern and action.

1.2.2 Accidents and diseases

Since safety is directed towards the decrease (ideally total elimination) of accidents and health impairments through various preventive and remedial measures, a clear understanding of the nature of the phenomenon (work accident or disease) is required.

The basic "credo" of safety and health professionals the world over is that accidents never happen - they are always caused. These causes, however proximate or removed, always result from someone having done something wrong or having failed to do what he was supposed to do (whether applied to the planning, construction, layout, process or operation).

Theoretically some 97 per cent of all accidents at work can be prevented, the remaining 3 per cent falling into the category of circumstances beyond one's control (the so-called "acts of God"); however, while this should always remain as a goal, in practice we can only strive to keep accidents at their lowest attainable level.

That written above is in line with what has been said concerning absolute versus relative safety; the two statements belong to the same order of appraising matters.

Research on the causes of accidents has now been going on for close to fifty years, mainly in the industrialised countries and was conducted by governments, academic institutions, specialised research institutes, insurance companies, employers' and workers' organisations. Various explanations were advanced and empiric or practice-oriented models put forward but there is, in fact, no universally accepted theory on the causation of accidents.

What did come to light in almost all of these endeavours to analyse the causality of accidents, is the recognition that while an accident (as has been defined in this paper) is a sudden and unexpected occurrence, its causes - direct and/or proximate - lie way back; the word cause is used in the plural since there is normally more than one single cause to an accident and thus 'causes', though one of these may well be predominant in a given case.

These causes themselves are interacting and/or cumulative and various authors attempted to illustrate this by resorting to a sequence of happenings, which in their finality would lead to an accident; these models ranged from the well known 'dominoes theory' by Heinrich, down to the modern concept of 'fault-tree' for a given operation or task.

A general agreement now exists, postulating that the causes of accidents encompass components like: place and means of work, working practices, managerial guidance and supervision, worker's sociological and family background, etc.

This scheme is nowadays more and more replacing the one current in the post-Second World War period where the causes were divided into physical and personal (human) factors, though some of the elements of the older theory remain valid and are incorporated in the more modern approaches. Similarly, the original cause-effect relationship is being maintained.

The safe place and means of work concept (the old 'physical factors' in accident causation) comprises causes like machinery, process, appliances, tools and equipment in general, materials used, transport - in short all the means of production.

The safe working practice (the old 'personal factors') relates to the way a worker is performing his job and considers all the physiological and psychological constraints accompanying the normal work routine, including socio-economic and family background and problems like stress and lack of job satisfaction.

Very often unsafe acts (i.e. the antithesis of safe working practice) are the outcome of the following shortcomings of the operators ('the three "nots"').

- (a) the worker is not able (physically or mentally) to perform the job,
- (b) the worker does not know how to perform the job safely, and
- (c) the worker does not observe safety and work rules.

The remedies are self-evident: for (a) no worker should be assigned a job beyond his (or her) physical or mental capabilities (here we touch on to ergonomics, in reverse so to speak); for (b) every worker should be properly trained and instructed in proper and safe ways of performing the task in hand; and for (c) proper supervision and guidance must be exercised over the worker to ensure that all pertinent work and safety rules are followed and that full and proper use is being made of safety appliances and protective equipment provided to that effect.

We observe from the remedies proposed that, though the worker may be the agent in the chain of events causing an accident, it is, in the final analysis, the employer and/or manager who is primarily concerned and responsible for preventing the occurrence of such events. This amounts to preventing an accident by interrupting the causality sequence. This is what was meant by 'managerial guidance and supervision' in the accident causation sequence.

The necessity to provide 'a safe place and means of work' is axiomatic. This means that the first prerequisite in the fight against accidents and diseases at work is the creation of facilities for the work to be conducted under conditions which do not present a danger to the worker's safety and health. The preceding also applies to safe working practices (or process used), and are all the primary duty of management towards its workers.

To enlarge somewhat on the two facets described above it can be reiterated that: the employer is to provide the worker with a safe place of work which guarantees proper occupational hygiene conditions and does not impair the worker's health.

These requirements cover, in the main, the following broad areas of what amounts to a listing of accident/disease preventive measures:

1. Work premises (places of work and routes of transport in buildings and in the open, storage facilities, sanitary and personal services and shelters/accommodation);
2. Machinery, appliances and equipment;
3. Substances utilised;
4. Work arrangements (processes, work organisation, training instruction and information);
5. Health care.

Area 1 would comprise, where applicable, housing (sleeping and living accommodation, kitchens and food storage, first-aid and medical treatment facilities, day and rest rooms).

Such facilities are particularly indicated in the case of building, civil engineering work or in any other activity normally conducted outside of fixed premises.

Area 4 would include, inter alia, besides general measures ensuring the safety of the process, special provisions for: hazardous tasks, fire prevention and fire fighting, explosion protection, personal protective equipment, proper maintenance, repair and replacement of safety appliances, first-aid and emergency procedures.

It is worth emphasising that whenever a major potential hazard is known to exist, special preventive measures must be planned and taken to contain it, and that proper procedures (practical measures, warning systems, provision of appropriate specialised tools and equipment, etc.) be established to deal with any possible disaster which could affect the population at large.

As for the obligation of ensuring safe working practices, the principal means at management's disposal are:

1. Judicious selection of workers in relation to their physical and mental capabilities;
2. Training of the workers in safety (either as an integrated training or as a complement to job training);
3. Supervision and guidance on the job;
4. Informing the workers on all safety matters affecting them.

It may be added in parenthesis that point 4 above has already been addressed under point 4 of what has been said above on safe place of work. It supports the premise that in practice no clear cut line can be drawn between 'safe place of work' and 'safe working practices', and explains the shift away from the old division into 'physical' as opposed to 'personal' factors of accidents.

This not being a paper on occupational safety and health as such, no more need be said about the more recent developments in the field of prevention through technical/engineering means. But in addressing employers one should draw their attention to the ever growing universal interest and preoccupation with problems of safety management.

While it should have been obvious to anyone that occupational safety and health are just another of the normal managerial functions and responsibilities and should be treated as such in all respects (planning, inputs, actual management, accounting, etc.) this notion has not, unfortunately, percolated to all managerial or employer levels. Where this recognition has been attained, it provided the top management with hitherto unused 'specialised techniques'- to name just a few like "total loss control" or "safety-audits". This, in turn, has greatly facilitated keeping track of the actual economic losses suffered through accidents and diseases, assessing progress accomplished and improving the overall management of the safety component at the enterprise.

