09661(1987-73)234

International Labour Conference
73rd Session 1987

Report III
(Part 4 B)

Third item on the agenda:
Information and reports on the application
of Conventions and Recommendations

General Survey of the Reports on the Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963, and on the Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977

Report of the Committee of Experts on the Application of Conventions and Recommendations (Articles 19, 22 and 35 of the Constitution)

International Labour Office Geneva

GENERAL SURVEY: GUARDING OF MACHINERY AND THE WORKING ENVIRONMENT (AIR POLLUTION, NOISE AND VIBRATION)

Contents

TABLE OF CONTENTS

INTRODUCTION

Background to the survey

1. In accordance with article 19 of the Constitution of the ILO, the Governing Body decided at its 231st Session (November 1985) to request governments to report on the Guarding of Machinery Convention (No. 119) and Recommendation (No. 118), 1963, and on the Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977. The reports thus supplied by States which have not ratified the above-mentioned Conventions and by all States on the corresponding Recommendations, together with those submitted in accordance with article 22 of the ILO Constitution by States which have ratified the Conventions in question, have enabled the Committee of Experts on the Application of Conventions and Recommendations, in accordance with its usual practice, to make a general survey of the situation as regards implementation of the instruments.

2. This survey is the first one carried out by the Committee on these instruments since they were adopted. In fact, it is the first time that the Committee has had the opportunity to examine in a general survey questions relating to the development of the legislation and practice of member States in the field of occupational safety and health in relation to fundamental ILO standards in that area. The only other occasion when the Committee dealt with similar questions was in 1969 when it carried out a survey on, among other instruments, two Recommendations concerning Protection of Workers' Health, 1953 (No. 97) and Occupational Health Services, 1959 (No. 112).

3. The instruments examined in the present survey were included in the category of instruments to be promoted on a priority basis by the Governing Body of the ILO as the outcome of its in-depth review of international labour standards in 1979.[1] Their place among priority instruments was confirmed by the Working Party on International Labour Standards established in 1985, which was entrusted with the task of reviewing the classification of existing Conventions and Recommendations and possible subjects for new standards.[2]

---

[1] Final report of the Working Party on International Labour Standards, in Official Bulletin (OB), Special Issue, Vol. LXII, 1979, Series A.

[2] GB.235/WP/ILS/1.

Information available

4. Through the reports on the Conventions concerned submitted by ratifying and non-ratifying countries, and the reports on the relevant Recommendations, information has been made available in respect of 115 States and 8 non-metropolitan territories. The total number of reports supplied under article 19 is 76 in respect of the Guarding of Machinery Convention (No. 119), 1963, 99 in respect of the Guarding of Machinery Recommendation (No. 118), 84 in respect of the Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148), 1977, and 98 in respect of the Working Environment (Air Pollution, Noise and Vibration) Recommendation (No. 156). Appendix II gives detailed information on the countries that have communicated reports. In addition, the Committee has examined the information in reports supplied by governments on a number of other Conventions under article 22 of the Constitution, in particular those dealing with occupational safety and health. The Committee has taken into account the few observations received from employers' and workers' organisations to which the governments' reports have been communicated in accordance with article 23, paragraph 2 of the ILO Constitution. As usual, the Committee has endeavoured to take due account of relevant legislation and national practices (particularly collective agreements, where available). On the whole, the information available has permitted a comprehensive assessment to be made of the situation.

5. The nature and extent of the information provided varies greatly from one report to another. In addition, some countries which have ratified the Conventions concerned did not communicate reports under article 19 on the accompanying Recommendations, so the Committee possesses no information on their implementation in these countries. Although some of the reports which were received are very full, giving a detailed account of the legal provisions dealing with the points covered in the surveyed instruments and also outlining the practical measures taken with regard to protection against existing occupational hazards, a large proportion of the reports tended to be so brief or so general that the Committee has had considerable difficulty in drawing conclusions about the situation in the countries concerned. In these circumstances, the Committee has attempted to supplement the information communicated by governments so that the present survey can give a fuller account of the way in which the principles set forth in the selected instruments are applied.

Ratifications - prospects and difficulties

6. A number of countries stated their intentions and provided explanations of the difficulties involved as concerns these instruments. The Government of France, for instance, indicated that ratification of Convention No. 119 is prevented by difficulties connected with the extension of the legislation to cover mobile agricultural machinery and providing for obligations on workers in connection with the safe use of machinery. A number of divergences between the national legislation and the provisions of the Convention and which would require changes in the legislation, were noted in the report of the United Kingdom. The Government stated in its report,

however, that employers' and workers' representatives sitting in the Health and Safety Commission agreed with the existing policy and legislation on guarding of machinery and considered that there was no need for major changes. In Belgium the difficulties connected with the application of Convention No. 119 are that the national legislation does not concern the sale, hire, transfer and exhibition of dangerous machinery and does not provide for consultation of employers' and workers' organisations prior to the adoption of any new legal provisions on this subject. In Greece the ratification of the Convention is prevented by the fact that the national legislation does not place obligations on persons who sell, hire or transfer machinery or on their respective agents. The Government of Luxembourg stated that supervision of the application of Part II of Convention No. 119 on the sale, hire, transfer and exhibition of unguarded machinery would be very difficult. Also referring to difficulties connected with the application of the Convention, the Government of Mauritius stated that consideration will be given to implementing some of the provisions of the instruments on the guarding of machinery in the process of preparation of new legislation on occupational safety, with the assistance of the ILO. The Government of Chile, on the other hand, considers its legislation sufficient to apply Convention No. 119 as well as Convention No. 148 but does not deem it necessary to ratify them.

7. The Government of Côte d'Ivoire pointed to the conformity of its legislation with Convention No. 119, and saw no difficulty in ratifying it. Non-ratification of this Convention by Gabon, as explained by the Government, is due neither to any legislative difficulties, nor to the absence of the practical measures of application, and the decision as to the ratification will be taken in due time. The Government of Iraq which has indicated that the Convention and Recommendation on the guarding of machinery were studied by the competent legislative authority, has since ratified the Convention. In Austria, in view of the fact that the draft General Machines and Appliances Safety Ordinance is expected to be adopted soon, the Austrian Chamber of Workers recommends that steps be taken immediately to ratify Convention No. 119. Commenting on this in its report, the Government stated that when the Ordinance in question enters into effect (probably on 1 January 1988), the ratification of this Convention will be examined once again. The Government of China also indicated in its report that after the adoption of recent measures it is considering the possibility of ratification of both Conventions.

8. As concerns Convention No. 148, a number of governments referred to the progressive development of their legislation, but indicated that it still falls short of the requirements of the Convention. The Government of Belgium, for example, stated that among the difficulties that prevent the ratification of the Convention, was the lack of statutorily prescribed exposure limits to noise that would oblige the employer to reduce the noise level at its source and regulate the use of protective equipment. Also no provisions exist as to the duty of two or more employers at one workplace to collaborate in ensuring safety of their employees, and in practice no such collaboration usually takes place. The Government of Japan states

that a medical opinion on the relationship between the exposure level and the occurrence of industrial injury has yet to be established, adding that the measurement and assessment of the degree of exposure for individuals are difficult. Another difficulty is that there are no provisions pertaining to the prohibition or limitation of the use of processes, substances, machines or equipment on the ground that it may cause danger or injury to workers due to air pollution, noise and vibration. A number of provisions of the Convention, in the opinion of the Luxembourg Government, are very difficult to transfer into the context of the national legislation. The Government of Kuwait stated that under the national inspection procedures, workers' representatives do not have the right to accompany the labour inspector during his visit, as is provided in Article 5, paragraph 7, of Convention No. 148. Stressing its desire to develop the national legislation in harmony with ILO instruments, it refers to a draft amendment of the Labour Code for the private sector which would fill in gaps in the national legislation. The Government of Cyprus stated that national legislation does not cover all the matters dealt with in the Convention, and that other priorities have been set at present with respect to ratification of the international labour Conventions, in particular the Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152) and the Occupational Safety and Health Convention, 1981 (No. 155).

9. The Government of Egypt, however, does not see any difficulties that might prevent the ratification of Convention No. 148. The Government of Algeria stated that it proposes to ratify the Convention without delay and that in practice the provisions of the Convention are already widely referred to in preparing new legislation and regulations on occupational safety and health. The Governments of the Democratic Republic of Yemen and San Marino also stated in their reports that they intend to ratify Convention No. 148.

Arrangement of the survey

10. The survey is divided into three principal parts. The first, concerning Convention No. 119 and Recommendation No. 118, begins by examining the scope of these instruments. It goes on to examine measures concerning manufacture, sale, hire, transfer in any other manner and exhibition of machinery, followed by a section on safety in the use of machinery. A fourth section examines exceptions allowed under these instruments.

11. The second part of the survey deals with Convention No. 148 and Recommendation No. 156, examining their scope, general measures of application, criteria for exposure limits, preventive and protective measures, and supervision of the health of workers. Because of the structure of these instruments, the various sections of this part are sometimes divided into subsections dealing separately with air pollution, noise and vibration.

12. In a third part, the survey deals with subjects which all the above-mentioned instruments have in common: the role of employers' and workers' organisations, information and training of workers, and measures of application.

13. Finally, the Committee draws certain conclusions from its examination of the reports and information available. For easy reference, the operative provisions of the Conventions and Recommendations concerned are included in Appendix III to the survey.

14. A word should also be added on the method used to indicate in footnotes the provisions of national legislation cited. In Appendix I the Committee lists all the legislation cited and assigns a number to each item. In the footnotes these are indicated thus: Algeria 2, section 16. This diminishes the very considerable volume of citations and simplifies reading the text.

CHAPTER I

GUARDING OF MACHINERY

A. Scope of the instruments

15. Convention No. 119 and Recommendation No. 118 were designed to ensure the broadest possible scope of application, while remaining at the same time sufficiently flexible to accommodate a wide variety of national conditions and circumstances. The scope of the instruments is determined by two major considerations, the types of machinery and the branches of economic activity covered.

I. Types of machinery covered

16. The definition of the machinery covered by the Convention is given in its Article 1, to which Paragraph 1(c) of the Recommendation also refers. According to Article 1, paragraph 1, "all power-driven machinery" shall be considered as machinery for the purpose of the application of the Convention. Certain additional indications can be found in the preparatory work on the instruments. Following the first discussion at the Conference in 1962, the competent Conference Committee included the following paragraph in its report: "The Conclusions proposed by the Office did not specify the classes of machinery to which the proposed instruments should apply. Nevertheless, the Office had considered that the scope of the instruments should encompass all categories of machinery used for industrial purposes, with the exception of some installations the safety of which depends mainly on engineering design, such as passenger and goods lifts (excluding the machinery rooms of these installations), boilers and other pressure vessels".[1]

17. Convention No. 119 was thus aimed only at machinery used for industrial purposes and does not apply, for example, to machinery intended exclusively for domestic purposes.

18. The Convention covers all categories of machinery used for industrial purposes whatever its function. This is further illustrated by the fact that an amendment to provide for the exemption by national law and regulations of any class of machinery, where it

---

[1] Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 780.

was impracticable or unreasonable to guard all dangerous parts before use, was rejected by the competent Conference Committee.[1]

19. The Convention may also be extended to machinery operated by manual power, in the conditions laid down by Article 1, paragraph 2. The initial Office paper put before the Conference with a view to the adoption of the instruments concerned only power-driven machinery, that is, machinery the motive power of which was other than human or animal. During the discussion in the competent Conference Committee it was suggested that the expression "power-driven" was too limited because of the risk which some manually powered machinery could present. As a result of the Committee's deliberations it was decided that the Convention should apply also to machinery operated by manual power, although only in so far as the competent national authority would so determine. This decision was adopted with the understanding that the word "power-driven" applied also to machinery driven by animal power.[2]

20. Article 1, paragraph 1, of the Convention also states clearly that it applies equally to new and to second-hand machinery. The specific mention of second-hand machinery, although the latter could be considered covered by implication, reflects concern about the considerable turnover in such machinery, which is often in poor condition when acquired second hand. This situation is particularly relevant to developing countries. During the preparatory stage several proposed amendments aiming at making the Convention more flexible with respect to second-hand machinery were not adopted by the Conference.

21. On the other hand, it was judged necessary to allow more flexible application in respect of certain particular types of machinery, such as road and rail vehicles and mobile agricultural machinery, which were therefore specifically addressed in Article 1, paragraph 3. Considering that the primary aim of the Convention was to extend protection to persons employed on such machinery and that it was not practicable in particular to protect the wheels of these vehicles, it was decided that the Convention should apply to road and rail vehicles during locomotion only in relation to the safety of the operator or operators, and to mobile agricultural machinery only in relation to the safety of workers employed in connection with such machinery.

22. The coverage of Recommendation No. 118 as to types of machinery is the same as that of the Convention. Paragraph 1(1) of the Recommendation makes direct reference to "machinery, as defined in Article 1 of the Guarding of Machinery Convention, 1963".

---

[1] ILO: Prohibition of the Sale, Hire and Use of Inadequately Guarded Machinery, Report IV(1), ILC, 47th Session, Geneva, 1963 (Geneva, 1962), p. 10.

[2] ibid., p. 6; ILO: Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 567.

(a) Application to all power-driven machinery (Article 1, paragraph 1 of the Convention)

23. In the majority of countries no distinction is made in the relevant legislation between new and second-hand machinery.

24. Surveying the legislation both from the historical and geographical points of view, it appears that power-driven machinery has always been the principal concern of legislative bodies. It was the addition of power to machinery that started the industrial revolution and gave rise to the appearance of the first safety legislation, and powered machinery is still the major cause of industrial accidents. It is natural therefore for the terms "machinery" and "power" to be closely linked in the legislation, which often uses the term "power-driven machinery" to define its own scope of application.[1] Sometimes national legislation becomes more explicit in this respect, indicating that it applies to machinery used for generating, transforming, applying, etc. any mechanical, electric or natural power.[2] It is less so in cases when indications found as to the coverage of machinery refer simply to "mechanically driven machinery" and to "mechanical energy".[3]

25. The definition of machinery in national legislation varies considerably from country to country, sometimes making it difficult to clarify the precise scope of their texts. The pattern followed in the earlier legislation of some countries was to split the machinery covered into two categories: prime mover and transmission machinery, that is those parts that generate, receive or transmit power; and other machinery. Guarding is prescribed most often in respect of prime mover and transmission machinery. As concerns "other machinery" coverage is unequal. It may be that the law prescribes, in line with the Convention, guarding of "every dangerous part of any other machinery"[4] without indicating, by contrast to prime mover and transmission machinery, whether or not it is driven by mechanical power.[5] It may be on the other hand that the law refers to other machinery in respect of certain guarding requirements only or defines this other machinery in some manner. Other machinery may include in the latter case machinery "recognised as dangerous" such as machines used for mixing, crushing, cutting, sawing, slicing, etc.[6]

26. In the majority of countries, especially in those where the relevant provisions were adopted fairly recently, it is uncommon for any special definition of machinery to be included in the national legislation, which usually simply refers to "machinery" or to "technical installations or equipment". Being more comprehensive in

---

[1] Cyprus 1, s. 46B.

[2] Belize 1, s. 2; Burma 1, s. 2(j).

[3] Central African Republic 1, s. 28; Congo 2, s. 28; Madagascar 1, s. 50; Niger 2, s. 50.

[4] Bahrain 2, ss. 2 and 4(a); Burma 1, ss. 2 and 23(1)(c).

[5] Bahrain 2, s. 4(a).

[6] For example, Central African Republic 1, s. 28; Congo 2, s. 28; Niger 2, s. 50.

scope this legislation covers all power-driven machinery.[1] In some countries where general legislation is supplemented by special regulations or technical standards on the guarding of machinery this invariably includes such a broad definition of machinery as to cover all types of equipment used.[2] New standards elaborated in other countries also follow this approach.[3]

(b) Discretionary application to machinery operated by manual power
(Article 1, paragraph 2 of the Convention)

27. Article 1, paragraph 2 of the Convention leaves it to the competent authority in each country to determine whether and how far to apply the Convention to machinery operated by manual power. However, while giving governments discretionary power in this regard, it requires the competent authority to consider this question and to make such decisions as may be called for, taking into account the risks of injury involved in the use of such machinery. Governments of ratifying countries are further required to consult the representative employers' and workers' organisations concerned, which can also take the initiative for such consultation.