Another point should perhaps be emphasised at this stage to support, if need be, the managements' or employers' role in ensuring safe conditions of work. It is, namely the position of the ILO, stated in many of its Conventions, Recommendations and numerous other documents, including that of PIACT, that the workers of the world have the right to expect safe and healthy places of work and that it is the moral obligation, not to mention quite often the legal obligation, of employers to provide this safe and healthy place. In some instances the workers or their representatives along with the government share in this obligation to a greater or lesser degree.

There are clearly other considerations which enter into the picture, namely financial ones. For the purpose of this paper, we will only deal with these in so far as they relate to accidents and diseases, i.e. their cost; we thus come to the crucial problem of the cost of accidents/diseases. On account of its importance for our general subject this will have to be elaborated at some length; after all, safety and health are bound together by the very mortar of cost of accidents.

1.3 Cost of Accidents and Diseases

Though a seemingly simple term, cost of accidents represents a major difficulty, in practice, to evaluate or analyse. Some of the reasons for this lie in the fact that most undertakings (and this is clearly the case in the developing countries) do not record - statistically for all of their accidents nor account-wise for single accidents - all the losses and/or expenses or additional inputs required to put things back into good operating order. Some of these costs are not accounted for as related or caused by the accident/disease but are recorded (if at all) as normal overhead or running costs. Furthermore, incidents or dangerous occurrences are in most cases neither recorded nor evaluated as to their actual costs for the undertaking. Another complication arises where an accident (implying by definition bodily harm) is compounded by important damage to assets; in most cases only the cost of the accident, but not those of the incident, will be considered. As a result of it, many safety specialists recommend nowadays that for a viable quantification of cost of accidents, all occurrences leading to an accident and/or an incident must be recorded and counted.

Even in the industrialised countries only major firms can permit themselves the "luxury" of maintaining such advanced recording and accounting practices; for the developing countries, with their rather often limited managerial resources, such a level of cost accounting may presently be very difficult, though remaining clearly desirable.

There can clearly be no doubt that every occupational accident and disease carries a moral and social implication to the victim, his family and often for the entire community; little more need be said on this aspect of accidents and diseases.

Besides the moral and social justifications - if ever such were needed - for prevention, it must be realised, in the first place by management or employers, that conditions of safety and health at a given enterprise influence the workers' morale and attitude to their work; workers take pride in working in safe and pleasant surroundings and this translates into better work. Conversely, unsafe conditions of work are hardly conducive to high production or productivity since part of the operator's time is being wasted watching out for hazards and taking steps to avoid the same instead of concentrating on his assigned task.

But this is only one side of the picture.

One important consideration is that of the financial loss suffered by the plant through accidents or occupational diseases. These disrupt production and seriously affect productivity, since their effects touch both the labour force and the physical capital formation components discussed under "productivity". It clearly makes little sense to train workers for a particular task or a particular skill only to see them withdrawn from production permanently or temporarily because they fall victim to an accident or disease at work.

The financial costs (actual pure losses) brought about by an accident or disease comprise, it is now generally agreed, the following direct (or visible) and indirect (hidden) ones:

- wages paid for periods of absence as a result of an accident/disease;

- first aid and medical expenses;
- compensation;
- rehabilitation and retraining;
- disruption of production or process;
- loss of output;
- damage to assets (machinery material, equipment) and cost of their repair or replacement;
- time lost by those concerned or dealing with the case;
- additional resource commitments required to deal with the situation.

Of these, only wages paid, medical expenses and compensation are usually considered as being direct costs; loss of output or damage to assets being often considered as part of 'normal' overhead costs of operating the plant.

Related to productivity, all the above represent net losses. It is of little comfort to an employer to feel that he is not bearing the entire loss burden since some of it is being covered by compulsory or voluntary insurance. What is "conveniently forgotten" is that the level of premiums or other payments for such coverage is clearly a function of the actual compensation paid in the past (or estimated for the future). In the last resort, it is the entire community which covers any resulting shortfalls, which is again reflected by higher taxation. Most serious, in this respect, are cases of permanent major invalidity, where the victim often becomes a public liability.

From the above listing of the loss (or cost) factors, it should become clear that most of them are not easily quantifiable; in fact, no simple mathematical or operational formula has, so far, been proposed for calculating all of these losses. In most statistics or compilation, only the direct costs are given, while the indirect ones may surpass them by a factor of 4 to 8 (depending on the author of the comparative studies conducted).

A rough estimate of the cost of occupational accidents and diseases in the developed countries is estimated to lie in the region of 1 to 4 per cent of the G.N.P. The rate of fatal accidents in the construction industry or in mining is generally on the decrease but not that of manufacturing industries.

Only a very limited amount of data is available from the developing countries on their rate of fatal occupational accidents, but statistics that are available and which can be considered as reliable show that between 1981 and 1982 their number has risen from 11 to 18 (a 63 per cent increase) in Singapore. This example is given to prompt a question of principle, i.e. is this a true picture of the trend in this respect or only a time- and condition-determined happening with no indication of the actual state of safety? Another more pertinent question is that of evaluating the worth of a human life; for cost of accidents statistics and evaluation of losses (costs), an internationally accepted figure of 'one fatality equals 7,500 (or 6,000 in the USA) work days lost' has been set. However, this mathematical equation is clearly incomplete and wanting. Not only does it not relate to the value of human life in its moral sense, but considers only future work days lost, to the exclusion of other components such as past investment in the worker (by his family, the community or his employers) or his hidden possibilities and potentialities which could develop in the future, were he still alive.

Once again we are faced with the fact that even evaluating the cost of accidents, not to speak of their precise quantification, is an almost impossible task. In the case of comparisons between countries we are furthermore faced, even more so in the developing ones, with the absence of reliable and comparable statistics. This state of events derives from the fact that these countries show a much greater divergence in their respective definitions of an accident or in workmen's compensation coverages. Thus only a few examples of accidents/diseases are given, there being no accident cost statistics available beyond the estimated or calculated global loss caused by such accidents/diseases.

To comfort those who may feel that conditions in the developing countries were shown in a somewhat negative light, comparative figures from the developing countries often show such a variety in the numbers given for accident cost as to place into question their reliability and foundation.

Thus the material damage costs (no personal injury ones) were \$0.04 for France, \$12.15 for Poland, \$111.4 for Japan and up to \$400.- for the Federal Republic of Germany according to a serious and trustworthy document. It is obvious that no statistically or economically valid conclusion or even approximation can be drawn from this data.

To sum up:

The enormity of the financial losses sustained - whether actually calculated to include the hidden costs, or arrived at by multiplying the direct costs (normally wages, medical expenses and compensation paid to the injured workers) by a selected factor - does not however give the entire picture. It is a fact that very few enterprises record (and even less investigate or financially evaluate) incidents as defined in the paragraph on safety which are a normal daily occurrence in a plant. Most of these incidents result in material damage but remain in practice unreported and no attention is paid to them, as has already been said at the beginning of this chapter.

This is a very unfortunate attitude. Modern safety concepts (as first developed by Mr. Frank E. Bird, Jr., while working at the Lukens Steel Company in the USA) call for systematic investigation of incidents along with those of injury causing accidents; the rationale behind this lies in the fact that such incidents are not only indicators of hazardous conditions or of thing being wrong, but are in themselves potential accidents. The dividing line between "accident" and "incident" is whether the happening resulted in an injury or not; this is clearly unpredictable and fortuitous, e.g. a falling load may only result in property damage (incident) or it may injure someone who happened to stand or pass underneath (accident). This consideration formed the source of the well-known safety rule not to place oneself under a suspended load!

To summarise the relationship between occupational safety and health and productivity:

- Poor safety conditions cause accidents and diseases;
- Accidents are costly as they entail payment of wages for work not performed, medical and compensation payments;
- In addition, accidents lead to equipment and material damage and other indirect losses;
- Poor safety often results in fire, explosion, waste, rejects, poor quality of work.

2. OCCUPATIONAL SAFETY AND HEALTH AND PRODUCTIVITY

Having defined and described the two key terms of our subject, we can now turn to the consideration of the relationship between them.

One important area in which safety often determines productivity levels is that of accidents and diseases, more precisely their cost. No further comments appear necessary on it since the losses in productivity as a result of disruption of work through accidents, diseases and incidence have been discussed in preceding chapters.

As has been stated, prevention is the central theme of all safety activity and by reducing the number of accidents we reduce financial losses and thus maintain productivity at its normal level.

There is however another side to the safety-productivity relationship: that of changes or improvements which are made as part of accident prevention activities. These activities often can substantially contribute to raising productivity - (however not at the expense of additional or intensified labour) through improvements they bring to the production process itself and this aspect constitutes an additional benefit over and above that of reducing unproductive costs caused by accidents.

To illustrate this point it may be well to indicate - by way of a few examples -, some practical accident prevention measures which attain this second (improvement of productivity) effect. We will do it by reference to the five areas of accident prevention related to ensuring a safe place of work (and incidentally safe working practice) in 1.2.2.

2.1. Work Premises

Thus for area 1, 'work premises':

- i) statistics show that roughly some 30% of accidents (rising to some 50% for fatal ones) are caused by internal transport. This state of affairs can be alleviated, from the outset, by improvement in the layout design and following measures:
 - (a) establishment of fixed transport ways and their clear marking (by lines drawn on the floor at their sides, by directional marks, etc.); this will not only ensure a safer (lesser probability of accident)

- place of work but will often result in improving the flow of materials as also allow for a more rational placing of pieces being worked on or at the machines or of those being otherwise processed;
- (b) similarly, for the storage of materials (raw materials, those in process or finished products) in bulk or at individual machines/ places of work. Proper storage is a basic requirement of accident prevention but results, in addition, in gain of time otherwise lost on looking for items required in the course of work, better control of supplies available and ready where and when required and so on. These latter effects are clearly a boost to productivity;
- (c) in the same order of ideas lies the problem of disposal of waste materials in a workshop: How often do people stumble or slip and how many accidents or losses are sustained through this carelessness in planning of the work process or practice? Once again, removal of this potential cause of losses through accident/disease leads to improved productivity;
- (d) another example is that of lighting in workplaces in all of its aspects such as intensity, contrast, elimination of glare, colour, etc. Experience teaches us that that poor lighting conditions often are one of the main causes of accidents. That any improvement made in this field will parallely result in raised productivity is evident, particularly in cases of precision work, where very often poor craftsmanship is directly related to problems of poor or unsuitable lighting. It has been found that poor quality of the end products, leading to costly rejects, is often the result of poor lighting of work places. The same considerations also hold good, mutatis mutandis, for thermal comfort ventilation which affect the workers' general well being, and more important in this context, their degree of awareness and attention;

- (e) last not least, the examples of losses sustained by poor electrical installations or by static electricity. Any shortcoming in this field can result not only in often serious or fatal injuries through electrocution, but also in disruption or even complete stoppage of production as a result of a short-circuit or other malfunctioning of the electric supply system. This in addition to the ever present danger of fire or explosion as its sequel.

2.2. Machinery, Appliances and Equipment

For area 2, "Machinery, appliances and equipment":

- (a) some currently utilised accident prevention measures at machinery are often based on or apply technological changes in machines or modes of working at or with them; these may be special holding devices, jigs or improved feeding methods (automatic or semi-automatic) and pusher/pullers, currently utilised on power presses, wood working machines, etc. All of them represent a definite progress in technology of the process and enhance productivity. Somewhat similar considerations apply to the introduction of intrinsically safe machinery;
- (b) another example could encompass several, apparently disparate, elements such as cranes, lifting tackle, pressure vessels, etc.; their common denominator being the need of periodic testing/examination, scheduled maintenance and repair since otherwise any incident often leads to serious bodily harm and may also interfere with production, - thereby reducing productivity. It can furthermore be stated that often the breakdown of a single machinery or element of production can stop an entire line at a plant or even result in total stoppage, in cases where the production process is directly dependent on the output of this particular machine;
- (c) another example may well be that of personal protective equipment which protects the worker and thus prevents work interruptions which adversely affect productivity. In this connection it is perhaps worth emphasising that the expense of personal protective

equipment is minimal compared to possible losses resulting from an accident. This is best illustrated by the current prices of some simple personal protective equipment items (current prices in Europe):

safety helmets \$ 3,50 to 25.--, per piece (mainly for metalworking, heavy transport, building operations, etc.)
 simple disposable dust masks \$ 0,5 per piece, filter masks \$ 8.-- to 12.-- per piece, safety goggles \$ 2.-- to 7.--, per piece

(required by workers in dusty areas or as a protection against harmful or toxic gases, or against flying particles or chips produced in grinding, metal turning, fettling, etc.).