28. In examining the legislation which applies generally to all power-driven machinery, the Committee of Experts has most frequently been confronted with situations in which its applicability to manually driven machinery was not evident and left grounds for doubt as to the precise scope of coverage in this respect. In only a few countries is the legislation drafted in such terms as expressly to include or exclude machinery operated by manual power. In Argentina, for example, Decree No. 351/79 applies to "machines and tools used in undertakings" and contains safety requirements with respect to "hand-tools".[4] In Burma, on the other hand, the term "power" in respect of machinery is defined in such a way as to exclude energy "generated by human or animal agency".[5] In the majority of cases, though, the terms of the legislation leave scope for different interpretations as to whether manually driven machinery is covered. This may be illustrated by cases in which the law applies to machinery using "mechanical, electric or natural power", which may or may not include human power.[6] Further complications may arise when there are several national texts of unequal scope regulating the subject of guarding of machinery. In Kuwait, for example, section 40 of the Labour Code for the Private Sector requires guarding of "mechanically driven machinery", Ministerial Order No. 43 of 1979

[1] Algeria 1, ss. 246-250; Argentina 2, s. 103; Chile 1, s. 23; Colombia 1, s. 112, and 3, s. 2; Costa Rica 2, ss. 3-5; Morocco 1, ss. 24, 26 and 30; Norway 1, ss. 9 and 17; Sweden 1, s. 5.
[2] Norway 3, s. 2.
[3] For example, Colombia 3, s. 2.
[4] Argentina 2, ss. 103, 110 and 111.
[5] Burma 1, s. 2(g).
[6] Belize 1, s. 2.

concerning protection against occupational hazards at the workplace refers to "machines" without any restricting definitions, and Ministerial Order No. 56 of 1982 respecting the guarding of machinery applies (section 2) to "any machine driven by mechanical power other than human". In its last report on the application of the Convention the Government indicated that, under the national Constitution, a ratified Convention is given executory force and that, moreover, the decree proclaiming its ratification does not distinguish between power driven and manually driven machinery, thus covering both types of machinery. Commenting on the application of other provisions of the Convention, the Committee of Experts pointed out in general the desirability of taking measures "in order to avoid discrepancies between the provisions of the Convention and those of the national legislation, and to avoid uncertainty for those who must comply with the law".[1]

29. In examining reports received from countries which have ratified the Convention, the Committee of Experts has also had the occasion to point out that the coverage of the legislation of several countries does not appear to include manually driven machinery and that no decision had been taken to determine whether and to what extent such machinery should be subject to the requirements of the Convention.[2] In such cases the Committee of Experts has insisted that, in order to give effect to this provision of the Convention, the competent national authority should take the appropriate decision after consulting employers' and workers' organisations.

30. In cases where the legislation applies to all types of machinery or where legislative texts do not establish clearly whether they apply also to manually driven machinery, the Committee of Experts has found it necessary to ask the governments to confirm whether these texts are applicable both in law and in practice to machinery operated by manual power and to indicate the provisions by which this has been determined.[3]

31. In one case, commenting on draft legislation elaborated to give effect to the Convention, the Committee of Experts pointed out that this draft legislation referred to dangerous machinery or parts thereof which are "mechanically driven", and therefore did not appear to leave open the possibility, as does the Convention, of considering as dangerous for the purposes of the Convention certain new or second-hand machines which are operated by manual power. Following these comments the government concerned modified the proposed legislation by enlarging its scope to cover manually driven machinery as well.[4] As suggested by this example, the question of coverage of manually driven machinery may be reconsidered on the occasion of the revision of the existing legislation on guarding of machinery, or the

[1] Kuwait - Direct request 1985.

[2] Algeria, Congo, Dominican Republic, Jordan, Niger, Sierra Leone, Zaire.

[3] Central African Republic, Ghana, Guinea, Japan.

[4] Niger.

adoption of new legislation, in consultation with employers' and workers' organisations. This process, for example, is underway in Algeria. The Committee of Experts would like to draw the attention of the governments concerned, as well as of employers' and workers' organisations, to the possibility of clarifying, when necessary, the extent of application of the relevant national legislation to manually driven machinery when the legislation is being revised.

32. The reports and information supplied by some countries point to certain special measures taken with a view to clarifying the question of application of the legislation to manually driven machinery.

33. In one country a special committee including representatives of trade unions and employers' organisations was entrusted with the task of determining to what extent manually driven machinery presents a danger to the physical safety of the workers and should be considered as dangerous machinery, and helped elaborate decisions in respect of the application of the existing legislation to manually driven machinery.[1] Another government indicated that its legislation was applicable to manually driven machinery and was adopted after consultation with the Technical Advisory Committee on Occupational Health and Safety which includes representatives of employers' and workers' organisations.[2]

34. Apart from these few cases, the majority of government reports contain no indications as to the question of coverage of manually driven machinery. In many countries no distinction is made between power driven and manually driven machinery, usually when the law refers to machinery in general. In some countries it appears from interpretations given by judicial decisions that this means that the law applies to both kinds of machinery.[3] However, in examining the legislation of a number of countries for which information is available it must be concluded that the question of the applicability of national provisions to manually driven machinery has yet to be examined by their legislatures or other competent authorities. In the absence of any specific references in the legislation to manually driven machinery the problem is to determine whether this machinery is implicitly covered by the general reference to machinery and parts thereof or by the definition of machinery, if such is included in the legislation.

35. In some cases the available information seems to indicate that manually driven machinery is covered.[4] In other cases, on the contrary, it appears that the legislation does not cover machinery operated by manual power.[5] In a number of cases, however, the available information did not permit the Committee to arrive at any conclusion in this respect.

---

[1] Syrian Arab Republic 3.
[2] Madagascar.
[3] Cyprus, Morocco.
[4] Morocco.
[5] Burundi 4; Central African Republic 1; Costa Rica 2.

(c) Extent of application to road and rail vehicles and to mobile agricultural machinery (Article 1, paragraph 3 of the Convention)

36. As was pointed out earlier, the application of the instruments to these types of machinery was made more flexible for reasons of an entirely practical nature. In order to allow for the difficulties of guarding mobile machinery it was thought appropriate to apply the Convention to such machines only when they are in motion. It was also impracticable to impose guarding requirements for these machines in relation to persons not carried on the vehicle or machinery. As one government pointed out, field machinery in agriculture can only be required to be guarded in relation to the operator and not, for example, in relation to a person crossing a field where a reaper is at work. An amendment providing that the Convention should not apply to road and rail vehicles during locomotion in respect of persons other than the operator or operators of the vehicles was adopted unanimously by the competent Conference Committee.[1]

37. Only a few countries have used the possibility of restricting the application of their legislation as regards road, rail and agricultural machinery, as is allowed by the Convention. In the majority of countries road and rail vehicles and mobile agricultural machinery are treated on the same footing as any other machinery covered by the legislation. In quite a few countries, though, as will be shown below, transport and agriculture are excluded from the scope of the general provisions on guarding of machinery, and the application of the instruments to machinery in these branches can only be ensured by the adoption of special provisions in respect of transport and agricultural machinery.

38. In a number of countries the legislation applicable to machinery in general also covers road and rail vehicles and agricultural machinery,[2] or only the former if agriculture is excluded from the legislation.[3] In the countries where the legislation applies only to "factories" and does not in principle cover transport machinery[4] such machinery may still be covered to the extent that it is used inside the factory. In one country, for example "locomotives" are considered to be "machinery" for the purpose of the application of the law when operated within the curtilage of any factory.[5] As concerns agricultural machinery, in one country while agricultural workers are generally excluded from the scope of the Labour Code, this exclusion does not affect "workers permanently employed in operating or repairing mechanical equipment used in agriculture".[6]

---

[1] ILO: Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 567.

[2] For example, Chile 1, s. 2; Madagascar.

[3] Morocco 1, s. 53 (4)(a) and (c).

[4] For example, Belize, Burma.

[5] Belize 1, s. 2.

[6] Bahrain 1, s. 2(5).

39. The report from one country has stated that it was not necessary to mention rail vehicles in the legislation as this means of transport does not exist in the country.[1]

II. All branches of economic activity covered

40. The question of determining the scope of the Convention in respect of branches of economic activity covered was one that gave rise to the largest number of proposals and amendments during the elaboration of these instruments. The majority view was in favour of a more comprehensive approach, while others preferred restriction to certain specified branches only. It was argued, for example, that in some countries methods for ensuring safety in agriculture and forestry work had not yet reached the same level as in other branches of economic activity, and that it was thus desirable to leave open for those countries the possibility of not applying the provisions of the Convention to machinery used in agriculture and forestry. Other proposals suggested for possible exclusion from the scope of the Convention, such branches as transport by sea or inland waterways, fishing and air transport. One draft amendment proposed to limit the application of the Convention to machines used in undertakings in which persons were employed under a contract of service, thus excluding self-employed persons. None of these proposals was accepted by the Conference, which decided that the instruments should apply to all branches of economic activity. The general application of the instruments is ensured respectively by Article 17, paragraph 1 of the Convention and Paragraph 16 of the Recommendation, subject to a declaration accompanying ratification of the Convention specifying a more limited application (see below).

41. An examination of the legislation of all countries for which information is available, including the ratifying countries, shows that the legislation of many of them covers all branches of economic activity without exception.[2]

42. Among the federal countries, in Yugoslavia the Acts respecting the protection of labour adopted during the 1970s in each republic and autonomous province, which replaced the federal Basic Act respecting the Protection of Labour of 1965, retained its general field of application to "all workplaces and occupations where persons are employed".[3]

43. It is particularly interesting to note current legal developments in a number of countries, aiming at extending gradually the application of the existing legislation on the guarding of machinery to branches of economic activity which were not previously covered. This process is generally coupled with the revision of the

---

[1] Kuwait.

[2] Argentina 1, ss. 1 and 2; Central African Republic 1, s. 2; Chile 1, ss. 1 to 3; Colombia 1, s. 82, and 2, s. 1; Congo 2, s. 2; Costa Rica 2, s. 1; Kuwait 1, s. 1; Niger 1, s. 2; Tunisia 1, s. 1.

[3] See for example Yugoslavia 8, ss. 1, 5 and 15; 12, s. 1; 6, ss. 1-2.

relevant legislation, including the relevant sections of the labour codes, with a view to complying more closely with the Convention.

44. In Cyprus the Factories Act of 1956, which is the principal legal instrument giving effect to the Convention, was amended in 1982 so as to cover agricultural operations previously excluded and further amendments are envisaged by the Government to extend its scope, while awaiting the elaboration of the new general legislation on working conditions, health and safety.[1] In Sierra Leone the Factories Act of 1974, which applies only to factories as defined in the Act, and accordingly does not extend to road and rail vehicles, to agricultural machinery, to mines, or to shipping, is being revised and the new draft Factories Act awaiting promulgation will be applicable to those branches of economic activity. In Zaire a draft Order on the guarding of machinery has been drawn up that will cover all sectors of the economy, including agriculture, which is not presently covered by Order No. 0057/71 of 20 December 1971 which regulates the guarding of machinery.

45. In many countries the scope of application of the guarding of machinery provisions is restricted by the scope of the labour codes. Taking into account that some of the exclusions which have been noted concern, for example, civil servants, domestic workers, etc., and do not affect greatly the application of the instruments, the Committee of Experts has concentrated its attention mainly on those exclusions which affect branches of industry or other activities where machinery is extensively used. In some countries, basic legislation applies only to factories leaving out other branches of economic activity covered by the instruments.[2] It is common to find that labour codes exclude from their field of application such branches of economic activity as agriculture,[3] and shipping.[4]

46. Frequently the application of the instruments in the branches excluded from general legislation is ensured by special texts applicable to this particular branch only. Thus, in Norway the application of the instruments to machinery in agriculture is ensured by the Act respecting the conditions of employment of workers in agriculture of 1958. Special legislation in some countries applies the instruments to shipping and machinery used on board ship.[5]

47. In Turkey section 5 of the Labour Act excludes from its application sea and air transport and agricultural work among others.[6] In its reports on Convention No. 119 under article 22 of the ILO Constitution, the Government has indicated that owing to economic dificulties there is no possibility at present of taking any measures to apply the Convention to machinery used in these branches

---

[1] Cyprus 2, s. 3 and the Report.

[2] Belize, Burma.

[3] For example, Burundi, Ecuador, Ghana, Guinea, Madagascar, Morocco, Sierra Leone, Turkey, Zaire.

[4] Ghana, Guinea, Kuwait, Madagascar, Malaysia, Niger, Sierra Leone, Turkey.

[5] Madagascar.

[6] Turkey 1, s. 5.

of economic activity. While noting that this may require time, in particular in agriculture, the Committee of Experts has stated that it is desirable that safeguards should be provided in at least air transport and the more mechanised aspects of transport by sea in the very near future.[1]

III. Declarations specifying a more limited application of the Convention

48. Article 17 of the Convention provides for a certain flexibility in allowing declarations specifying a more limited application of the Convention.

49. During the preparatory work on the Convention, 45 of the 75 governments which replied to the Office questionnaire on the point concerning the scope of the instrument, considered that it should extend to all branches of economic activity; the 30 others preferred a more limited application,[2] as was pointed out in the preceding chapter. It was argued that in any given country there are branches of economic activity which may not be entirely subject to the legislation on occupational safety and that a certain flexibility is needed in order not to preclude those countries from ratifying the Convention. Despite the clear majority in favour of the more comprehensive approach, it was nevertheless thought advisable to give the governments which desired it an opportunity of restricting the scope of application of the Convention by specifying a more limited application in a declaration appended to ratification. In order, however, to limit the possible extent of such restrictions this provision was subjected to a number of safeguards, requiring in particular that the Convention should be applicable as a minimum to undertakings or branches of economic activity where machinery is extensively used and that the employers' and workers' organisations concerned should be consulted in this connection. Finally, governments which register a declaration of limited application have to indicate in their reports any progress made towards its wider application, and are free at any time to cancel the initial declaration in whole or in part by a subsequent declaration.

50. In 1970, on the request of the Government of Norway for clarification of the meaning of certain provisions of Convention No. 119, in particular its Article 17, the International Labour Office prepared a memorandum with the usual reservation that the Constitution of the ILO contains no provision authorising it to interpret the instruments adopted by the Conference. With respect to the scope of the Convention as defined in Article 17 this memorandum concluded the following: "(a) the Convention is of general application; (b) a Member may specify a more limited application, but may not exclude undertakings and branches of economic activity in which machinery is extensively used; (c) it is for the competent authority of the State wishing to specify a limited application of the Convention to

[1] Turkey - Observation 1985.
[2] ILO, op. cit., Report VI(2), ILC, 46th Session, 1962, p. 93.

determine, in the manner provided for in Article 17, paragraph 2(a) of the Convention (i.e. after consultation with the labour inspection services and with the most representative organisations of employers and workers concerned) which undertakings and which branches of economic activity do or do not use machinery extensively."[1]

51. Following these explanations the Government of Norway ratified the Convention, availing itself of the possibility of limiting its application by a declaration, in which it specified that the Convention would apply, as regards undertakings, only to "all undertakings which employ a worker or workers or use mechanical power of one horse-power or more" and, as regards shipping, only to ships, vessels and barges that are subject to state control under the existing legislation. These limitations were made in order to limit the application of the Convention to the scope of the national legislation at the moment of ratification. Since that time, however, a number of important changes have been made to the national legislation: the 1956 Act respecting the protection of workers was replaced in 1977 by the Act relating to worker protection and working environment, which applies to "all enterprises that engage employees" (section 2(1) of the Act), and further modifications have been made to the Norwegian legislation on shipping. In the light of these developments the initial limitations as to the scope of the Convention specified by the Government in the declaration upon ratification seem to be outdated and the Government may therefore wish to review the situation, indicating in its reports under article 22 of the ILO Constitution any progress made towards wider application of the provisions of the Convention, as is required in its Article 17, paragraph 2(b), with a view to making a new declaration in that respect in conformity with paragraph 3 of the same Article.

52. The situation in Norway was dealt with in some detail in the previous paragraph as it is still the only one of the 35 ratifying countries which has used the above-mentioned flexibility provisions to limit the scope of application of the Convention. It should be noted that while other ratifying countries have not taken advantage of this possibility, the legislation of a number of them still does not ensure the application of the Convention to all branches of economic activity. In one case, in reply to an observation by the Committee of Experts which pointed out that the Convention was not being applied to machinery used in agriculture and in sea and air transport, the government concerned indicated that it considered this machinery to be exempted from the scope of the Convention under the provisions of Article 17, paragraph 3. The Committee of Experts had to point out that, as the government had not made a declaration when it ratified the Convention limiting the scope of application, no subsequent declaration could be made to this effect under the provisions of Article 17, paragraph 3.

53. This case, and the failure of governments generally to use the possibilities of flexibility under Convention No. 119, give a striking illustration of the fact that only limited use has been made

[1] ILO: Official Bulletin, Vol. LIII, No. 4, 1970, p. 381.

of the flexibility clauses contained in a number of Conventions. Addressing this issue in his Report to the 70th Session of the International Labour Conference, the Director-General of the ILO pointed out that these indications "lead one to ask not only whether countries which ratify Conventions examine sufficiently the possibilities of flexibility offered by them but also whether other countries might not find ratification possible through wider use of the flexibility clauses".[1]

54. This last consideration appears to be particularly relevant to the Guarding of Machinery Convention, which still has not attained the number of ratifications that might have been expected, taking into account the fundumental role of machinery in economic development. The possibility of limiting the application of the Convention is equally important both for developed and developing countries. The former countries generally have extensive legislation on the safety of machinery, but it is common to find it split into different laws and regulations of unequal scope, which make the provisions of the Convention fully applied in certain branches of economic activity and only partially in respect of the others. The importance of this provision is even more evident for developing countries which, in drafting their safety legislation, would be well advised to start with limited provisions which can be extended gradually as, for example, effective enforcement becomes practicable. In both cases careful consideration of the possibility of excluding certain undertakings or branches of economic activity from the application of the Convention, would undoubtedly facilitate the ratification and subsequent application of the Convention.