The need to protect the workers from dust can often exist as an incidental manifestation to the normal process, as for example dust being blown about in yards, etc., and which has simply accumulated through time; - it becomes particularly important if it is composed of sharp edged particles which cause major eye irritation and require first aid; few undertakings evaluate the productivity loss caused by it in addition to that resulting from an accident to the eye, - eye injuries being among the very common type of accidents.

Hearing protection - ear plugs \$ 0,70 per piece; ear muffs \$ 11.-- to 16.-- per piece.

It is worth bearing in mind that besides the danger of hearing impediment or loss (occupational disease), noise can also interfere with speech and communication. Even noise levels not high enough to endanger hearing, may affect work performance and hence productivity; noise is furthermore a factor of stress which may affect the manner in which work is being performed. When counterbalancing the possible harmful effects of noise against the cost for protective equipment indicated above, it becomes clear that an input on such equipment is worthwhile and called for from the point of view of productivity.

2.3. Substances Utilised

For area 3, 'substances utilised':

Some of the more classical prevention measures against harmful or toxic substances are: their containment (closed vessels operation), their substitution by less dangerous ones, specially adapted exhaust and ventilation systems or even working under local hyperbaric conditions. Introduction of such measures furthers productivity by requiring a lesser amount of other daily safety measures, in addition to preventing accidents and ensuing disruption of production and productivity. Another important matter is that of always ensuring an easy identification of all substances, thanks to their storage at all times in original, well labelled containers. Unfortunately, scores of accidents and serious disruptions of production continue to occur daily (leading among others to faulty reactions, explosions and other unwanted effects) simply due to utilisation of a wrong substance as a result of a mix-up or confusion stemming from an improper identification of the substances.

2.4. Work Arrangements

For area 4, 'Work arrangements':

Good organisation of work, with all the components this implies, as a rule, results in a better quality of product, less accidents/diseases and thus enhances productivity. Special matters to be considered under this heading could include suitable rest periods and any other measure leading to the reduction of stress at work, thus ensuring the worker's full concentration at his work with its influence on production and hence productivity and the accident rate. Among other, so to say, 'anti-productivity' elements can also be listed the following ones:

Failure to keep agreed delivery dates, a rather common thing which diminishes the firm's reliability rating and damages its good name and standing in the business community. The underlying cause for it often lies in work stoppages caused by accidents. Excessive working hours account for an increase in accident frequency and severity rates (i.e. more accidents are caused and they are more serious in nature) and adversely affect productivity.

As to area 5, 'Health care':

Here the efforts undertaken in the framework of prevention, and aimed at ensuring the health and well being of the worker, are directly influencing productivity in accordance with the central role played by labour in the productivity concept.

Though mainly directed towards the prevention of diseases, health care, in our cases, should also include the following activities: pre-employment examinations (coupled, if possible, with the selection of workers based on their suitability for a given job), periodic examinations, advice on possible adverse health effects at the place of work. By ensuring the worker's good health, both physical and psychical, health care also contributes to an increase of productivity and to the safeguard of the plant's main asset: its workforce. To sum up, it can be said that health care (at plant level) aims at elimination of damage which is caused to a human being by work; its goal is the maintenance of full health as well as of personal well-being.

A comparison of costs - (carried out in a large-scale plant) - of health care versus possible savings made due to it, situated them in proportion of 1 to 1.2; this simple figure, to the exclusion of any other consideration, would clearly indicate management's or employer's financial interest in such a health care service.

As an aside, and to put the record straight, it must be said that technological changes were often introduced as an answer to the need to increase productivity or lower production costs and not out of safety considerations. But even in these cases, there remained the accompanying safety benefit.

3. CONCLUSIONS

3.1 Relationship between Occupational Safety and Health and Productivity

The relationship between occupational safety and health and productivity can perhaps be best summarised as follows:

- Poor safety conditions cause accidents;
- Accidents are costly as they entail payment of wages for work not performed, medical and compensation payments;
- In addition, accidents lead to equipment and material damage and other indirect losses;
- Poor safety often results in fire, explosion, waste and poor quality of work.

Good safety, on the other hand, increases production and thus productivity because the workers do care, derive satisfaction from and take pride in their place of work, and because they can work without fear of personal injury or disaster; efficiency is thus raised. While management's first goal is production, it must nevertheless realise that this does not necessarily exclude safety. It can be safely stated that, on the contrary, productivity and safety are complementary. They should be viewed as a partnership in which safety contributes to production; this is aptly described by the saying "safe work is good work".

The main challenge facing management among other bodies and individuals concerned is how to bring about the integration of safety into production and through it into productivity.

The first step is obviously the recognition and acceptance by management of the above stated principles and facts. This automatically entails acceptance of their responsibility for safety matters as part of the overall managerial task.

An important and often neglected link between top management and the workforce - at least insofar as safety is concerned - is the supervisor. He is the person directly responsible for the success or failure in the implementation of the safety programme and policies set by the management.

3.2 Primary Responsibility for Safety and Health Activities

While obviously governments, employers and workers are partners in the concern over safety conditions, there may be a disagreement and ensuing difficulties as to who of the three carries the dominant responsibility of implementing actions in this field.

Traditional concepts which stipulated that legislation and enforcement (i.e. by government) were the proper means of action have been superseded by the recognition that the primary role devolved nowadays on the other two partners; the basic idea behind it being the recognition that no amount of governmental (outside) control can succeed in the absence of a meaningful involvement of employers and workers concerned, i.e. at the inside of the undertaking.

The above idea has been repeatedly propounded in the Lord Roben's Report (Report of the Committee on Safety and Health in the U.K., 1970-72):

"the primary responsibility for doing something about present levels of occupational accidents and diseases lies with those who create the risks and those who work with them"

and had led to a radical modification of the entire approach, including legislation and organisational structures, to the problems of accidents at work.