B. Measures concerning manufacture, sale, hire, transfer in any other manner and exhibition of machinery

I. General considerations

55. The adoption in 1963 of the ILO instruments on the guarding of machinery marked an important shift in the approach taken by legislative bodies towards the problem of the prevention of industrial accidents due to dangerous machinery. Until that time regulations on guarding of machinery had been mainly directed at safety rules for the use of machinery. However, the causes of the problem lay much deeper, at the stage of the design and manufacture of potentially dangerous machinery. The manufacturer and, in his turn the purchaser, may not worry unduly whether the equipment he produces, sells or buys is fitted with the necessary safety devices. Firms importing such plant and equipment are also, often unwittingly, importing serious hazards. It became evident that placing all the responsibility for accident prevention on the end users of machinery placed too large a burden on them, and that effective protection could be assured only if this

[1] Report of the Director-General, ILC, 70th Session, 1984, p. 17.

responsibility was shared equally by all those engaged in its production, distribution and use. The attention of legislators was therefore increasingly devoted to measures that would prevent inadequately guarded machinery from being made available to users.

56. In accordance with its commitment to the protection of workers, the ILO assumed a pioneering role in that respect. As far back as 1929 the International Labour Conference adopted the Power-driven Machinery Recommendation (No. 32) which called upon each Member to "adopt and apply to as great an extent as possible the principle that it should be prohibited by law to supply or install any machine intended to be driven by mechanical power and to be used within its territory, unless it is furnished with the safety appliances required by law for the operation of machines of that type" (Part I).

57. Drawing on the experience acquired by member States in the application of that Recommendation, the instruments on the guarding of machinery concentrated on establishing measures that would not only preclude unguarded machinery from being supplied to users, but would also ensure that such machinery would not be manufactured or even designed. The core provisions of the instruments prohibit the sale and hire of unguarded machinery; this is reinforced by the prohibition, to the extent the competent authority may determine, of the transfer in any other manner and exhibition of such machinery, with responsibility resting on the persons committing such acts. Convention No. 119 requires that certain defined dangerous parts of machinery shall be so designed, sunk or protected as to prevent danger for workers. The idea of protection at the initial stage of the production chain, that is the design and manufacture of the machinery, was developed further in Recommendation No. 118, which provides that the manufacture of specified types of machinery without appropriate guards should also be prohibited. These measures ensuring appropriate guarding of machinery even before it reaches the user are closely linked with safety standards laid down by the instruments for the use of machinery.

58. The essential provisions of the instruments accordingly are divided into different parts: Part II of the Convention and Part I of the Recommendation dealing with the prohibition of the sale, hire, transfer in any other manner and exhibition of unguarded machinery and, as regards the Recommendation, also its design and manufacture; whereas Part III of the Convention and Part II of the Recommendation concern safety measures in the use of machinery. This division of the provisions of the instruments has often given rise to questions as to the exact intent of the Convention, inasmuch as it attaches the same degree of importance to the prohibition of the use of unguarded machinery as to that of its sale, hire or transfer. Should the prohibition of its sale be regarded as a supplementary safeguard to the prohibition of the use of such machinery? And is this not superfluous if the legislation regarding the use of machinery achieves the objective of the Convention by protecting workers' safety?

59. In reply to these questions, it should first of all be noted that the obligation on the manufacturer or seller to supply machinery with appropriate guards was the principal innovation of the Convention. Highlighting this feature, the law and practice report prepared by the Office showed that a prohibition of the sale, hire,

etc. of inadequately guarded machinery would be an effective means of preventing accidents.

> First of all, it can be argued that any measure to prevent inadequately guarded machinery from reaching the user would appreciably increase the effectiveness of existing national regulations, which are mostly directed at preventing the use of such machinery. Secondly, such a prohibition would lead the manufacturers themselves, whenever practicable, to provide guarding which would generally be more satisfactory from the technical point of view than guards fitted at a later stage.[1]

60. The report also stated that "built-in safety was usually better and cheaper than safety provided after construction; it was particularly useful for small undertakings, the managers of which often had neither the knowledge to enable them to tell whether a piece of equipment was as safe as it should be nor the resources to enable them to make it safer if this was necessary; where built-in safety was compulsory, it protected firms making safe equipment against competition from those making unsafe and therefore cheaper equipment; and lastly it helped to obviate some of the many difficulties now experienced by countries importing or exporting industrial equipment".[2]

61. At the same time the prohibition of the sale, hire, etc. of unguarded machinery is never in itself sufficient to provide total protection to the worker who uses it. As was stressed in the Office paper, "even when machinery is properly guarded by the vendor or hirer, it is the user's responsibility to keep the guarding in place and to adjust and maintain it";[3] therefore "any liabilities imposed on the vendor or hirer should in no circumstances reduce the liability normally assumed by the employer using the machinery; these two quite different liabilities are complementary".[4]

62. The Convention attaches equal importance to these two types of action, and does not subordinate one to the other. A mere prohibition of the use of inadequately guarded machinery cannot therefore be considered as obviating the need to apply the requirements of Part II of the Convention concerning its sale, hire and transfer.

63. The experience gained in supervising the application of the Convention demonstrates that the extension of the prohibition of use of unguarded machinery, which generally already existed in the national legislation, to the sale, hire, transfer and exhibition of such machinery, has constituted a major problem in the Convention's full implementation. At times it has required quite radical changes in the existing concepts and approaches of the legislation in ratifying countries. Thus, the Committee of Experts has found itself confronted on some occasions with situations in which governments did not see the necessity of prohibiting the sale, hire, transfer and exhibition of unguarded machinery. These governments have considered

---

[1] ILO: op. cit., Report VI(1), ILC, 46th Session, 1962, p. 7.
[2] ibid., pp. 4 and 5.
[3] ibid., p. 8.
[4] ibid., p. 12.

that it is sufficient to prohibit only its use, as such legislation indirectly prevents the sale, etc. of the machinery in question, since persons purchasing or hiring these machines may not use them without providing the guards. One government argued recently, for example, that it was not necessary to include the prohibitions imposed by Part II of the Convention in its labour code, as there was no provision which prohibited claims for indemnification for harm caused by unguarded machinery, based upon the general rules of civil law. In these instances the Committee of Experts has stressed that Part II of the Convention constitutes an essential aspect of the dual protection provided for in Parts II and III of the Convention and that it cannot be enforced without the formal measures required; provisions which merely provide for indemnification for harm caused by the lack of such measures do not meet the Convention's requirements.[1] While noting that the provisions of Part II of the Convention still are not fully applied in a number of countries, especially in developing countries, the need to prevent unguarded machinery from being put into circulation has become generally acknowledged, and many governments have translated it into practical measures to bring about a higher level of protection for workers.

II. Complementary character of the requirements of the Convention and Recommendation

64. The apparent complexity of the structure of the instruments on the guarding of machinery stems not only from the fact that they cover different stages of the life of the machine requiring different safety measures, but also from the fact that some of these measures were included in the Convention while others were left to be dealt with in the Recommendation. It is therefore particularly important to highlight here the complementary character of the requirements of these instruments.

65. As concerns the use of machinery, which will be dealt with in detail later, the safety measures provided in the Convention were reproduced in the accompanying Recommendation without modifications. The provisions of the Convention and Recommendation are not however the same in respect of the pre-use stages of the life cycle of machinery, those of the Recommendation going beyond what is prescribed in the Convention.

66. The first and most apparent difference is that, while prescribing the same measures in respect of the sale, hire, transfer in any other manner and exhibition of dangerous machinery, the Recommendation applies them also to the manufacture of machinery (Paragraph 1(1)). Moreover, Paragraph 1(2) of the Recommendation states that these measures should also be considered in the design of such machinery. The Convention, on the other hand, is not as direct in its requirements: it implies that machinery should be safeguarded during manufacture by way of exempting from the prohibition as to the

[1] Zaire - Direct request 1976; Jordan - Observation 1986.

sale, hire, etc., machinery made safe by virtue of its construction (Article 3, paragraph 1(a)). It is particularly important to stress that the guarding of machinery starts in reality in the design department. From the technical point of view the most sensible and effective way of dealing with the problems connected with guarding of machinery is to rely on the design of the machine. Through good design the manufacturer can neutralise certain dangerous parts of the machine; he can design or place them in such a way that people cannot come into contact with them, either accidentally or on purpose. The manufacturer can also include appropriate safety devices in the design, ensuring that they will improve both the output and the efficiency of the machine. The stage of design of machinery is also gaining importance from the legal point of view, as in most producing countries the designer or manufacturer now has to comply with the safety legislation at this stage.

67. There are other instances where the provisions of the Recommendation complement and extend those of the Convention. It covers a much wider range of hazards emanating from machinery which has dangerous working parts that were not specified in the Convention (Paragraphs 1(1) and 2 of the Recommendation), and calls on governments to specify the types of dangerous machinery to which the above-mentioned measures would apply (Paragraph 1(3)). The Recommendation also requires that operating instructions for machinery should be based on safe methods of operation (Paragraph 6). These complementary provisions of the Recommendation will be explained in detail below.

III. Measures concerning manufacture, sale, hire, transfer and exhibition of machinery

68. The measures laid down for the pre-use stages of the life of machinery can be presented in the following order for the sake of clarity. First, the instruments specify certain dangerous parts of machinery, as defined by the Convention, which require appropriate guards. Next, they impose a prohibition, subject to certain conditions and exceptions, on the manufacture, sale, hire, transfer in any other manner and exhibition of machinery the dangerous parts of which are without guards. Finally, they include some additional safety requirements for such machinery.

69. Before analysing national legislation in respect of the measures prescribed by the instruments, it would be useful to clarify one additional question concerning the scope of their application, on which the Office's opinion has been requested. This question was whether Part II of the Convention prohibiting the sale, hire, transfer in any other manner and exhibition of machinery without appropriate guards covers the export of machinery to other countries for sale. Without going into detail here, it should simply be pointed out that the Office concluded that "Part II of the Convention does not apply to the export of machinery for sale".[1]

[1] ILO: Official Bulletin, Vol. LIII, No. 4, 1970, p. 382.

70. Part II would however become applicable to any sale, hire, transfer or exhibition of the machinery in the importing country, which must set standards applicable to machinery on its territory and must satisfy itself that these standards are met by imported machinery. In fact, as will be shown later, the legislation of a number of countries specifically prohibits or otherwise prevents the importation of unsafe machinery. The Committee of Experts has considered this question on several occasions. In one case, for example, the government concerned argued that there was no need to prohibit the sale, hire, etc. of machines without appropriate guards, as they were normally purchased in developed countries and consequently met the safety requirements of the Convention. Another government also indicated that machinery was imported from industrialised countries, but complained that manufacturers and vendors failed to supply adequate guards. In both cases the Committee of Experts pointed out that by ratifying the Convention the government concerned had undertaken to ensure that no inadequately guarded machinery was sold, hired, transferred in any other manner, exhibited or used in the country, and that the prohibitions laid down in the Convention applied not only to the initial sale but also to subsequent sales by agents and to the hire, transfer and exhibition of unguarded machines, whether new or reconditioned.[1]

71. The problem of importing unguarded machinery into developing countries is far from being overcome. In the absence of any supervision, any new importation of unguarded machinery may seriously undermine national efforts to establish safety standards for machinery already in use in the country. For that reason one government indicated that it had issued a special letter containing instructions for various ministries in order to prohibit the importation of any machinery not complying with the prescribed safety standards.[2]

72. The ILO has consistently addressed this problem in the framework of its activities concerning the transfer of technology to developing countries. As was pointed out in the report of the Meeting of Experts on Occupational Safety and Health and Working Conditions and Specifications in the Transfer of Technology to Developing Countries (Geneva, October 1986), "the transfer of technology was generally an advantage, but it might also cause adverse effects. These adverse effects included industrial hazards, occupational accidents and diseases ... Important means of assisting ILO member States in coping with these problems were standard-setting activities and the provision of technical guidance".[3] Concluding that "safety and health standards should be transferred along with the technologies",[4] the Meeting of Experts adopted for that purpose the Code of Practice on Safety, Health and Working Conditions in the Transfer of Technology to Developing Countries. From the practical point of view, the recommendations contained in this Code constitute

---

[1] Kuwait - Observation 1979; Zaire - Direct request 1974.
[2] Turkey - Observation 1982.
[3] ILO document GB.234/7/8, p. 2.
[4] ibid., p. 3.

useful guidance for governments engaged in the international transfer of machinery and for the implementation of the relevant provisions of the instruments on the guarding of machinery.

(a) Definition of dangerous machinery and parts thereof requiring preventive measures

73. Both the Convention (Article 2, paragraphs 3 and 4) and the Recommendation (Paragraphs 1 and 2) deal with this question.

74. In principle, a machine can be fitted with guards when it is being manufactured, when it is being installed, or at an intermediate stage, when it is sold or otherwise made available to the user. In the first and intermediate cases, safety devices can be built into the machine or added to it in order to provide protection against all its dangerous components or only some of them, according to the possibilities and the intended use of machinery. Obviously, the manufacturer cannot always supply a machine fitted with all the necessary safety devices; these may be marketed, for example, by specialised firms. Moreover, in respect of some parts, for example, the cutter of a machine, guarding by the vendor is impracticable, as they are better guarded by the user when the exact conditions under which the machine is to be used are known. It is therefore the responsibility of the user, where necessary, to improve the initial guarding or to provide new or supplementary guards in order to meet actual operation requirements. Whatever guards may be installed at the manufacturing or selling stage, users are clearly required either to ensure that the necessary guards are in place or to install them themselves.

75. This distinction between the guarding requirements that may be imposed when the machine is manufactured and marketed and when it is put to use is clearly reflected in the Convention. As regards the measures concerning sale, hire, transfer in any other manner and exhibition of dangerous machinery which are laid down in Part II of the Convention, guarding requirements are restricted to the guarding of certain specified dangerous parts of machinery. On the other hand, Part III of the Convention, which concerns use of machinery, is not limited in that respect and requires guarding of any dangerous part of machinery including the point of operation. The Recommendation, as will be seen, contains no such distinctions.

76. Another important factor that was considered by the competent Conference Committee while defining what dangerous parts of machinery should be guarded was that it seemed impossible to contemplate a general prohibition at an international level of the sale, hire, etc. of unguarded machinery owing to the many kinds of machinery placed on the market, the divergent standards laid down in various countries and the requirements resulting from the conditions in which machines are used. The prohibition imposed by the Convention should therefore be confined to dangerous parts in respect of which it is comparatively simple to install guards and to secure uniformity on the technical plane in practice throughout the world. The parts of machinery that were identified for this purpose consisted of two

groups: (1) any moving parts having projections, and (2) gearing and transmissions, including controls.[1]

77. A number of parts of machinery which should be guarded were thus listed by name in Article 2, paragraphs 3 and 4 of the Convention. It was further provided that other dangerous parts of machinery also liable to present danger shall be guarded, to the extent to be determined by the competent authority. Generally, the protection of the parts of machinery mentioned in the instrument is required only when there is a danger to any person from coming into contact with such parts when they are in motion, since contact with certain moving components - particularly those of low-powered and very slow-moving machines - normally does not involve any danger. Operating controls (for starting and stopping, etc.) will seldom cause injury themselves, but poorly designed controls (e.g. wrongly placed push-buttons, or levers which have a direction of travel which does not correspond with that of the machine parts they operate) may be a major hazard. It was understood that the provision for the protection of such controls (Article 2(4)) was meant to ensure that machinery would be provided with such controls as would prevent them being put in motion accidentally.

78. It may be noted that these provisions of the Convention do not cover dangerous parts that relate to the point of operation of the machine. Guarding the point of operation is usually the most difficult problem. Squeeze, crush or shear hazards or in-running nips that may injure hands or other parts of the body, the possibility of breakages or flying particles during machining, and potential electrical or chemical hazards should be carefully analysed before any guards are prescribed. The guarding of this group of dangerous parts varies considerably from one machine to another and therefore does not lend itself easily to the establishment of precise international standards of general application; it was therefore dealt with in the accompanying Recommendation.