Strictly speaking, problems of prevention as related to productivity have been covered by the contents of the preceding parts. The material mainly concerned occupational safety and health, the prime factor and agent of prevention. It would, however, only be proper to mention here other factors and influences affecting safety and health and prevention, whether directly or indirectly. Such factors lie in the field of conditions of work and have a strong bearing on the workers' attitudes and behaviour.

To give a few examples, one could name, for instance, the following factors influencing safety and health:

Hours of work and rest periods, overtime and the arrangement of working time (very long hours or continuous work result in over-tiredness, lowered attention, nervousness and irritability and often become causes of

accidents), general conditions of work at the workplace, degree of job satisfaction experienced, financial worries (wage levels!), remuneration systems (piece-work often becoming an anti-safety incentive), work-induced stress and other social and family problems and worries - to name just a few such as workers' housing, means of transport to and from work and problems of remuneration for time lost on them - all influence the workers' behaviour and can thus contribute to the number of unsafe acts possibly leading to accidents.

Furthermore, general environmental problems, to which the entire population is exposed, are intensified by conditions at the place of work.

3.2.1 Safety programmes (management's tasks)

The various elements of effective safety programmes, to be conducted by management, should ideally embrace the following policies and activities:

- (a) While workers are those primarily affected by lack of safety, safety cannot originate from them. Management which disposes of the means of production and of the funds needed for it must take the lead. It is, in the end, of little practical importance whether this decision be dictated by humanitarian or financial consideration; what counts is the clear demonstration by "Top Management" that it wants and insists on a safe and efficient place of work. Its means of action comprise the following:
 - (i) Establishment of a safety policy and bringing it to the knowledge of all concerned. Such a policy should underline the importance of safety and its influence on production; state what safeguards and arrangements will be provided; designate the line of safety responsibility through all levels of the enterprise; impress on the workers the need to utilise all the safety appliances and personal protective equipment provided; it should also lay down the policy with respect to safety of contractors, etc.;
 - (ii) Making the supervisory level (foreman or other first-line supervisor) directly accountable for safety of the workers under him; why should safety differ from production quotas, product quality, etc.?

- (iii) Motivating workers to contribute on their part to the success of the safety policy by following work and safety rules and always trying to perform their task in a safe way. It should, however, be most strongly emphasised that no worker should be expected, and certainly never forced, to work under known hazardous conditions. Thus the imperative for management of providing a safe and healthy place of work.
 - (iv) Mention has been made of safety audits; they are a sound managerial tool in evaluating safety conditions in the enterprise. Surveys and self-inspections should be conducted with the knowledge and active participation of the workers.
 - (v) Setting up, where appropriate, of joint safety committees. It has been postulated that management must create a safe and healthy (and why not pleasant and congenial one?) place of work and thus minimise the physical causes of accidents.
- (b) To achieve this, the following must be undertaken:
- (i) Safety and working environment considerations should be included in the planning, construction and commissioning stages; funds and time must be allocated to this evaluation and those concerned with these activities should have sufficient knowledge of occupational safety and health problems or must resort to outside advice. A further point to be borne in mind is the need to select only building materials compatible with the basic safety and health requirements.
 - (ii) Safe means of access and a safe place of work must be provided.
 - (iii) All machinery should be either intrinsically safe, or safe by position or construction. Should this not be possible, then proper barriers, guards, interlocks or other acceptable protective devices must be provided, installed and kept in position.

- (iv) Tools and equipment should be of the required quality and up to safety standards.
 - (v) Material handling is one of the most potentially hazardous operations; to reduce the number of accidents in this area the following steps are recommended: wherever possible mechanical handling should be substituted for manual handling; passages should be proportioned in relation to the size of materials being normally handled; thorough training of personnel in material handling to be instituted.
 - (vi) Good housekeeping should include, besides cleanliness and general order, also such matters as stockage of materials, scrap and waste disposal, proper flow of materials, unobstructed passage ways and aisles and, finally, constant supervision of conditions at the workplace.
 - (vii) Routine and preventive maintenance (and where required checking, testing and recalibration of appliances) should be introduced and the schedules established for it strictly maintained; any malfunction of machinery to be promptly corrected.
 - (viii) With due regard to the importance of environmental factors at places of work (noise, illumination, presence in the working atmosphere of toxic, irritating or other substances of a nuisance character) proper attention must be given to problems of occupational hygiene at work; necessary preventive and remedial measures should be taken whenever called for.
- (c) As regards the personal causes of accidents, the type of action to be undertaken to minimise the number of such accidents or diseases have already been sketched out when discussing accidents in general. A repetition of the primary means of action may, however, not be superfluous here:
- (i) Proper selection and placement of workers, based on their physical and mental capabilities as related to their particular tasks. Every effort should be made to place

a man in a job for which he is fitted and which he can in fact perform.

- (ii) Failure to properly train workers leads to unsafe acts which may result in accidents. Thus, to begin with, the workforce must be adequately trained in safe working methods - whether as an independent curriculum or preferably as an integrated part of a larger training scheme. This initial training must be complemented by regular refresher courses or special ones necessitated by a change of process or material. Training can be either conducted "on the job" by the workers' supervisor or special safety courses should be organised (primarily for the supervisory staff) and the workers as a whole. Proper supervision of places of work can often point to specific needs or problems requiring additional training/retraining. So far we have extensively dealt with management activities, as befits a presentation addressed to employers' circles.

3.2.2 Workers' participation

Management's efforts however must always be supported by those of the workers. Coming back to the third major personal cause of accidents (the three "nots" of page 38): the workers not observing the established safety rules (the importance of management drawing up and issuing Work Rules also covering safety or producing a separate Shop Safety Manual cannot, once again, be overemphasised), two possible remedial measures become self-evident. One is that of supervision and, where required, enforcement of safety rules, the other being motivation of the workers concerned. The workers must be made to realise that they are the ones with the highest stakes if engaged in an unsafe act.

The normal interest of the workers to have a safety and health committee functioning at their place of work goes hand in hand with a similar interest of the management, and thus the creation and effective operation of safety and health committees is to be strongly recommended. Its job is to bring about an exchange of information and knowledge of management and

supervisory staff with practical, on-the-job experience of the workers; very often a simple and frank discussion of actual conditions or happening can lead to an agreement (and implementation) of the necessary changes or corrections; furthermore, such committees afford the workers an opportunity of "being heard" on matters of paramount concern to them, and the importance of this psychological factor should certainly not be underestimated.