79. The basic idea inspiring the approach taken by the Recommendation, was that if standards for dangerous parts could not be established for all machines, it was still possible to establish them in respect of particular types of machines which are used, for example, for the same purpose and have common technical characteristics. These types of machinery could therefore be specified by legal or other measures for the purpose of laying down unified guarding requirements in respect of their dangerous working parts, particularly at the point of operation, in addition to those covered by the Convention. The provisions of the Recommendation thus aimed not so much at defining additional working parts that may present danger, as at specifying certain types of machinery entailing a common hazard. This approach enlarged the concept of machine guarding contained in the Convention: whereas the Convention seeks to guard against the machines themselves, the Recommendation pays particular attention to the protection against dangers produced by these machines, reflecting the approach to the protection of the working environment taken by later ILO standards on occupational safety and health.

---

[1] ILO, op. cit., Report VI(1), ILC, 46th Session, 1962, pp. 7-8.

80. Recommendation No. 118 adds the manufacture of unguarded machinery to the Convention's prohibition of the sale, hire, transfer in any other manner and exhibition of such machinery in respect of specified types of machinery which comprises, in addition to the parts specified in Article 2 of the Convention, dangerous working parts (at the point of operation) which are without appropriate guards (Paragraph 1(1) of the Recommendation). Leaving it open for governments to specify by national laws or regulations or by other equally effective measures what types of machinery will be subject to prohibition, if unguarded, the Recommendation suggests taking into account for that purpose particular dangers presented by some types of machinery and parts thereof, which are enumerated in Paragraph 2 of the Recommendation.

81. This Paragraph was formulated in particularly wide terms so as to avoid giving too long a list of risks to which persons using machinery were exposed. In order to make its intentions clear the competent Conference Committee included in its report an indication that this provision covered in particular the risks due to explosion and the action of toxic substances, dust, flying particles, liquids, heat, ionising radiations and the risks due to noise and harmful vibrations.[1] This indication is particularly interesting to note here as it establishes a link between the instruments on the guarding of machinery and the Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156) which deal specifically with the above-mentioned occupational risks, and are covered in another part of the present survey.

82. It is essential for the effective application of Part II of the Convention that the national legislation designate those parts of machinery that present danger and require appropriate guarding. The Committee of Experts has had to deal in certain cases with situations in which the national legislation includes a general prohibition of the sale, hire, etc. of the dangerous machinery, but provides that the definition of the machinery considered to be dangerous would be contained in later legislation. In a number of cases the adoption of such legislation does not happen promptly, and in certain countries this legislation has still not been adopted after a number of years. One government stated in this respect that, since its country neither manufactures nor sells machinery, it would not appear necessary to define dangerous machinery in the legislation. In reply the Committee of Experts recalled that the prohibitions imposed by the Convention apply also to imported machinery and to second-hand machinery.[2] In all such cases the Committee of Experts has had to point out that until there has been a determination of the machinery and parts thereof requiring guards, the prohibition of the sale, hire, transfer in any other manner and exhibition of machinery in question contained in Article 2 of the Convention, remains ineffective.

83. Several ratifying countries have indicated that legislation to determine machinery and parts thereof to which the prohibition

---

[1] ILO: Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 572.

[2] Congo - Observation 1977.

applies, is being prepared or is about to be adopted.[1] In the Central African Republic, for example, a draft Decree for that purpose was drawn up following direct contacts with the ILO in May 1980, and is now before the Committee on Legislation.

84. The determination of dangerous machinery and the parts of machinery requiring appropriate guards, may present difficulties of a practical nature in a given country requiring, for example, a kind of inventory of the machinery used in the country and of the related risks. One of the ratifying countries indeed stated in a report under article 22 of the Constitution that such an inventory of the dangerous machinery would require a great deal of time.[2] Attention should be drawn to the fact that, while requiring guarding of certain enumerated parts of machinery, Article 2 of the Convention leaves it open for the competent authority to prescribe the extent to which other dangerous parts should be protected. Thus, governments may proceed gradually in determining the dangerous machinery and parts thereof which should not be sold, hired, transferred or exhibited without appropriate guards, adding new entries to the list of such machinery when the risks caused by them are brought to light by national practice. For this purpose appropriate statistics should be collected and analysed and close co-operation should be ensured between the labour inspectorate, scientific institutions, and employers' and workers' organisations, on the one hand, and authorities defining dangerous machinery on the other.

85. It is important to emphasise, however, that the initial definition of the dangerous machinery and parts thereof should as a minimum cover all those parts enumerated in Article 2 of the Convention. One government suggested in this respect that it would be useful if the ILO would elaborate practical guides listing machines and parts thereof that require guarding by appropriate safety devices with the aim of helping developing countries to reconcile the transfer of technology with the imperatives of safety.[3] The Committee of Experts recalls that a number of recommendations to this effect are contained already in different codes of practice established by the ILO, to which reference is made elsewhere in the survey, and that this work constitutes a continuing feature of ILO activities, including those of the International Occupational Safety and Health Information Centre (CIS).

86. The legislation of the majority of countries for which information is available enumerates dangerous parts of machinery requiring protection that correspond closely to those specified in the Convention.[4]

87. In some cases, where the Committee of Experts has found the enumeration of the dangerous parts requiring guards given in the national legislation to be incomplete vis-à-vis the provisions of the Convention, it has asked the governments concerned to take the

---

[1] Algeria, Central African Republic, Congo, Tunisia.
[2] Congo - Report 1981.
[3] Tunisia - Report on Recommendation No. 118.
[4] For example, Burundi 4, ss. 2, 3 and 6; Madagascar 1, s. 50.

necessary measures to include the missing parts in the legislation. Thus, it is the intention of the Government of Cyprus to amend section 29(1)(b) of the Factories Act, 1956, which covers the dangerous parts enumerated in paragraph 3 of Article 2 of the Convention but not those listed in paragraph 4 of the same Article.

88. Almost the same provisions as in Cyprus exist in other countries which have Factories Acts modelled on the British example[1] with the exception of Zambia where guarding is prescribed for all dangerous parts of machinery enumerated in the Convention which is sold and hired.[2] The report of the Government of the United Kingdom highlights the fact that some of the dangerous parts specified in the Convention would not be covered by section 17 of the Factories Act. It adds that while the requirement of the Convention relating to the design and protection of controls is absolute in its duty, no such equivalent exists in machinery-guarding legislation in the United Kingdom. At the same time this legislation contains very general provisions aimed at giving effect to the requirements of the instruments on the guarding of machinery in respect of "any article for use at work", extending far beyond the limited number of dangerous parts specified in the Convention.[3] In connection with this relatively new broad approach aimed at ensuring safety of all machinery irrespective of the nature of risks that it presents, the Committee of Experts would like to draw particular attention to the possibility provided in the Factories Act to extend by regulations its guarding requirements concerning machinery which is sold or hired, to cover other dangerous parts of this machinery besides those which are already expressly mentioned in the Act.[4]

89. This possibility is also found in the Factories Acts of other countries which follow the United Kingdom model.[5] Indeed, in the absence of general provisions applicable to all machinery and parts thereof as in the United Kingdom, a noticeable trend in the legislation of these countries consists in adopting (in line with Recommendation No. 118) separate regulations for particular types of dangerous machinery which provide for safeguarding in case of sale and hire of other dangerous parts of these machines.[6] Particular mention should be made of the recent Indian legislation concerning manufacture, supply and use of machinery in the agricultural or rural sector drafted so as to cover all dangerous parts of these machines for the purpose of their safeguarding.[7] General provisions requiring guarding of every dangerous part of machines being designed, manufactured or supplied exist in Bahrain.[8]

---

[1] Ghana 1, s. 41(1); Burma 1, s. 28(1); India 1, s. 26(1); Kenya 1, s. 26(1); Nigeria 1, s. 21(3), Singapore 1, s. 25(1).

[2] Zambia 1, s. 32(1).

[3] United Kingdom 2, s. 6.

[4] United Kingdom 1, ss. 17(3) and 76.

[5] For example, Ghana 1, s. 51(1)(e); Kenya 1, s. 26(3); Nigeria 1, s. 21(3); Singapore 1, s. 25(3); Zambia 1, s. 32(5).

[6] For example, Cyprus 3 and 4; Guyana 3; India 2.

[7] India 2.

[8] Bahrain 2, s. 3.

90. In many of the reporting countries with comprehensive legislation on the guarding of machinery which is manufactured and supplied, the legislation aims at safeguarding all those parts of machinery that may present danger.[1] This approach is taken in the standards on the guarding of machinery established in the socialist countries in the framework of the system of occupational safety standards of the Council for Mutual Economic Assistance.[2] The same approach is taken in the legislation of the Nordic countries on the manufacture, sale, hire, etc. of machinery, which is accompanied by technical standards elaborated in the framework of the Nordic Machines Committee. In Switzerland dangerous parts of machinery are not detailed in the legislation, which also aims at ensuring overall safety of machinery offered or put into circulation.[3] The situation in these countries will be more closely studied in the next section of the survey.

91. Some countries have adopted special legislation defining dangerous machinery and parts thereof for the purpose of applying the general prohibition of the sale, hire, transfer and exhibition of such machinery.[4] This legislation not only enumerates dangerous machine parts that should be guarded in accordance with the Convention, but includes also a detailed list of specified types of machinery which comprise other dangerous working parts and present other risks, as is provided for in the Recommendation. With respect to these or other types of machinery the legislation establishes the procedure of official certification of the effectiveness of their protection according to which the manufacturers, vendors and persons letting out machinery on hire are required to address their requests for certification to the competent authority and to supply all the technical documents and the results of tests that it may demand.[5]

92. Official certification of the effectiveness of guards is required in a number of countries.[6]

93. Some countries have simply incorporated the provisions of Article 2, paragraphs 3 and 4, of the Convention into the national legislation with minor changes.[7]

94. Generally, it may be observed that in the majority of countries where the legislation on the guarding of machinery does not yet deal with questions of the sale, hire, etc. of dangerous machinery but covers only its use, the dangerous machinery and parts thereof requiring appropriate guarding defined in the legislation correspond

---

[1] For example, Malaysia 1, ss. 17 and 18; New Zealand 1, s. 17A.

[2] For example, German Democratic Republic 4; USSR 6.

[3] Switzerland 1, s. 2.

[4] For example, France 1, ss. L.233-Y and R.233-83; Morocco 3.

[5] Côte d'Ivoire 2, s. 4D 69; France 1, s. R.233-52 and 53; Morocco 3, ss. 1 to 3.

[6] For example, Algeria 1, s. 250; Gabon 2, s. 34; Guinea 2, ss. 55-58; Madagascar 1, s. 55.

[7] Côte d'Ivoire 2, s. 4D 69; Kuwait 1, ss. 4 and 5.

closely to those specified in the Convention.[1] Here also there is a tendency to establish general national standards or regulations providing for guarding of all dangerous parts of any machinery, as well as protecting workers against other risks caused by this machinery. An example of such legislation is the Basic Standard on the Guarding of Machinery recently adopted in Colombia.[2]

95. In many countries the body of the machinery-guarding legislation includes an impressive number of special regulations or standards for particular types of machines which give effect to a varying extent to the provisions of the Convention and the Recommendation in respect of these types of machines.[3]

96. In the legislation of some other countries which apparently do not have special technical standards for machinery or particular types thereof, it is common to find in the general legislation provisions which specify some particular types of machinery and impose special requirements on the guarding of their dangerous parts including the point of operation of the tool. The machinery referred to as a rule includes wood-saws and wood-working machinery, high velocity cutting machines, mechanical presses, grindstones, hoisting machines, electrical installations, etc.[4]

97. Many countries have provided in their legislation for special safety measures in the design, installation, and use of controls of the machinery, particularly for the installation of immediate stopping devices for machines, within easy reach of workers.[5]

98. In most countries guarding of the working parts of machinery is accompanied by provision for safeguards against other risks caused by machinery, e.g., flying particles, electrical pressure, spilling of hot liquids, etc.[6] In Bahrain, for example, measures for the protection of the eyes of workers employed on machinery are laid down in a special Ministerial Order.[7]

99. The fact that the legislation of the majority of countries pays particular attention to the dangerous parts of machinery enumerated in the Convention shows that these provisions of the Convention retain their value as a guide to determining the guarding requirements for machinery which is put into circulation. While it was not possible for the Committee of Experts to check whether the legislation of all the reporting countries prescribes the guarding of

---

[1] For example, Argentina 2, ss. 104 and 105; Belize 2, s. 3; Burundi 4, ss. 2, 3 and 6; Chile 1, s. 23; Colombia 2, ss. 266, 267 and 273; Madagascar 1, s. 50; Mozambique 3, ss. 46, 47 and 58-60; United States 1, s. 1910.212.

[2] Colombia 3.

[3] For example, Bahrain 3, 4 and 6; Cyprus 3 and 4; Guyana 3.

[4] Burma 1, ss. 30-32; Burundi 4, ss. 8 and 12; Madagascar 1, ss. 51 to 54; Morocco 1, ss. 29 to 33.

[5] For example, Morocco 2, s. 35; Kuwait 1, s. 5, and 2, s. 5; Madagascar 1, s. 47.

[6] Belize 2, s. 56; Burma 1, s. 37; Burundi 4, ss. 12-14; Chile 1, s. 23; Kuwait 2, s. 7.

[7] Bahrain 7.

all those parts specified in the Convention, it will be for the governments concerned to study this question when the opportunity arises, particularly when the prohibition of the sale, hire, etc. of unguarded machinery is being introduced into the national legislation for the first time.

(b) Prohibitions imposed by national laws or regulations

100. Article 2, paragraphs 1 and 2, of the Convention requires prohibition by national laws or regulations or prevention by other equally effective measures of the sale and hire and, to such extent as the competent authority may determine, the transfer in any other manner and exhibition of machinery of which the dangerous parts specified in paragraphs 3 and 4 of this Article are without appropriate guards. With respect to the exhibition of machinery it is stipulated that the temporary removal of the guards in order to demonstrate the machinery shall not be deemed to be an infringement of this provision as long as appropriate precautions are taken to prevent danger to persons. In addition, Paragraph 1 of the Recommendation provides for the same measures to be taken in connection with manufacture, sale, hire, transfer in any other manner and exhibition, as well as for consideration of these measures in the design of specified types of machinery, to be determined by national laws or regulations or other equally effective measures. These provisions of the Convention and Recommendation are subject to some exceptions that will be explained below.

101. Though these provisions appear to be rather straightforward, a few points may call for additional clarifications on the basis of the preparatory work on the instruments and their subsequent supervision by the competent ILO bodies. The first point concerns the notion of "transfer in any other manner", which was considered by some members of the competent Conference Committee to be too vague. During the discussion of this point, it was stressed that "the transfer such as by gift, or other manners of transfer free of charge, could be extensive and this should therefore be taken into account in the Convention".[1] Further explanations by the Committee of Experts have indicated, for example, that transfer of dangerous machinery in any manner other than sale or hire, may take the form of a loan.[2]

102. The prohibitions found in the national legislation covering "transfer in any other manner" sometimes expressly mention specific acts of transfer, such as renting or lending.[3]

103. In respect of the transfer in any other manner and exhibition of machinery without appropriate guards it should be pointed out that these acts are prohibited only "to such extent as the competent authority may determine", thus leaving it open for

---

[1] ILO: Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 567.

[2] Guinea - Observation 1978.

[3] Norway 1, s. 17.

governments to decide what acts should be prohibited, and in what circumstances, in each country.

104. In some countries exhibition of machinery appears to be covered in terms of the prohibition of the "offer for sale" of machinery without guards.[1] In other cases the law prohibits "displaying [machinery] for purposes of sale or advertisement" without safety devices.[2] Prohibition of both "offer for sale" and "exhibition" of unguarded machinery may also be included in the legislation.[3]

105. The legislation of some countries makes use of the permissive provision of the Convention in respect of the exhibition of the dangerous machinery allowing the removal of guards during the demonstration of machinery under the appropriate precautions.[4]

106. One other point that merits attention concerns methods of application of the prohibitions imposed by Article 2 of the Convention and Paragraph 1 of the Recommendation. Both instruments provide two possibilities in this respect: prohibition by national laws or regulations or prevention by other equally effective measures, the latter possibility providing additional flexibility in application.

107. Comprehensive legislation on machine guarding covering pre-use stages in the life of a machine exists in many countries, primarily in those which manufacture machinery.[5] This legislation most often regulates the sale and hire of machinery. Less common are provisions referring to other acts of transfer of machinery and to its exhibition. Only a small number of countries have provisions regulating the design and manufacture of machinery in respect of its safety.

108. In imposing safety requirements at the pre-use stages of the life of a machine, two main approaches may be generally perceived in surveying national legislation on the guarding of machinery. The first is that of prescribing measures of direct prohibition of the sale, hire, etc. of machinery which does not comply with the statutory safety requirements.[6]

109. In some countries the prohibitions imposed by the legislation are drafted in virtually the same terms as Articles 2 and 4 of Convention No. 119.[7]

110. The second approach consists in laying down measures which, while not expressly prohibiting the manufacture and supply of unsafe machinery, provide equally effective guarantees that such machinery

---

[1] Morocco 1, s. 26; Tunisia 1, s. 4.

[2] Norway 1, s. 17.

[3] France 1, s. L.233-5.

[4] For example, Kuwait 1, s. 6.

[5] Brazil, Finland, France, Italy, Japan, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom, Uruguay, Venezuela.

[6] Brazil 1, s. 12.5; France 1, s. L.233-5; Guatemala 1, s. 2; Italy 1, s. 7; Japan 1, s. 43; Panama 2, s. 1; Spain 1, s. 4; Turkey 2, s. 11; Uruguay 1, s. 7.

[7] Côte d'Ivoire 2, s. 4D 69; Syrian Arab Republic 1, s. 11, and 2, s. 13.

will not be manufactured or supplied. The latter measures are generally based on imposing express duties on all persons concerned to ensure the safety of machinery before delivery, making the breach of this duty a punishable offence.[1]

111. Both of these approaches are in fact recognised by the instruments on the guarding of machinery as acceptable methods of implementation. Moreover, it is not uncommon to see in a given country the legislation expressly prohibiting some practices in respect of machinery, while providing for various measures of prevention for others.

112. In the socialist countries with centrally planned economies, the production and marketing of industrial machinery is controlled by the State through socialist undertakings. It is these undertakings which import, produce, supply and use machinery. In the planned economies, safety and health considerations form an integral part of the production plans of the undertakings and other units of economic activity, and constitute a system of binding measures applied at each stage of the process of production and distribution of manufactured products. The legal requirements as to the safety of machinery are thus supported by social and economic development plans of undertakings, which may be regarded as "other equally effective measures" ensuring the application of the Convention. Being directed essentially at making safety inherent in the design and manufacture of machinery, the prohibition in the legislation of the design and manufacture of unsafe machinery covers all hazards presented by machinery and not only those connected with some of its dangerous parts, as does the Convention. Moreover, safety measures in respect of machinery form part of the more general prohibition of constructing any plant or workplace or creating any working environment which would not ensure overall safety of workers to the best of current knowledge. This prohibition is enforced by subjecting the introduction, modification, etc. of any plant, project, etc. to previous approval and inspection by the competent state authorities, trade union committees and safety services of the undertaking concerned.[2]

113. Particular importance is attached to the design of machinery and equipment which should in principle be such as to guarantee safe working conditions without the need for additional protective measures. Manufacturers, deliverers and users are in their turn required to ensure a "quality of protection" which is achieved when all the relevant technical and technological standards are complied with.[3]

114. In Hungary the legislation stipulates that "the planning, commissioning and operation of a plant or other undertaking, and the manufacture, distribution, operation and use of tools, shall be

---

[1] Dominican Republic, Finland, Greece, India, Norway, Sweden, United Kingdom.

[2] For example, Cuba 2, ss. 10-17; German Democratic Republic 1, s. 205; Hungary 1, s. 51; Mongolia 1, ss. 133 and 134; Romania - report citing Republican Norms for Safety at Work; USSR 1, ss. 58 and 59.

[3] German Democratic Republic 2, s. 3, and 3, s. 2.

conditional upon compliance with the requirements for safe and healthy working conditions, as specified in the relevant regulations, standards or other technical specifications".[1] In Cuba as regards new equipment for which no safety standards have yet been established, such standards should be established in consultation with the trade union bodies concerned before putting this equipment to use.[2]

115. In the USSR questions pertaining to the prohibitions imposed by the instruments on the guarding of machinery are regulated both by the All-Union legislation and the legislation of the Republics. The Fundamental Principles governing the labour legislation of the USSR and the Union Republics ensure that rules and standards on occupational safety will be observed in the design, construction and operation of factories down to the workplace level, and prohibit construction or operation of any production unit unless safety is ensured and authorisation to go into operation is received from the competent state authority, the trade union technical inspection authority, and the trade union committee of the unit in question.[3] The labour codes of the Union Republics develop these basic principles into detailed provisions requiring the same protections in respect of the design and manufacture of any machinery and equipment, and prohibit its mass production unless it conforms to safety requirements.[4] In some Republics, as for example in the Ukrainian SSR, this prohibition applies even to the manufacture of a prototype of new machinery.[5] The effectiveness of these provisions is based on the existence of a large body of normative instruments and legally binding standards incorporated into the national System of Occupational Safety Standards, forming part of the general State System of Standards. As the Government of the USSR stated in its report, this system covers virtually all known hazardous or unhealthy effects emerging in the working environment and comprises about 400 state safety standards (GOST), a corresponding number of republican standards, 600 branch-of-industry standards and over 75,000 technical standards and specifications on manufactured products, all of which include special chapters on safeguards.[6]

---

[1] Hungary 1, s. 51(3).

[2] Cuba 3, s. 19.

[3] USSR 1, ss. 58 and 59.

[4] Byelorussian SSR 1, ss. 140-142; USSR 2, ss. 140-142, USSR 3, s. 150, USSR 4, s. 168.

[5] Ukrainian SSR 1, s. 156.

[6] The principal state standard in respect of guarding of machinery is "GOST 12.2.003-74: Industrial equipment - general safety requirements" which provides for guarding of all dangerous parts of machinery in all branches of economic activity, and prescribes in that respect general rules as to the establishment of safety standards on particular types and categories of machinery. Classification of collective and individual means of protection of workers is given in GOST 12.4.011-75, general requirements for safety devices used on machinery - in GOST 12.2.012-75, etc.

116. State safety standards adopted in the USSR correspond to those adopted by the Council for Mutual Economic Assistance (CMEA) and are in force for States Members of CMEA.[1] The CMEA system of labour protection standards is becoming increasingly important in the context of expanding socialist economic integration, and counts at present 74 safety standards and 129 standards on equipment.

117. Recent legislation in some market economy countries also takes a global approach to ensuring workers' safety by making the State generally responsible for ensuring safety of the working environment and for establishing and implementing national plans or programmes on occupational safety and health. In Venezuela, for example, the Basic Act on Prevention, Conditions of Work and the Working Environment of 12 July 1986 stipulates that "the State guarantees prevention of risks by supervision of the working environment in workplaces and of the conditions related thereto ...".[2] As concerns the prevention of risks caused by machinery, the Act institutes a system of state control over the manufacture and importation of any machinery or equipment. In general, it provides that any "project, manufacture, operation, maintenance and repair of means, processes and places of work shall be conceived, designed and executed in strict compliance with Norms on Occupational Hygiene and Safety".[3]

118. In Colombia, 1979 legislation provides that "all machines, equipment and tools shall be designed, manufactured, installed, maintained and operated in such a manner as to eliminate possible causes of accidents and illnesses".[4] This legislation places particular emphasis on making safety an inherent requirement of the design and manufacture of machinery and specifying the corresponding obligations of the manufacturers or importers of machinery. In addition to providing for effective measures to prevent any new unsafe machinery from being manufactured and put into circulation, it is essential when this is not inherent in the economic system that these obligations be expressly extended to persons who sell, hire, transfer or exhibit machinery, including second-hand machinery, thus covering the whole supply chain. In this respect, it is interesting to note that Colombian legislation further provides that the Ministry of Health shall determine the conditions for and may prohibit the sale, use and handling of machines and equipment which present serious risks for workers,[5] though no provisions have been adopted to prohibit any transfer of machinery.

119. In some cases other measures exist that may be no less effective in preventing the circulation of unsafe machinery, such as establishing at all levels of the economy, and particularly at each

---

[1] For example, general safety requirements for industrial machinery and equipment are laid down in the CMEA Standard 1085-78 and classification of the means of protection in CMEA Standard 1086-78.

[2] Venezuela 1, s. 3.

[3] ibid., ss. 23 and 21.

[4] Colombia 1, s. 112.

[5] Colombia 1, s. 83(c).

workplace, permanent programmes for the promotion of occupational health under the direct responsibility of employers within the framework of national legislation on occupational health.[1] To a certain extent, these developments may be compared to the state systems of organisation and planning of matters pertaining to occupational safety and health which exist in the socialist countries.

120. In France the Labour Code contains a general prohibition on the exhibition, offer for sale, sale, import, hire, transfer in any other manner or use of (a) machinery and parts thereof which are not so constructed, placed, protected or controlled as to ensure workers' safety, and (b) guards and other safety devices for machinery which do not ensure protection against existing dangers.[2] The precise scope of this prohibition as to the types of machinery and safety conditions to be satisfied is determined by regulations, the first of which was issued as far back as 1946. For the purpose of the application of the law, all machinery is split into three categories, each covered by separate regulations: dangerous machinery which falls under the above-mentioned prohibition, particularly dangerous machinery for which special procedures of official certification of their conformity with the established safety standards is prescribed; and all other machinery, which should comply with general safety standards. The regulations also lay down a procedure for preventing the exhibition, sale, etc. of machinery which is not subject to this prohibition but which does not comply with the safety conditions prescribed. By contrast to the situation in centrally planned economy countries, where the prohibition is applied equally in respect of any type or category of machinery, the French system prescribes stricter safety measures in respect of more dangerous machinery. Thus, general safety rules requiring guarding of certain dangerous parts of machinery in line with the Convention are prescribed for all machinery,[3] and non-observance of these rules in respect of specified types of dangerous machinery[4] would result in the prohibition of its exhibition, sale, etc. From the formal point of view, the prohibitions in the French law are less wide than those of the Convention, which applies to all power-driven machinery and not only to specified types of it, however large may be the list of specified machinery. The French legislation here follows more closely the model set forth in the Recommendation which extends the prohibition to "specified types of machinery", but is not as wide as the Recommendation in coverage of those dangerous parts of machinery that should be guarded. Full effect is, however, given in the legislation to the requirements of the instruments on the guarding of machinery as regards particularly dangerous types of machinery. Safety rules for these types of machinery, some of which may also figure in the list of machinery subject to prohibition, are laid down in special regulations which provide for guarding of virtually all dangerous parts of the

[1] For example, Colombia 1, ss. 84(c) and 111; and Colombia 4.
[2] France 1, s. L.233-5.
[3] France 1, ss. R.233-84 to R.233-107.
[4] ibid., s. R.233-83.

machines in question.[1] Their observance is ensured through special procedures of certification and technical examination of any new machinery. As was already mentioned, machinery and its guards are subjected to procedures of obtaining official certification or a visa of technical examination from the competent state authority as to compliance with safety standards when it is being imported or constructed; the refusal to deliver the certificate or visa in question is equivalent, subject to certain exceptions, to a prohibition of putting the machinery into circulation.[2] Moreover, in any further transfers the machinery should be accompanied by the certificates thus obtained, and any subsequent modifications made to the machinery should be subject to new certification. As the Government indicated in its report, the basic concept behind these provisions, which do not prohibit expressly the design and manufacture of unsafe machinery, is promotion of the incorporation of safety requirements already at the stage of the manufacture of the machine. The procedures established to prevent the design, manufacture, import, exhibition, sale, etc. of particularly dangerous types of machinery not duly protected may also be considered as "equally effective measures" in the sense of the Convention and Recommendation.

121. The French model of supplementing prohibition with procedures for official certification of some types of dangerous machinery, is closely followed in the legislation of a number of countries. In many of them the law prohibits "sale to a user, as well as exhibition, offer for sale and hire of dangerous devices, machines and elements of machines which are not installed, placed or protected in conditions ensuring the safety of workers", this machinery to be determined in special legislation. It also prohibits exhibition, offer for sale and sale of any safety device, the efficacy of which has not been officially recognised.[3]

122. The prohibition laid down in the legislation of some of these countries does not cover exhibition of machinery and applies only to unguarded dangerous machines for which there exist guards of recognised efficacy.[4] In Guinea employers are also prohibited from installing without guards machinery for which guards of recognised efficacy exist.[5]

123. In all these countries, for the prohibitions imposed to become effective, it is essential that the legislation determine the dangerous machinery and that it lay down the procedure for official certification of the efficacy of guards or of the protection of certain types of machinery, as is the case in France. As was pointed out in the preceding section of the survey, while the procedure for official certification of guards is prescribed in nearly all of these countries,[6] most of them still have not adopted provisions defining

---

[1] ibid., Non-codified texts: health and safety.

[2] ibid., s. R.233-52.

[3] For example, Algeria 1, s. 250; Central African Republic 1, s. 37; Congo 1, s. 135, and 2, s. 37; Gabon 2, s. 37.

[4] Guinea 1, s. 171; Morocco 1, s. 26; Tunisia 1, s. 4.

[5] Guinea 2, s. 55.

[6] Apparently no such provisions exist in Tunisia.

the dangerous machinery to which the prohibition applies. Common to the legislation of these countries is also the fact that it does not prohibit or otherwise prevent transfer in any other manner of unguarded machinery.

124. In Switzerland the federal law on the safety of installations and technical equipment is applicable to the offer and putting into circulation of machinery and safety devices to the extent that their safety is not ensured by other legal provisions. This law does not in itself prohibit the offer or putting into circulation of machinery which does not satisfy the safety requirements prescribed, but lays down the procedure of previous control of the machinery (similar to the French system) and empowers the competent authority to impose a prohibition and, in case of grave danger, to order confiscation or sequestration of the machinery in question.[1] This legislation, as stated by the Government in its report, is more limited in scope than the prohibitions imposed by the Convention and only partially meets its requirements.

125. In Turkey it is not permitted to construct, to sell, to exhibit, to hire or to transfer locally made machines without guards, the same restrictions being applicable also to the importation of machinery.[2] Guarding requirements in general and for particular types of machines are being established by the Turkish Institute for Standards[3] on the basis of the "list of machines causing substantial industrial accidents" which are not at present provided with the necessary guards. The law prescribes that where no standards on guards for any particular machinery have yet been developed, the manufacturer should ask the Turkish Institute for Standards to establish such standards, and in the meantime should follow the general safety standards on the guarding of machinery.[4] While noting these developments as laying down a foundation for a comprehensive approach to guarding of machinery, the Committee of Experts has pointed out in comments on the application of the Convention in Turkey the need to develop further the system of safety standards for machinery, and to supplement the present legislation by measures which impose an obligation of compliance with these standards on persons selling, letting out on hire, etc. of machinery.[5]

126. In the United Kingdom and in countries with British-inspired legislation there is no general prohibition in law of the manufacture, sale, hire, etc. of unguarded machinery. The law seeks to prevent these acts by "other equally effective measures", as permitted by the instruments. The question of the sale and hire of machinery with defined parts being left unguarded was first regulated in the Factories Act by making "any person who sells or lets on hire, or as an agent of the seller or hirer causes or procures to be sold or let on hire, for use in a factory in the United Kingdom any machine

---

[1] Switzerland 1, ss. 1, 2 and 11; and 2.
[2] Turkey 2, ss. 11 and 15.
[3] For example, Turkey 3 and 4.
[4] Turkey 2, s. 10.
[5] Turkey - Observation 1983.

intended to be driven by mechanical power which does not comply with the requirements of this section" guilty of an offence punishable by a fine.[1] This regulation was reproduced in the Factories Acts of many other countries.[2]

127. This regulation applies in these countries only to machinery to be used in a "factory", as defined in their respective Factories Acts, and in respect of a limited number of specified dangerous parts of such machinery. Moreover, these provisions do not cover transfer in any other manner or exhibition of machinery, and they do not apply to machinery manufactured before the entry into force of the Act or before a specified date. These provisions may, however, be extended by regulations to cover sale and hire of machinery which does not comply with such other statutory requirements apart from the guarding of specified dangerous parts, as may be prescribed by regulations; these regulations also being applicable only to new machinery.[3]

128. Analogous provisions are sometimes included in the regulations made under the Factories Acts in these countries for particular types of machinery, most commonly for woodworking machinery or machinery used in building and engineering works.[4] As regards the machinery used in other premises than factories, as defined in the legislation, the corresponding regulations appear to be rarer. In the United Kingdom, for example, the Agricultural (Field Machinery) Regulations, 1962, impose a duty on suppliers of new machines to supply them in compliance with the safety requirements laid down in the regulations. No such provisions exist for second-hand or stationary agricultural machinery, or in respect of equipment used in mines and quarries. Nor do regulations appear to exist prohibiting the sale and hire of unsafe machinery under the Offices, Shops and Railway Premises Act, 1963.

129. With the adoption of the Health and Safety at Work, etc. Act, 1974, these aspects of the British legislation underwent a substantial development. The Act introduced a general "duty of any person who designs, manufactures, imports or supplies any article for use at work ... to ensure, so far as is reasonably practicable, that the article is so designed and constructed as to be safe and without risks to health when properly used".[5] It should be noted, first of all, that this basic duty goes beyond the requirements of the Convention in covering all articles for use at work, which includes

---

[1] United Kingdom 1, s. 17(2).