3.2.3 The role of governments

Safety and health activities are never conducted in a vacuum. They form an integral part of the general fabric of work and are thus influenced and subject to the general political and social currents of the country.

Of main importance for our discussion is the fact that such safety and health activities have to be conducted within the framework of the pertinent legislation as also of what is known as established customs and practices. Every country disposes nowadays of a more or less developed core of labour legislation; the more comprehensive it is, the easier it becomes for the employers to know of their obligations and for the workers to learn about their rights and expectations. But governments' input into safety and health goes way beyond legislation and its enforcement; authorities often make a great contribution to prevention by taking direct steps aimed at furthering and promoting safety; the following examples well illustrate it: directing part of workmen's compensation premiums to safety and health activities; allowing duty-free importation of various safety appliances and equipment; supporting research or investigations of safety and health problems; promoting public awareness of the importance of prevention and, last but not least, putting some of its specialised staff (such as inspectors, advisers, etc.) at the disposal of industry (employers and workers).

3.3 The Role of the ILO

International organisations and, in the case of occupational safety and health, primarily the ILO and WHO are for their part responsible for appreciable progress in this field.

As far as ILO's activities are concerned, it is worth recalling that occupational safety and health forms one of the cornerstones of the conceptual framework of PIACT already described in a preceding paper. Pro memoria it may be reiterated that PIACT stands for 'International Programme for the Improvement of Working Conditions and Environment' and is fully financed by ILO's own resources. Launched in 1976, it can be viewed as an epitome of the 'making work more human' concept and not only embraces activities in the fields of safety and health, working conditions and environment, but was conceived as a means of synthesising the same into one comprehensive approach.

Basically, PIACT aims at assisting governments, employers' and workers' organisations as well as research and training institutes in drawing up programmes for the improvement of working conditions and environment; it furthermore develops diversified action according to region, sector of economic activity and particular category of workers, and links its own activities with the programmes of other intergovernmental organisations.

The various means of action utilised for promoting safety and health activities follow the traditional ones of the ILO, i.e.:

- International labour standards

These comprise the body of ILO Conventions and Recommendations adopted by the International Labour Conference. It is perhaps significant that a third of all the Conventions are directly or indirectly concerning safety and health. The most significant among these is the Occupational Safety and Health Convention No. 155, 1981. Considering the importance of this comprehensive instrument for occupational safety and health activities, the main Articles of the Convention are given in an annex to this paper.

- Research and publications

Under this heading are grouped all activities based on research - whether conducted in the Office itself or commissioned outside - and the publication of findings arrived at; similarly for publication of analyses and evaluations of given problems, once again occupational safety and health occupies an important place in this field. Of particular interest are the various codes of

practice, guides, the Occupational Safety and Health Series (50 publications by now) and the ILO Encyclopaedia on Occupational Health and Safety.

- Dissemination of information

Besides providing ad hoc information on safety and health matters in reply to outside requests, the main activity in the area of safety and health lies in the CIS and the Hazard Alert System services. CIS being the Central Information System on occupational safety and health, which is working in close collaboration with its National CIS Centres and is engaged in collection, dissemination and exchange of information on safety and health. The Hazard Alert System, as its name indicates, alerts governments and institutions and bodies concerned on the hazards which are coming to light, world-wide.

- Technical co-operation

It embraces all activities, mainly conducted in the field, i.e. in the member countries and aimed at promoting occupational safety and health activities. Since examples of it were given in the paper on PIACT, they need not be repeated here.

As a fitting conclusion to this overview of ILO activities in the field of safety and health, it would only seem proper to recall that, among the tasks set before the Office by the Preamble to its Constitution, we find "the protection of the worker against sickness, disease and injury arising out of this employment".

All the above considerations, important as they are, cannot be dealt with in more detail under the present agenda heading, but should be borne in mind by all concerned when dealing with problems of "prevention and productivity".

It is hoped that this paper will stimulate a discussion of the various aspects of the interrelationship between 'prevention and productivity'.

3.4 Points for Discussion

The following specific subjects are herewith suggested as possible 'points for discussion':

- (i) need of a thorough financial appraisal of the cost of accidents and occupational diseases in individual undertakings; particular care to be taken to include in the evaluation the known or estimated hidden costs;
- (ii) estimate of the cost of preventive measures in the same undertakings;
- (iii) means of action towards sensitising management of undertakings to the grave financial and other implications of accidents/diseases on productivity and industrial relations;
- (iv) the need and modalities of an international assistance in this field.

..... Article 16

1. Employers shall be required to ensure that, so far as is reasonably practicable, the workplaces, machinery, equipment and processes under their control are safe and without risk to health.

2. Employers shall be required to ensure that, so far as is reasonably practicable, the chemical, physical and biological substances and agents under their control are without risk to health when the appropriate measures of protection are taken.

3. Employers shall be required to provide, where necessary, adequate protective clothing and protective equipment to prevent, so far as is reasonably practicable, risk of accidents or of adverse effects on health.

Article 18

Employers shall be required to provide, where necessary, for measures to deal with emergencies and accidents, including adequate first-aid arrangements.

Article 19

There shall be arrangements at the level of the undertaking under which -

- (a) workers, in the course of performing their work, co-operate in the fulfilment by their employer of the obligations placed upon him;
- (b) representatives of workers in the undertaking co-operate with the employer in the field of occupational safety and health;
- (c) representatives of workers in an undertaking are given adequate information on measures taken by the employer to secure occupational safety and health and may consult their representative organisations about such information provided they do not disclose commercial secrets;
- (d) workers and their representatives in the undertaking are given appropriate training in occupational safety and health;

- (e) workers or their representatives and, as the case may be, their representative organisations in an undertaking, in accordance with national law and practice, are enabled to enquire into, and are consulted by the employer on, all aspects of occupational safety and health associated with their work; for this purpose technical advisers may, by mutual agreement, be brought in from outside the undertaking;
- (f) a worker reports forthwith to his immediate supervisor any situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health; until the employer has taken remedial action, if necessary, the employer cannot require workers to return to a work situation where there is continuing imminent and serious danger to life or health.

Article 21

Occupational safety and health measures shall not involve any expenditure for the workers.