[2] For example, Burma 1, s. 28(2); Cyprus 1, s. 29(2); Ghana 1, s. 41(2); Guyana 1, s. 20(2); India 1, s. 26(2); Kenya 1, s. 26(2); Malawi 1, s. 26(2); Nigeria 1, s. 21(3); Pakistan 1, s. 31(2); Singapore 1, s. 25(2); Sri Lanka 1, s. 22(2); Zambia 1, s. 32(3).

[3] In Malawi the Minister may by order extend these provisions "to such other dangerous parts of machinery or plant as may be specified in the order": Malawi 1, s. 26(3).

[4] Bahrain 4, s. 13; Cyprus 3, s. 13, and 4, s. 108; United Kingdom 4, s. 15.

[5] United Kingdom 2, s. 6(1)(a).

all machinery, and applies to the design and manufacture of machinery in line with the Recommendation. The term "supply" of machinery may be taken to include transfer of machinery otherwise than through sale and hire. Still, as the Government stated in its report, "this is not a prohibition as envisaged by Article 2" (of the Convention), but a duty qualified by the phrase "so far as is reasonably practicable". This phrase has been the subject of interpretation by UK courts and is taken to mean that for any risk generated, precautions should be taken in so far as "the cost in terms of money, time, effort, etc. balances the risk it generated". As regards this general duty, provisions of other Acts laying down particular safety requirements for construction and supply of machinery in factories, agriculture, mines, etc. remain in force as "relevant statutory provisions" under the Health and Safety at Work, etc. Act. In some instances these provisions apply to the requirements of the Convention, while in many others they still do not give full effect to it, thus, according to the Government, preventing its ratification. As concerns the provisions of the Recommendation, the Government considers that the general duty supplemented by specific legislation applying to particular premises and coupled with the inspector's powers to issue prohibition notices where there is an imminent risk of personal injury, may be taken to meet the objectives set out in the instrument, as an equally effective measure associated with supply, etc. and use of machinery. It should be pointed out, however, that as the statutory provisions on the guarding of machinery in relation to its sale, hire, etc. are still rather fragmentary, the overall effectiveness of the system of measures outlined above would largely depend on the action taken in practice by the courts in deciding on what is to be considered as the practicable level in guarding of machinery and protecting the workers against the dangers presented by it.

130. As concerns countries whose legislation was modelled on the British example, the situation in the majority of them resembles that in the United Kingdom before the adoption of the Health and Safety at Work, etc. Act, the only relevant provisions being those concerning the sale and hire of machinery included in the Factories Act.[1]

131. One government stated in its report that "as the scope of the Factories Act covers only factory operation, it would not be possible to introduce provisions to cover all Articles of the Convention, particularly those dealing with exhibition, sale and hire of machinery not used in factories".[2]

132. Another government indicated that the enforcement of the Factories Act is at present confined to the use of machinery, but that steps are being taken to extend it also to the manufacture, sale and hire of such machinery.[3]

133. The development of the legislation in other countries has followed the comprehensive approach of the Health and Safety at Work,

---

[1] Kenya, Malawi, Nigeria, Pakistan, Singapore, Sri Lanka, Zambia.

[2] Singapore.

[3] Sri Lanka.

etc. Act of the United Kingdom, laying down a general duty on any person who designs, manufactures, imports, supplies, erects or installs any article for use at work to ensure its safety, so far as is reasonably practicable.[1]

134. In Bahrain this general duty is incorporated in the specific national legislation on the guarding of machinery and applies directly to persons who design, manufacture, etc. machinery.[2] In Mauritius and in the Solomon Islands, while retaining the broad reference to "articles for use at work" the legislation establishing this general duty makes it more specific in respect of machine guarding by providing for guarding of "every dangerous part of machinery"[3] or "of any moving part of machinery which is a potential source of danger"[4] and by laying down other safety requirements in respect of machinery.

135. A notable development in the legislation on machinery in India, in comparison with the approach taken in the Factories Act, is the Dangerous Machines (Regulation) Act, No. 35 of 1983.[5] The new approach may be characterised as combining the system of general duties imposed on the manufacturers, dealers and users of dangerous machinery in ensuring its safety, with the establishment of special procedures for supervising compliance with safety measures prescribed by an administrative authority created for that purpose, which resembles the French system of certification explained above. Under these procedures manufacturers of and dealers in dangerous machinery are required to hold a licence issued by the said authority subject to specified conditions, and users have to register dangerous machines before putting them into operation. Furthermore, before transferring the possession of any such machine, whether by sale, lease, hire or otherwise, the manufacturers and dealers shall deliver to the person acquiring the machine a declaration to the effect that it conforms to all relevant safety standards. Inspectors are given additional power of seizure in respect of any dangerous machine which does not comply with these standards. This Act, which at present covers only power threshers, is in principle applicable to any other machine "intended to be used in the agricultural or rural sector" which may be specified by the Government.[6]

136. In Ireland the Factories Act, 1955 was amended by the Safety in Industry Act, 1980 which introduced the general duty of "any person who manufactures, imports or supplies any plant for use at work in a factory" to ensure, so far as is reasonably practicable, that safeguards have been provided in relation to the plant in question.[7]

---

[1] Mauritius 1, ss. 6 and 7; Solomon Islands 1, s. 8.
[2] Bahrain 2, s. 3(b).
[3] Mauritius 1, s. 12.
[4] Solomon Islands 1, s. 79.
[5] India 2.
[6] India 2, ss. 2 and 3.
[7] Ireland 2, s. 9(1).

137. Of particular interest is the development of the legislation on the guarding of machinery in Malaysia and New Zealand which satisfies most requirements of the instruments. While retaining many of the features common to the Factories Acts referred to above, the legislation of these countries shows a more complex approach to the problem of guarding machinery. Their legislation covers all machinery and not only that used in factories, with the exception of certain specific types of machines covered mostly by separate legislation.[1] It also applies the same uniform concept of guarding every dangerous part of any machinery, to the use of such machinery, as well as to its manufacture, sale and hire. The New Zealand legislation requires secure fencing of all dangerous accessible parts of machinery, and requires the same parts to be fenced when the machine is being "manufactured for the purposes of sale, assembled for the purposes of sale, sold, let on hire, offered for sale, or offered for hire".[2] It also makes persons who commit such acts, as well as agents of the seller or hirer, responsible for compliance with this requirement.

138. In Malaysia it is prohibited to manufacture, repair or install any unfenced machinery and to import, sell or let on hire any unfenced machinery other than transmission machinery, the latter being covered by the prohibition of use.[3] While imposing wider guarding requirements for machinery being sold or hired than the Convention, these Acts (like the Factories Acts) do not cover transfer in any other manner and exhibition of machinery. In respect of transfer and exhibition, which are covered by the Convention only in so far as the competent authority determines, the Government of New Zealand indicated that it does not presently consider it appropriate to enact such legislation. It also stated that there is no specific requirement in the Machinery Act for guarding to be incorporated at the design stage, as is suggested in the Recommendation, but that the Act exempts from guarding, machinery which is in such a position or is of such construction as to be as safe as it would be if securely fenced, the effect of this provision being that "the protective aspect may and probably will in many cases be introduced at the design stage".[4]

139. In Australia there is no federal legislation on the guarding of machinery[5] and the application of the Convention and Recommendation is ensured through the legislation of the states, which show patterns of development similar to that of the British legislation. In New South Wales and in Victoria provisions have been adopted establishing general duties on those who design, manufacture, import or supply a plant for use at a workplace,[6] these duties being supplemented by other statutory provisions directly concerning

---

[1] Malaysia 1, s. 3; New Zealand 1, s. 2.

[2] New Zealand 1, ss. 15 to 17A.

[3] Malaysia 1, ss. 17 and 18.

[4] New Zealand - report.

[5] The Commonwealth Government has issued a Code of Practice on machine design, guarding and maintenance which is supplemented by a number of recommended technical standards for safe design of machinery.

[6] New South Wales 1, s. 18; Victoria 1, s. 24.

guarding of machinery.[1] In Western Australia it is an offence to sell, to lease, to hire or to deal otherwise in machinery covered by the Act, as well as to manufacture, install or repair it in a manner that does not comply with the provisions of this Act, including those requiring secure fencing of such machinery.[2] In New South Wales, South Australia and Tasmania there are provisions prohibiting the sale and hire of machinery with specified parts left unguarded.[3] No corresponding provisions were found in the relevant legislation of the Northern Territory and the Australian Capital Territory.

140. Comprehensive legislation on machine guarding exists in the Nordic countries. While not expressly prohibiting the manufacture, sale, hire, etc. of unguarded machinery, their legislation lays down general principles for ensuring the overall safety of machinery in design, construction, installation and use, and makes it the duty of every person manufacturing, supplying or installing machinery to safeguard it before delivering it for use or displaying it for sale or advertisement.[4]

141. In Norway this duty extends to persons "manufacturing, selling, renting or lending any technical installation or equipment".[5] In respect of agricultural machinery the same duty applies to any person who sells, lends or otherwise makes machinery available for use.[6] In Sweden this duty applies to persons "manufacturing, importing, conveying or granting another person the use of any machinery, implement, safety equipment or other technical device".[7] In Finland it applies to makers, importers, vendors and all persons supplying machinery, tools and other technical equipment for use by third parties.[8] "Third parties" would in that case include activities excluded from the scope of the legislation, such as family undertakings, homework, household work and work in connection with ships, extending to them the protection in respect of machinery provided by the legislation. In its report on Recommendation No. 118, the Government of Finland indicated that an amendment to the Labour Protection Act is currently under parliamentary consideration with a view to extending the duty to safeguard machinery also to the designers of machinery in accordance with Paragraph 1(2) of the Recommendation. Once this amendment is adopted, the Finnish labour protection legislation, according to the Government, will give effect to the whole of the Recommendation.

142. This basic legislation is supplemented by a vast body of technical standards and regulations instituting general safety

---

[1] New South Wales 2, ss. 27-29; Victoria 2, ss. 11-13.

[2] Western Australia 1, ss. 57 and 59.

[3] New South Wales 2, s. 29; South Australia 1, s. 32; Tasmania 1, s. 36.

[4] Finland 1, ss. 29 and 40; Norway 1, ss. 9 and 17; Sweden 1, Ch. 2, s. 5 and Ch. 3, s. 8.

[5] Norway 1, s. 17.

[6] Norway 2, s. 7.

[7] Sweden 1, Ch. 3, s. 8.

[8] Finland 1, s. 40.

requirements and standards for particular types of machinery and safeguards which are largely co-ordinated on the basis of the recommendations of the Nordic Machines Committee. Detailed provisions to that end usually take the form of general regulations relating to machinery which lay down safety rules concerning its design, construction, transport, assembly, maintenance and repair, operating instructions, testing and inspection. In Norway, for example, section 3 of the General Regulations concerning Technical Appliances provides that "a technical appliance shall be made in such a way that it can be transported, mounted, used and maintained without risk to life or health and without exposing workers to harmful strain. Where necessary a technical appliance shall be equipped with a special protective device".[1] This lower-level legislation institutes also procedures for prior approval, control and testing of machines and safety devices before they are manufactured, imported or used.[2] Under these procedures the competent authority may also prohibit the use of a work process, working method or device.[3]

143. Competent authorities in the Nordic countries also issue protection rules, notices and guides on the guarding of machinery which may not have a mandatory character, but contribute to the promotion of safe working practices.

(c) Countries where no prohibition exists

144. In a large number of countries neither legislation nor other specific measures exist which would prohibit, or prevent by other equally effective measures, the sale, hire, transfer in any other manner and exhibition of unguarded machinery.[4]

145. In a few reporting countries the legislation on the guarding of machinery is in a nascent stage with only the basic principles of protection being embodied in law.[5]

146. Some governments stated in their reports that legislation concerning the sale, hire, etc., of dangerous machinery is being prepared with a view in particular to giving effect to Convention No. 119 and Recommendation No. 118.[6]

147. Other governments indicated in their reports that they do not intend at present to introduce any legislation preventing the

---

[1] Norway 3, s. 3.

[2] Finland 2, s. 23; Norway 1, s. 19, and 3, ss. 32-34; Sweden 1, Ch. 3, s. 12.

[3] Sweden 1, Ch. 3, s. 14.

[4] For example, Afghanistan, Argentina, Bahamas, Belize, Burundi, Chad, Chile, Colombia, Comoros, Costa Rica, Democratic Republic of Yemen, Ecuador, Egypt, Ethiopia, Iraq, Jordan, Luxembourg, Madagascar, Mali, Mexico, Mozambique, Nepal, Nicaragua, Niger, Portugal, Rwanda, San Marino, Saudi Arabia, Sierra Leone, Somalia, Togo, United Arab Emirates, Zaire.

[5] For example, Bahamas, Chad, Rwanda.

[6] Madagascar, Nicaragua, Niger, Rwanda, Sierra Leone, Zaire.

sale, hire, etc. of unsafe machinery, either because the level of national development and the prevailing conditions do not permit or call for such measures; or because they consider that the national legislation, even in the absence of such provisions, establishes sufficient guarantees for the protection of workers' health and safety in connection with machinery. In the latter case the governments concerned referred in the first place to measures aimed at preventing the use of unguarded machinery, which contributes in an indirect way to the prevention of this machinery being put in circulation. While recognising the importance of measures prohibiting or preventing the use of unsafe machinery (see also below), the Committee of Experts would like to stress once again here that they cannot be substituted for measures regulating the sale, hire, etc. of such machinery which are provided for by the instruments on the guarding of machinery.

148. In federal countries, different approaches to regulation may exist in the legislation of the constituent States. In Canada, for example, there is no federal legislation on the subject, and the legislation of the provinces varies greatly. In Alberta, British Columbia, Manitoba and Saskatchewan, there are no provisions on the sale, hire, transfer or exhibition of machinery. Moreover, as the Government of Canada indicated in its report, "several jurisdictions are of the view that it would be superfluous/impractical to address the manufacture, sale, hire or transfer of unguarded machinery inasmuch as the use is effectively regulated".[1] In other provinces, however, the legislation establishes certain duties for suppliers of machinery. In New Brunswick they are required to take every reasonable precaution to ensure that machines supplied by them comply with statutory safety provisions,[2] and in Newfoundland, Ontario and Prince Edward Island the same applies to persons who supply machines under any rental, leasing or similar arrangement.[3] In Quebec, on the other hand, section 63 of the Occupational Health and Safety Act generally prohibits the manufacture, supply, sale, hire, distribution or installation of unsafe equipment or products which do not comply with the prescribed regulations, a provision which corresponds closely to the provisions of Convention No. 119.

149. In the United States, neither the Occupational Safety and Health Act, 1970 (OSHA) nor any other federal law or regulation prohibits or expressly restricts the manufacture, sale, hire, transfer or exhibition of unguarded or unsafe machinery. The States have jurisdiction over the sale, hire, transfer in any manner and exhibition of machinery that may cause hazards in the workplace. Several States have enacted legislation concerning the sale and hire of particular types of machinery. For example, Wisconsin and Michigan have legislation making the sale of unguarded corn huskers unlawful. However, the primary way in which individual states exercise control over the sale, transfer, etc., of hazardous machinery is by the

---

[1] Canada - Report.

[2] New Brunswick 1.

[3] Newfoundland 1; Ontario 1, s. 19; Prince Edward Island 1, s. 16(1).

judicial system through the application of common law rules concerning products liability, developed over time in individual decisions on tort actions brought by injured persons against the manufacturers and sellers of defective products, including machinery. OSHA regulations are often used in the courts to show the unsafe or defective condition of a machine. The Government's report states that in order to prevent injuries and avoid potential liability, manufacturers generally try, among other things, to design the product for safety. This includes using materials adequate for the intended purpose of the equipment, equipping the product with appropriate guards and other safety devices, and eliminating concealed dangers. Employers also seek to ensure that the machinery they purchase for use in the workplace meets the requirements of all health and safety laws when it is installed or delivered, as they are liable for injuries caused if it does not meet such standards. In this way the federal legislation encourages employers to make certain that vendors of potentially dangerous machinery comply with the applicable regulations and standards. Dealings by US employers with foreign enterprises are governed by the same principles.

150. Common law rules establishing civil liability, or more particularly products liability, exist in many countries where they may be used in addition to the specific liability of the manufacturer, vendor, hirer, etc. of machinery established by legislation. As has already been mentioned, the Committee of Experts has pointed out that taken by themselves such common law provisions are not sufficient to meet the requirements of Convention No. 119.

151. Among other measures that contribute in an indirect way to the prevention of the manufacture and distribution of unsafe machinery, particular mention may be made of the various measures of supervision by the competent authorities, including labour inspection, by requiring registration of factories, submission of information on the types of machinery used,[1] and notification of the intention to install any machinery.[2]

152. Mention should also be made of the provisions requiring official certification of guards and other protective devices to be used on machinery. In some cases certificates issued for guards in other countries are recognised as valid and no additional formality is required for the sale and use of these guards in the country concerned.[3]

153. In concluding this overview of the situation in countries where the legislation does not regulate expressly matters concerning the sale, hire, transfer in any other manner and exhibition of unguarded machinery, the Committee of Experts draws attention to the need to develop their legislation further in order to give effect to the provisions of Convention No. 119 and of Recommendation No. 118. Obviously, the labour inspection services have the most important role in this regard, in ensuring safe working conditions and providing

---

[1] Paraguay 2, s. 275(c).