This Convention was further supplemented by a relevant Recommendation (No. 164) adopted at the same session.

CHAPTER III

Welfare Facilities for Workers

The working and living environments are closely interrelated and influence each other. One of the features of the International Programme for the Improvement of Working Conditions and Environment (PIACT) has been to highlight their links and the fact that improvements in the living environment of workers can provide vital support for, or may even be prerequisites for better working conditions. Improving workers' housing, health or nutrition will not only contribute to improve welfare of workers and their families and meet basic needs; it will also increase their productivity and efficiency and make it easier to improve the working and environmental conditions.

It has been found that the provision of adequate welfare facilities can often reduce absenteeism and turnover, and that well-run social services for workers can have a positive effect on social relations within the organisation or enterprise.

Welfare facilities cannot, as such, solve the problems deriving from poverty. They are no substitute for secure employment or good wages. They may, however, greatly contribute to the improvement of working and living conditions of both workers and their families and play a great role in providing, or helping to provide them with an adequate standard of living.

The action to be taken to improve the quality of workers' lives may, however, be difficult in many developing countries since resources available to improve the social infrastructure are far from

adequate to meet the enormous needs. Community social services, i.e. those set up by the public authorities for the population, very often satisfy only a small part of existing requirements and needs. Moreover, they are often poorly or unevenly distributed to meet the needs of all workers. In addition, the low pay of most workers rarely provide them and their families with a satisfactory standard of living. This explains the importance of action by all concerned and of services set up by the employers at plant, industry or national level.

In its widest sense, the term "workers' welfare" may cover almost all aspects of their conditions of work and life. This paper is intended to deal with welfare facilities, taken to mean the various services, amenities or measures provided or taken by employers, individually or as a group, on their own initiative or to meet a legal requirement, to improve worker welfare during working hours or to ensure better conditions of life.

Two different types of welfare facilities emerge from this definition:

- those directly designed to improve worker welfare at the work place, in the course of, or in relation to, their working day, such as canteens and transport to and from work; and

- those intended to improve workers conditions of life, which are usually found at or near the workers' homes and which are of benefit to workers and members of their families as well, such as housing.

Various types of services are provided by undertakings. These mainly include health care for workers and their families;

the provision of housing and transport and related loans; canteens or workplace arrangement for food and drink; the supply of basic commodities - sometimes at subsidised prices; loans for emergencies; child-care and nursing facilities and recreational activities. Such facilities are however very unevenly developed, from one country to another, from one sector to another as well as from one enterprise to another. The quality of the services supplied also varies greatly.

The importance of social services for workers has been recognised by various ILO instruments, namely the ILO Welfare Facilities Recommendation 1956, (No. 102) and by the Plantations Recommendation 1958, (No. 110). Their value, in particular in mines and plantations, has long been accepted and supported by legislation in Asian countries.

Welfare facilities in relation with the working day

The types of services intended to improve the workers' welfare during working hours, - some of them, e.g. child-care services are also of special importance to the general conditions of life of workers and of their families -, may be divided into three groups:

- facilities intended to provide a health-protected workplace (e.g. sanitary facilities, such as toilets, drinking water, washing facilities, cloakrooms and cupboards);

- facilities designed to help prevent or limit worker fatigue (e.g. seats for persons doing work that can largely be carried out seated, rest rooms where workers can, during working hours, take a break from arduous working conditions, such as heat, noise, vibration, toxic substances, etc. and transport facilities to reduce commuting time and the resultant fatigue);

- facilities which form part of a productivity improvement policy (e.g. canteens and others facilities for providing food, child care services).

All these services are important: lack of child care facilities, for instance, may result in higher absenteeism among young women workers; it may even prevent them to enter or remain in the labour force. However, only some facilities such as those for taking meals at or near the workplace and measures to reduce commuting time and fatigue, which have a special impact on the working environment will be briefly examined below.

Catering services

Nutrition is particularly important. The need for a proper, adequate and balanced diet both generally and for the working capacity has been demonstrated by several studies; "inadequate nutrition effectively limits productivity, not only in the conventional, narrow sense - output per unit of input (units produced per man hour, for example) - but also as a result of increased absenteeism, lowered resistance to disease, lethargy and lack of drive"¹.

An ILO survey showed that average calorie consumption per capita is the best qualitative indication of labour productivity growth. Analysing economic growth between 1950 and 1959 in 51 countries, the survey showed that an increase of 1 percent in the number of calories per capita resulted in a growth of 2.27 percent in general productivity².

¹ N. Rao Maturu: Nutrition and labour productivity, International Labour Review, Vol. 118, No. 1, January-February 1979, p.1.

² W. Galenson and G. Pyatt: The quality of labour and economic development in certain countries, Studies and Reports, New Series, No. 68, Second impression (Geneva, ILO, 1966).

Although canteens and messrooms are probably one of the most common type of welfare facilities, there appears to be a lack of adequate feeding facilities for workers in many countries. These facilities are usually found in large undertakings, while small and medium-sized undertakings rarely provide them. It is true that employers' action in this field depends on their financial resources. Poor awareness of the beneficial effects that improved nutrition can have on labour productivity also explains this situation.

Several factors also contribute to deficiencies in the provision and operation of workers' catering services in many countries, such as the lack of a public body to advise and guide employers in setting up and operating canteens; lack of specialised staff, inadequate or poor canteens management; lack of stringency or regularity in the inspection or even no inspection; little interest of trade unions themselves and poor use of given facilities. There is however scope for improvements in this field. It is, for instance, possible to provide workers, in small and medium-sized enterprises, with access to catering services during working hours, through group or inter-enterprises canteens set up and financed jointly by a number of employers. Other means of providing the development and adequate operation of feeding facilities may also include the participation of public authorities in financing group catering services in areas with a high labour concentration; the participation of health services in the organisation and implementation of workers' catering programmes to ensure that due consideration is paid for local nutritional and health requirements; the adoption

of measures to reduce the cost price of meals offered, and the active participation of workers representatives, etc.

The value of catering services in worker welfare, health and productivity, has lead the International Labour Conference, ILO Regional Conferences and the majority of ILO industrial and other committees to emphasize the need for facilities, at or near the workplace, where workers can take their meals during the working day. The ILO Welfare Facilities Recommendation, 1956 (No. 102), provides for a number of requirements in this respect.