[2] For example, Sierra Leone 2, s. 4.

[3] Madagascar 1, s. 55; Mali 1, s. 223; Togo 2, s. 54.

guidance to industry in the absence of legal provisions guaranteeing the safety of machinery before it reaches the end user.

(d) Provision for operating instructions

154. Paragraph 6 of the Recommendation stipulates that "any operating instructions for machinery should be based on safe methods of operation".

155. As was pointed out in the report of one government, "the safe use of machinery is not entirely dependent upon the provision of physical safeguards, although they are, by far, the major preventative agent. The provision of information relating to the intended use of the machine is an important element in securing protection for employees who have to operate it".[1]

156. Indeed, in one country the obligatory inclusion of safety requirements in the technical instructions on the installation, use, maintenance, etc. of machinery is considered as efficient a means of ensuring the safety of machinery, as such measures as provision of appropriate guards, ergonomical design, remote control of operations, etc.[2]

157. Provisions for safe operating instructions for machinery are found mainly where they are included in the basic Acts on occupational safety and health of manufacturing countries. Some of these countries have adopted very comprehensive provisions to this end.

158. In a number of countries the law does not go into great detail but makes it the duty of those who design, manufacture, import or supply machines to provide them with adequate information and instruction concerning safety in operation and to carry out such tests and examinations as may be necessary for this.[3]

159. The obligation to provide operating instructions may be placed on different persons. In India it is the manufacturer of a dangerous machine who has to provide it with an instruction manual.[4] In Cuba this duty rests with the purveyor of the equipment in general.[5] In the Dominican Republic this obligation is placed equally on the manufacturer, the vendor, or the person letting out on hire or transferring machinery.[6]

160. In some countries the provision of operating instructions for machinery is coupled in the legislation with the requirement that all such machinery be used and maintained in accordance with the rules and instructions provided.[7] The duty of the designer, manufacturer, importer or supplier of a product to make it safe, sometimes extends

---

[1] United Kingdom.

[2] USSR 6, s. 1.3.

[3] Bahrain 2, s. 3(b); Mauritius 1, s. 6(b); Solomon Islands 1, s. 8; United Kingdom 2, s. 6(1)(b).

[4] India 2, s. 15.

[5] Cuba 3, s. 17(c).

[6] Dominican Republic 1, s. 141.

[7] For example, Finland 1, s. 30.

only to situations when this product is "properly used". It is not regarded as properly used when it is used without regard to any relevant information or advice relating to its use which has been made available by the designer, manufacturer, importer or supplier of the product in question.[1]

161. While the experience of the developed countries suggests that as the complexity of machinery increases, its safe operation will depend even more on the provision by the manufacturer or the supplier of the necessary information and instructions, the Committee of Experts has to observe that in the majority of the reporting countries the legislation on the guarding of machinery still does not contain any provisions to this effect and therefore is not consistent with Paragraph 6 of Recommendation No. 118.

162. In a number of countries the law requires that machinery or equipment which is imported, manufactured, sold, hired, transferred in any other manner, exhibited and in general is to be used shall be accompanied by any necessary instructions for their transport, installation, operation and maintenance without danger to life or health.[2] There may be a requirement that such instructions shall be prepared in writing in the national language and be easily comprehensible.[3] In some of these countries the law further requires that any technical installations or equipment, before they are delivered or displayed, be marked with the name and address of the manufacturer or of the importer or such other particulars as to enable the manufacturer or importer to be easily identified.[4]

163. It may also be required that appropriate labels be affixed to the machines concerning methods of prevention of ill health and accidents.[5] In one country the operating instructions for portable equipment used by hand have to indicate, for safety purposes, any possible accessory gear that may be used together with this equipment.[6]

IV. Responsibility as to compliance

164. The Convention (Article 4) and Recommendation (Paragraph 4) provide that the responsibility for providing the dangerous machinery with appropriate guards and for complying with the prohibitions imposed in respect of the unguarded machinery, shall be shared equally by all those engaged in the production and delivery of machinery to the user, without diminishing the responsibility of the employer who

---

[1] Mauritius 1, s. 6; Solomon Islands 1, s. 10(3); United Kingdom 2, s. 6(10).

[2] Cuba 3, s. 17(c); Finland 1, s. 40; France 1, s. R.233-105; German Democratic Republic 4, s. 3; Norway 1, s. 17(1), and 3, s. 3; Sweden 1, Ch. 3, s. 8.

[3] For example, Norway 1, s. 17(1).

[4] France 1, s. R.233-106; Norway 1, s. 17(3); Sweden 1, Ch. 3, s. 13(1).

[5] Sweden 1, Ch. 3, s. 8.

[6] France 1, s. R.233-105.

uses this machinery. Providing in the legislation for either set of responsibilities without expressly mentioning the other would mean breaching one of the fundamental requirements of the Convention. The position of the ILO supervisory bodies has been aimed at achieving maximum clarity in that respect. In one case, for example, a government argued that the fact that its legislation makes employers responsible for protecting machinery but does not refer to persons selling, hiring, transferring in any other manner or exhibiting machinery, does not mean that these categories of persons are excluded from the application of the relevant legislation or of the Convention. The Committee of Experts observed in this case that "even though the other categories of persons referred to in the Convention are not expressly excluded, the application of the legislation and of the Convention to them is not evident" and that "in order to avoid any misunderstanding as to the applicability of the legislation (measures should be taken) to ensure that these categories of persons are explicitly covered and that penalties for violations are provided for".[1]

165. In supervising the application of Article 4 of the Convention, the Committee of Experts has also pointed out that a general prohibition in the legislation on the sale, etc., of dangerous machinery is not sufficient if it is not accompanied by a provision placing the obligation to ensure compliance with these measures on the vendor and other persons carrying out such acts. It has also observed that "the obligations imposed by virtue of Articles 2 and 4 of the Convention can only be effectively enforced if appropriate penalties for non-compliance are prescribed by national laws or regulations in accordance with Article 15, paragraph 1, and if appropriate inspection services for ensuring their application exist in accordance with Article 15, paragraph 2".[2]

166. In certain countries the law, while prohibiting the sale, hire, etc., of all unguarded machinery or of specified types of such machinery, does not include express provisions making the persons concerned responsible for carrying out such acts.[3] In some cases it may be argued that their responsibility is implicit, but as Convention No. 119 expressly attributes the responsibility to these persons, the Committee of Experts has always considered that the national legislation should also do so in order to avoid any ambiguity.

167. The legislation of some countries closely follows the wording of these provisions of the instruments.[4] In some ratifying countries these provisions of the Convention are directly incorporated into the national law.[5]

---

[1] Paraguay - Direct request 1985.

[2] Spain - Observation 1981.

[3] Algeria, Central African Republic, Congo, Kuwait, Tunisia, Turkey.

[4] Côte d'Ivoire 2, s. 4D 69; Syrian Arab Republic 2, s. 13; Uruguay 3, s. 8.

[5] For example, Guatemala, Panama.

168. In many countries, as was shown in the preceding section of the survey, the legislation on the guarding of machinery does not cover all stages of the life of the machine before it is supplied to the end user but only some of them, most often to the sale and hire of machinery. In these cases the legal obligations and liabilities of the persons concerned are prescribed only in respect of the acts covered in the legislation, which gives only partial effect to the corresponding requirements of the instruments on the guarding of machinery. At the same time the legislation in some countries goes beyond the requirements of the Convention and places equal responsibility for safeguarding machinery on certain other persons engaged in its supply to the end user but not mentioned in the Convention. Persons thus made responsible for compliance with the guarding requirements most often include importers of machinery.[1]

169. The above-mentioned examples illustrate a tendency in the legislation of many countries to broaden the circle of persons made directly responsible for ensuring safety of machinery and equipment passing through their hands on its way to the end user. In this respect, an important feature of the provisions of the Convention and Recommendation to which the supervisory bodies always pay close attention is that they place responsibility equally, where appropriate under national laws or regulations, on an agent of the vendor or the person letting out on hire, transferring in any other manner or exhibiting machinery. The Recommendation adds to this list also the agent of the manufacturer of machinery in question. As the market for machinery becomes more diversified, and transactions through agents or intermediaries more common, it is important to stress the need for national legislation to address this subject.

170. In countries where national legislation on the guarding of machinery applies to every person manufacturing, selling, etc., machinery, it is taken to cover as well agents acting on behalf of such persons. This is the case, for example, in Norway where legislation establishes liability for every manufacturer, supplier, etc., of machinery.[2]

171. The legislation of other countries expressly mentions agents among persons on whom responsibility for compliance rests, or defines these persons in such a way as to include agents and intermediaries. In countries having Factories Acts the provisions concerning sale and hire of unfenced machinery make the agent of a seller or hirer of such machinery bear equal responsibility.[3]

172. The legislation of some countries contains special provisions strengthening the liability of the persons concerned by, inter alia, defining more clearly reciprocal responsibilities of "suppliers" and "customers". In the United Kingdom, for example, such provisions concern hire-purchase, conditional sale or credit-sale

---

[1] For example, France 1, s. R.233-68.

[2] Norway 1, s. 17(1).

[3] Burma 1, s. 28(2); Cyprus 1, s. 29(2); Ghana 1, s. 41(2); Guyana 1, s. 20(2); India 1, s. 26(2); Kenya 1, s. 26(2); New Zealand 1, s. 17A(2)(d); United Kingdom 1, s. 17(2).

agreements.[1] In India the manufacturer of machinery is liable to reimburse any compensation paid to a worker in case of bodily injury caused by a manufacturing defect or failure to comply with safety standards.[2] In Zambia provisions exist making liable for offences committed in connection with a machine, the owner or hirer of the machinery instead of the factory where it is installed.[3]

173. In France when any machinery and safety device covered by the legislation are to be exhibited, sold, hired or transferred, the manufacturer, person letting out on hire or the importer of machinery has to supply to the person who receives this machinery a certificate of its conformity with the said legislation. The same certificate has to be presented when the machinery is being imported.[4] Special certificates are required for machinery which is subject to official certification procedures.[5]

174. In Morocco the law also obliges the vendor or the person letting out machinery on hire to supply to the buyer or user of this machinery a certificate of its conformity with the approved model according to the prescribed form. Protecting the buyer of the machinery if it was sold to him without guards, the law in some countries empowers him to cancel the contract of sale and to return the machinery to the vendor during a period of one year from the date of delivery, as well as to claim compensation through the courts.[6] This provision would seem to establish the general responsibility of the vendor.

175. It may be observed that the legislation of many reporting countries is very often fragmentary and unclear as to where responsibility lies, and the Committee of Experts urges governments to clarify this in their legislation where they have not already done so.

C. Safety in the use of machinery

176. The question of the prohibition of the use of inadequately guarded machinery is even more complex and difficult than that of the prohibition of its sale, hire, transfer or exhibition. Certain aspects of the problem of guarding of machinery at the stage of its use, as compared to measures taken before the machinery is supplied to the user, were discussed in the previous section. Summarising the issue, reference can be made to the following explanations found in the initial Office paper submitted to the Conference:

> First of all, a prohibition of use must necessarily be more extensive than a prohibition of sale and hire, since it cannot be limited to machines having only some of their dangerous parts

---

[1] United Kingdom 2, s. 6(9).
[2] India 2, s. 17.
[3] Zambia 1, s. 96.
[4] France 1, s. R.233-68.
[5] France 1, s. R.233-62.
[6] Algeria 1, s. 252; Congo 1, s. 136; France 1, s. L.233-6; Morocco 3, s. 5, and 1, s. 26; Tunisia 1, s. 5.

unguarded; in fact, it must cover the largest possible number of dangerous parts. Moreover, it is not until a machine has actually been installed that all the problems connected with guarding it can be dealt with. It is of course important to be in a position to direct or influence the user, since in the last resort he carries the main responsibility for the safety of the machinery he has bought.[1]

177. A whole series of steps have to be taken to prevent accidents due to the use of dangerous machinery. Occupational safety legislation was first adopted at the start of the industrial era because of the spreading use of machines, and national legislation in the industrialised countries dealing with risks caused by machines became one of the most specialised and complex branches of labour law. It was the machine and its protection that was at the centre of the legislator's attention. Gradually the emphasis shifted towards the worker as the central figure of the production process, and more thought was given to the adaptation of machines to workers' capacities and abilities. The guarding of the machinery itself became only one element in the general system of measures aimed at creating a safe and healthy working environment. Such measures as training and information of workers, and establishing for them other favourable conditions of work, play no less important a role in contributing to the prevention of accidents and control of occupational hazards. These various steps and measures are of course mutually complementary.

178. Safety measures concerning the use of machinery are prescribed in Part III of the Convention and in Part II of the Recommendation, and consist of the following: (1) prohibiting the use of dangerous machinery without appropriate guards; (2) establishing the employer's obligation to guard the machinery in question and to maintain other safe environmental conditions; (3) providing for the information and instruction of workers in the safe use of machinery; and (4) prescribing workers' obligations and additional guarantees for their protection in respect of machine guarding. The same measures are provided for in both the Convention and in the Recommendation.

I. Prohibiting the use of unguarded machinery

179. The principal requirement of the instruments concerning the use of machinery is contained in Article 6, paragraph 1, of the Convention and Paragraph 7(1) of the Recommendation, which stipulate the following:

> The use of machinery any dangerous part of which, including the point of operation, is without appropriate guards shall be prohibited by national laws or regulations or prevented by other equally effective measures: Provided that where this prohibition cannot fully apply without preventing the use of the machinery it shall apply to the extent that the use of the machinery permits.

Paragraph 2 of the above-mentioned Article of the Convention and Paragraph 7(2) of the Recommendation provide that "machinery shall be

[1] ILO: Report VI(1), ILC, 46th Session, 1962, p. 8.

so guarded as to ensure that national regulations and standards of occupational safety and hygiene are not infringed", the aim of this provision being to state that machinery as a whole should be guarded in accordance with the regulations and standards on the subject adopted by a country.[1]

180. These provisions call for certain observations. First of all, it must be stressed that Article 6, paragraph 1, of the Convention is formulated as a general prohibition to be introduced into the national legislation; to comply with this provision it may not be sufficient therefore to require guarding of the machinery in use without at the same time prohibiting the use of unguarded machinery. Highlighting this difference, the Committee of Experts, while noting that the legislation in some ratifying countries provides for various measures concerning the guarding of machinery, has pointed out that it did not prohibit the use of machinery without appropriate guards, as is required by the Convention.[2]

181. Secondly, it is important to note that appropriate guards should be provided for "any dangerous part" of machinery, "including the point of operation". The instruments thus aim at providing total guarding of dangerous machinery. The reference to the point of operation was specifically included in the text because of the particular dangers presented by it. It is in view of this global approach, that a proposal was made not to require the complete protection of the working parts when such protection would prevent the use of machinery. Indeed, in many cases the working part (e.g. blade of a circular saw, abrasive wheel) of a machine cannot be guarded without preventing the use of the machine. A certain element of latitude in this respect was included in the instruments by making the prohibition applicable "to the extent that the use of the machinery permits". Another element of flexibility which should not be disregarded in this respect is the concept of "appropriate guard", the adjective "appropriate" offering a desirable measure of latitude.

182. As in the case of the prohibition of the sale, hire, transfer in any other manner and exhibition of machinery without appropriate guards, both legislative action and other measures of equal efficacy are allowed by the instruments with the aim of providing more flexibility in their application.

183. Prohibition of the use of dangerous machinery without appropriate guards is expressly imposed by the legislation of a number of countries.[3]

184. In the USSR and some other socialist countries with centrally planned economies the prohibition of the use of unsafe machinery forms part of a more general prohibition of the construction

---

[1] ILO: Report IV(2), ILC, 47th Session, 1963, p. 25.

[2] For example, Kuwait - Direct request 1970, Zaire - Direct request 1971.