Transport facilities

Urban growth and the location of industries in outlying areas have together given rise to an increased need for daily transport to and from the workplace while public transport systems are inadequate in many countries.

Commuting conditions have a clear effect on conditions of life for most workers and, in particular those of modest background in large cities, public transport commuting at rush hours is a major cause of physical and nervous fatigue. In some cases, the increase in commuting distances and times may reduce or even cancel out the impact of improvements of working conditions, such as the reduction of working hours.

The financial cost of daily commuting which often exceeds a reasonable percentage of wages is also often a problem to workers.

Transport problems are common to nearly all countries. The problems faced are not easy to solve; they require more rational land-development policy and decentralisation of industry; quantitative

and qualitative improvements in public transport facilities and better co-ordination between transport timetable and working hours. The need for measures is particularly urgent in the developing countries in view of the inadequacy of the public transport systems and the inability of many workers to obtain transport facilities of their own, such as bicycle, for example. Transport is also of concern to employers since the output of workers who arrive tired at work due to transport problems will certainly suffer.

Action by public authorities - ministries of labour, public transport, housing and industry - working jointly with employers' and workers' organisations is required to introduce and co-ordinate the necessary measures. Employers may also play an important role in meeting the needs. In view of the lack or inadequacy of public transport, some undertakings provide transport for workers in the plant's own vehicles or through the hired services of a private transport firm. This may be the only solution where the work site is in an isolated area or where workers work at inconvenient hours (night or shift work), where public transport services or connections are poor or inexistent. It also ensures that all workers arrive on time for work. Soft loans to enable workers to purchase vehicles may also be useful.

Welfare facilities to improve the living conditions
of workers and their families

It is usually considered that welfare services intended to improve the general living conditions of workers and their families

and to meet social community needs are the responsibility of public authorities. However, employers may also play a significant role in providing workers where such services, in particular in developing countries where salary levels are generally low and where the general social infrastructure is often inadequate.

Facilities which aim at ensuring workers a better living environment and are of benefit to their families as well, mainly relate to housing, nutrition, health and education. They may be divided in the following groups:

- housing and other facilities to promote ownership or rental accommodation meeting the worker's needs and income;
- facilities to ensure regular supplies of adequate foodstuffs and other basic articles at reasonable prices, such as low-price stores;
- health facilities and services, in particular to ensure access to medical or other forms of care needed in the event of sickness or accident;
- education facilities, in particular to ensure literacy and compulsory education;
- recreational facilities to promote access to leisure activities, in particular by the organisation of cultural and sporting activities and by measures permitting suitable use of paid annual leave; and
- credit and miscellaneous facilities to deal with specific problems of the worker's family.

Enterprises operating in geographically isolated areas lacking community services often provide services such as housing, supplies, health, educational and other welfare facilities to employees so as to attract and retain a stable work force. Even in non-isolated areas, indeed in cities, the general social infrastructure deficiencies and low salary levels explain that social services and welfare facilities established by undertakings play a very important role.

Some measures or programmes taken or provided by employers in the field of housing will be briefly examined below to illustrate the significance of their action for improving workers' living environment.

Housing

Adequate shelter for himself and his family is one of the basic needs of man. The need for rest to compensate for the fatigue induced by work is the basis of working time limits clauses which form an important part of social legislation in all countries. The conditions under which the rest is taken largely determines the quality of rest. Minimum standards and adequate space are required. Other factors are also important for the workers' living environment, such as the housing location, the proximity of community services; for shift and night workers, good noise and heat insulation are particularly important.

Employer action on worker housing usually takes place within the framework of the undertaking; it is encountered mostly in firms which, owing to the isolated nature of their worksites, have constructed

employee housing. In some countries, this is required by legislation. In others, this results from collective agreements provisions. In India, for example, the housing construction obligations of plantation employers are laid down by legislation, and those for the steel industry, by collective agreements. While it recognises that it is generally not desirable that employers provide housing for their workers directly, the ILO Workers' Housing Recommendation, 1961 (No. 115), also provides for exception to this principle, in such cases and where the nature of employment requires that the workers should be available at short notice. Other ILO instruments deal with the housing of specific categories of workers such as seamen and migrant workers.

The variety of housing conditions of the complexes set up has to be noted; the quality of the services supplied varies widely, ranging from a modern living complex to a shanty town.

Individual undertakings sometimes contribute to workers' housing in another form than direct construction, e.g. through the grant of loans, the provision of building materials at reduced prices where the worker is himself building or repairing his home, assistance with initial payments, financial support to housing programmes launched by trade unions, etc.

Employers' action to improve workers' housing conditions may also take place at industry level. This is for instance the case of the Indian Labour Welfare Funds; established by law for some categories of mines (mica, iron, coal, limestone) and financed by the employers concerned through a production tax, one of their functions is to improve housing conditions in mining communities.

Employers' contribution in the field of worker housing may even be more significant at the national level, where legislation requires all undertakings to contribute to fund institutes for financing the construction of low-cost housing, for example, through the payment of a given percentage of their wage bill or otherwise (as in Pakistan, for instance). This is, however, seldom the case.

Measures to improve the workers' living environment are a valuable adjunct to action to promote better working conditions, and the latter are much more likely to succeed if they form part of a wider policy of improving quality of life in general. The need to act simultaneously to improve both working conditions and conditions of life is particularly apparent in the developing countries.

The few examples given show the contribution employers can make to improve the workers' living and working environment, especially when public resources available are scarce and have to meet priority needs in several areas. If the scope for improving the welfare of workers through the development of adequate services and facilities at the plant, inter-enterprise or national level is great, it is clear, however, that the solutions cannot be expected to result from the sole initiative of employers. All concerned - national public authorities including labour, transport, land use, planning, industry, education and health ministries -, local authorities as well as workers' organisations and voluntary organisations may play an important role and should join forces to plan a strategy and encourage and co-ordinate activities.

It is therefore important for all concerned to analyse the main issues and problems and to determine how improvements to the working and living environments could be made. Among issues of special concern to employers are the following:

- the role of employers in policies and programmes intended to provide workers with social services, both at the workplace, in relation with or during working hours, and outside the workplace;
- factors which hamper improvements;
- measures to be taken at the plant, or industry, or national level to meet the needs;
- priority needs and areas for action;
- specific problems of small and medium-sized enterprises;
- methods and means of action.