[3] Argentina 2, s. 103; France 1, s. L.233-5; German Democratic Republic 2, s. 3, and 3, s. 2; Turkey 2, s. 13; USSR 1, s. 59, USSR 2, s. 142, and USSR 3, s. 150; Uruguay 3, s. 7; Yugoslavia 9, ss. 16-20.

and operation of any undertaking, workplace or other production unit if they do not ensure safe working conditions.[1] In the USSR the prohibition extends also to the installation of any machinery without guards.[2]

185. In Costa Rica the prohibition is addressed directly to employers, prohibiting them in absolute terms from putting unprotected machines into operation.[3]

186. The prohibitions thus imposed are sometimes reinforced by additional requirements of a general character providing that any machine which is damaged, or the functioning of which may present risks, should be reported and its operation should be prohibited except for workers entrusted with its repair.[4]

187. In France and in some countries which follow the French model, the prohibition of the use of unguarded machinery extends only to such dangerous machinery as is defined in the legislation.[5] In Tunisia the prohibition of use applies only to machinery for which guards of recognised efficacy exist, if it is used without such guards, but this machinery has yet to be specified by a special order.[6] The prohibition in Togo applies not to the use but to the installation of any machinery for which guards of recognised efficacy exist, without further precisions.[7] In Congo the machinery and parts thereof to which the prohibition of the use, as well as of the sale and hire, applies are also yet to be determined by an order, but the legislation does prescribe guarding of every machine or part thereof recognised as dangerous, which are broadly defined in the legislation.[8] The same provision as to the guarding of machinery recognised as dangerous exists in many other countries whose legislation was modelled on the French Overseas Labour Code.[9]

188. The legislation of these countries, after establishing the principle of guarding of machinery recognised as dangerous, normally contains a number of specific provisions aimed at ensuring safety in the use of particular types of machines, such as cutting machines, woodworking machines, abrasive wheels and presses. Thus, in these countries, prohibition of the use of unguarded machinery coexists in the legislation with general provisions requiring guarding of the machinery in use.

189. The analysis of country reports and legislation shows that in the majority of cases safety in the use of machinery is ensured not through the prohibition of the use of unguarded machinery, but through

---

[1] Byelorussian SSR 1, s. 141; Ukranian SSR 1, s. 156; USSR 1, s. 59.

[2] USSR 3, s. 150.

[3] Costa Rica 2, s. 5.

[4] For example, Argentina 2, s. 109.

[5] For example, France 1, ss. R.233-68, R.233-83, R.233-85.

[6] Tunisia 1, s. 4.

[7] Togo 2, s. 55.

[8] Congo 1, s. 135, and 2, s. 28.

[9] For example, Central African Republic 1, s. 28; Côte d'Ivoire 2, s. 4D 60; Togo 2, s. 49.

the imposition of the positive requirement that machinery should be appropriately guarded. As in the case of the prohibition of use, such a requirement gives full effect to the instruments only if it applies to all dangerous machinery as defined by the Convention. Enumerations in this context of machinery and parts thereof which should be guarded, may not be exhaustive and may therefore unduly limit the scope of the national legislation in comparison with that of the Convention.

190. Provisions of a general nature requiring that all machines, installations and equipment in use shall be so constructed and fitted with safety devices as to protect workers' lives and health are found in the legislation of a number of countries.[1] This basic principle may be established in the legislation in a variety of ways. In Algeria, for example, the general provision for the protection of workers using dangerous machinery simply stipulates that workers should be placed out of reach of dangerous premises, machines, installations or equipment by distancing, isolation, separation or interposing obstacles of recognised efficacy between workers and sources of danger.[2] In some countries the legislation requires in a general manner that every machine and piece of equipment to be used should satisfy all those safety prescriptions laid down by the regulations and safety standards in force, thus ensuring that machinery is so guarded as not to infringe national regulations and standards of occupational safety and health, as is stipulated in the Convention.[3]

191. In Poland it is provided that machines and other technical equipment shall be so designed and constructed as to ensure the safety of workers and, if safety cannot be achieved by these means, that they shall be fitted with appropriate guards.[4]

192. The pattern followed in the above-mentioned countries is to lay down general provisions on the guarding of machinery in basic laws on safety, health and the working environment, while including detailed requirements as to guarding in supplementary regulations, technical standards and other lower-level legislation, which ensure the application of the instruments at least in principle in respect of virtually all types of machinery used. This is particularly the case in countries where national systems of compulsory safety and health standards are established parallel to safety and health regulations adopted at each workplace, enterprise and higher levels of the economy.[5]

---

[1] Bahrain 2, ss. 3(b)(i) and 4(a); Colombia 1, s. 112, and 2, ss. 267, 273 and 274; Costa Rica 2, s. 40; Finland 1, s. 29; German Democratic Republic 2, s. 3, and 3, s. 2; Mozambique 3, s. 46; New Zealand 1, ss. 15-17; Norway 1, s. 9; Paraguay 1, s. 1; Philippines 1, Rule 1200; Poland 1, s. 213; Sweden 1, Ch. 2, s. 5; United States 2, s. 1910.212.

[2] Algeria 1, s. 247.

[3] For example, Colombia 2, s. 5; France 1, s. L.233-5; German Democratic Republic 2, s. 3; USSR 1, s. 58.

[4] Poland 1, ss. 213 and 214.

[5] Cuba 3, Title V; German Democratic Republic 4; USSR 7.

193. As a rule, technical standards are more concerned with establishing engineering requirements for the guards to be used on machinery in question, whereas safety regulations pay more attention to laying down rules for safe methods of operation.[1]

194. In other countries the basic texts themselves include detailed provisions laying down guarding requirements in respect of certain particular types of machinery or its dangerous parts. While in some countries these provisions constitute the entire national legislation on machine guarding, the general tendency is to ensure the application of the instruments through detailed and extensive regulations requiring provision of appropriate guards and other safety devices for machinery and parts thereof that may present danger. It is common therefore to find legislation laying down additional safety requirements for other types of dangerous machinery or other parts of the same machinery, extending the overall scope of coverage.[2]

195. As provided in the Convention, these requirements usually attach particular importance to methods of ensuring safety at the point of operation of a machine.[3] In Mozambique, for example, a whole series of measures is prescribed for efficient guarding of the operating zone of the machine, the general concept being to limit to a minimum the dangerous zone if total protection cannot be ensured for technical reasons.[4] In Colombia corresponding requirements stipulate in addition that every older machine which is not protected at the point of operation should be studied with a view to providing it with the necessary guards.[5]

196. In the United States, numerous regulations on the guarding of specific machinery are incorporated in the voluminous Regulations under the Occupational Safety and Health Act, in addition to the general requirements for all machines set out in section 1910.212, which provides that "one or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks".[6] Detailed technical standards are established under this provision, giving examples of guarding methods to be used for a long list of specific machines used in various industries.

197. In countries where the legislation concerning machine guarding is mainly related to premises (factory, railway, dock, mine or quarry, etc.), it also invariably contains provisions requiring secure fencing of any dangerous machinery and part thereof in use on the premises. The strictest guarding requirements exist in respect of machinery used in "factories" under the respective Factories Acts modelled on that of the United Kingdom. These Acts contain provisions of a general character which require fencing of prime movers,

---

[1] For example, Cuba 5 and 7.
[2] For example, Morocco 1, s. 30, and 2, s. 29.
[3] For example, Norway 3, s. 18; Turkey 2, s. 9.
[4] Mozambique 3, ss. 63-68.
[5] Colombia 2, s. 274.
[6] United States 2, s. 1910.212(a)(1).

transmission machinery and every dangerous part of any other machinery.[1] They also lay down certain specific safety requirements in respect of self-acting machines, hoists, lifts, cranes and steam boilers.

198. As concerns premises other than factories, coverage varies from country to country. Some countries have not cited in their reports any legislation concerning other premises,[2] while in others only some premises, mostly mines, are covered in separate Acts.[3] These Acts, as a rule, reproduce in a somewhat modified form provisions concerning machine guarding included in the Factories Acts. The general concept of machine guarding followed in this legislation is that of requiring that machinery be "securely fenced", and not "guarded" as is provided in Convention No. 119.[4]

199. As the United Kingdom has indicated in its report, the definition of a "factory" as well as of the term "securely fenced" has been the subject of considerable interpretation by the courts. The courts have ruled in principle that in respect of factories it is an absolute duty of the employer or occupier of the factory to fence machinery to the effect that if secure fencing negates the function of the machine then the effect is that of a prohibition of its use. At the same time it should be pointed out that, according to the case law of some of the countries concerned, the legislation requiring fencing will not be violated, for example, if the material upon which a machine is working is ejected or if a machine itself breaks and injures a worker. The duty to fence may extend also only to machinery which is part of the manufacturing process of the factory and not to machinery which is a product of the factory.[5] The examples given illustrate the complexity of the legal approach in the countries concerned even in respect of premises where machinery is covered. Further development of the legislation in the United Kingdom has been aimed at filling in the existing gaps through adoption of "umbrella" legislation applicable to all premises where people are employed at work and laying a general duty on employers to ensure the health and safety of their employees, in particular by providing and maintaining plant and systems of work that are, so far as reasonably practicable, safe and without risk to health.[6] Thus, this requirement may apply

---

[1] Belize 2, s. 3; Burma 1, s. 23; Cyprus 1, ss. 24-26; Ghana 1, s. 38; Guyana 2, s. 3; India 1, s. 21; Kenya 1, ss. 21-23; Singapore 1, ss. 18-22; United Kingdom 1, ss. 12-14; Zambia 1, ss. 27-29.

[2] Belize, Kenya, Singapore.

[3] For example, Burma - oilfields; Ghana - mines; India - docks, mines.

[4] In Zambia it may be noted that while the Factories Act provides for secure fencing of machinery, the Construction (Safety and Health) Regulations made under it require by contrast that machinery be both "securely fenced and guarded" (section 99).

[5] See R. Mathrubutham and R. Srinivasan: The Indian Factories and Labour Manual, third edition (Madras, 1958), pp. 65-67.

[6] United Kingdom 2, s. 2.

now in addition to the various requirements under the relevant statutory provisions referred to above, or may apply on its own, in premises where the relevant statutory provisions themselves do not apply. The situation as it appears now may be described as follows: in most premises the duties in respect of machinery guarding are set mostly at a reasonably practicable level, while in some premises (factories) the level of duty may be stricter under the relevant statutory provisions. In the light of the flexibility permitted by Convention No. 119, the Government of the United Kingdom stated in its report that the duty to guard machinery "so far as is reasonably practicable", as it is qualified in the British legislation, can be equated to the requirements of Article 6 of the Convention. It may be pointed out that in determining what is reasonably practicable, the employers, as well as in the final instance the courts, can take into account the guarding requirements detailed in various codes of practice concerning safety in the use of machinery. These codes of practice, together with guidance documents for particular classes and types of machinery and British Standards, are of a recommendatory character and supplement the system of statutory provisions.[1]

200. The legislation of most countries provides in the basic texts for the possibility of further precautions to be prescribed in respect of any particular machinery or part thereof.[2]

201. In Colombia it is specifically provided that the legislation will be "complemented by other provisions taking into account industrial, commercial and agro-industrial development and new hazards appearing as a result of the technological progress of the country".[3]

202. In some countries the basic legislation on the guarding of machinery also empowers the competent authority or, in particular, labour inspectors to prohibit the use of any machinery or device in the interests of safety.[4]

203. In Sweden whoever uses or intends to use a machine which may cause accidents may be required to notify the competent authority of this fact, specifying the manner in which the machine in question is used.[5] Previous approval, examination and testing of dangerous machines may also be required.[6] In that connection the Government of Norway indicated in its report that there is little prior examination and approval of machines and appliances in Norway. Instead, the regime is one of inspections of enterprises and a system of voluntary scrutiny of appliances, the outcome of which is

---

[1] The principal British Standard - BS 5304:1975, "Safeguarding of Machinery" - according to the Government is currently being revised.

[2] For example, Belize 1, ss. 12(1)(b)(e); Burma 1, ss. 23(2) and 43; Colombia 1, s. 83(c); Cyprus 1, s. 26(4); Guyana 1, s. 26; India 1, s. 21(2); United Kingdom 1, s. 14(6).

[3] Colombia 2, s. 707.

[4] For example, New Zealand 1, s. 20; Sweden 1, Ch. 3, s. 14; United Kingdom 1, s. 76, and 3, s. 20(3).

[5] Sweden 2, s. 18(2).

[6] For example, Norway 1, s. 9(2).

inspection reports.[1] The Government of Finland indicated that 22 different categories of machines and installations have been made subject to inspection before they may be put into use.[2]

204. Another feature common to the legislation of many countries consists of empowering the competent authority to issue orders directing that a certain approved type of safety devices shall be provided for use with a specified class of machinery.[3] In some countries guards and other safety devices are subjected to the procedures for previous control and official certification.[4]

II. Obligations of the employer

205. A number of provisions of the instruments refer to the employer's obligations to ensure safe use of machinery. These provisions stem from the principle that whatever responsibility has been placed on manufacturers, vendors, etc. of machinery, none should be taken away from users.[5] The obligations in question cover the following subjects: (1) appropriate guarding of machinery in use; (2) information and instruction of workers in the safe use of machinery; and (3) providing overall safe environmental conditions for workers employed on machinery. All of these obligations apply as well, where appropriate under national laws or regulations, to a prescribed agent of the employer. Employers' obligations to inform and instruct workers on the safe use of machinery will be examined later in the survey together with similar provisions on the training of workers in respect of other hazards in the working environment contained in Convention No. 148 and Recommendation No. 156.

206. Article 7 of the Convention stipulates that "the obligation to ensure compliance with the provisions of Article 6 shall rest on the employer". The same provision is included in Paragraph 8 of the Recommendation. It is therefore the employer's responsibility to provide appropriate guards for any dangerous part of machinery in use and to see that no machinery without such guards is used in his undertaking. It is interesting to note that this provision did not give rise to any discussion in the competent Conference Committee, a situation which reflected a wide acceptance of this principle in the legislation and practice of member States already at that time.

207. The employer's obligation to ensure safety in the use of machinery, including the provision of suitable guards, is recognised

---

[1] Norway - Report.

[2] Finland - Report on Recommendation No. 118.

[3] Bahrain 2, s. 4(e); Cyprus 1, s. 26(2); Hungary 2, ss. 74-75(1); United Kingdom 1, s. 14(3).

[4] Central African Republic 1, s. 33; Congo 2, ss. 33-36; Côte d'Ivoire 2, ss. 4D 65-4D 68; France 1, s. L.233-5; Madagascar 1, s. 56; Togo 2, ss. 54-57.

[5] ILO: Report VI(1), op. cit., p. 12.

in the legislation of all of the reporting countries for which information is available.[1]

208. The obligation to ensure safety in the use of machinery and to provide it with the necessary guards is placed either on the employer himself[2] or on the undertaking.[3] It may also be defined in an impersonal manner, with penalties applied to "authors of offences".[4] In countries where the occupational safety legislation applies to premises it is the owner or the occupier of the premises (a factory, for example) who is made primarily responsible.[5] In Spain the new Machines Safety Regulations of 1986 put the obligation on the users in general of machinery or parts thereof.[6] Under the acts of the republics and provinces on the protection of labour in Yugoslavia, it is the organisations of associated labour who carry all the responsibilities laid down by the instruments on the guarding of machinery, with the same responsibilities in the field of safety being prescribed for any other physical or moral person employing workers.[7]

(a) Agents of the employer made equally responsible

209. The responsibility of the employer concerning the use of machinery may also be attributed to his agent. Article 14 of the Convention specifies that for the purpose of Part III of this Convention concerning use of machinery the term "employer" includes, where appropriate under national laws or regulations, a prescribed agent of the employer. A provision to the same effect was included in Paragraph 15 of the Recommendation. Observing that the scope of Article 14 covers the whole of Part III of the Convention, the Committee of Experts has pointed out that all the obligations of the employer specified in this Part fall also, where appropriate, on his

---

[1] For example, Algeria 1, s. 1; Argentina 1, ss. 8 and 9; Bahrain 1, s. 90; Belize 2, s. 62; Bolivia 1, s. 67; Burma 1, s. 85; Burundi 1, s. 144; Byelorussian SSR 1, s. 143; Chile 1, ss. 21 and 23; Colombia 1, s. 84(d); Costa Rica 1, s. 284(ch), and 2, s. 5; Côte d'Ivoire 2, s. 4D 67; Cuba 2, ss. 29, 32 and Title VIII; Cyprus 1, ss. 24-26 and 94; Dominican Republic 1, s. 133; France 1, s. L.263-2; German Democratic Republic 1, ss. 201-204, and 2, s. 1; Hungary 1, s. 51; Kuwait 1, s. 1, and 2, s. 5; Madagascar 1, s. 56; Mauritius 1, s. 3; Mozambique 2, s. 3, and 3, ss. 136 (2 and 3) and 139(1); Norway 1, s. 14; Sierra Leone 3, s. 5; Solomon Islands 1, s. 4; Tunisia 2, s. 233; Turkey 1, s. 73; Ukrainian SSR 1, s. 157; USSR 1, s. 60; Uruguay 3, s. 8; Zambia 1, s. 91.

[2] For example, Guatemala 2, ss. 4 and 37.

[3] For example, Brazil 2, s. 157; Dominican Republic 1, ss. 132-133.

[4] For example, Central African Republic 2, ss. 141 and 225(b).

[5] For example, Guyana 1, ss. 18 and 29.

[6] Spain 1, s. 13.

[7] For example, Yugoslavia 8, ss. 3-5; 10, s. 5; 11, ss. 4-6; 12, ss. 3-4; 13, s. 4; 14, ss.3-6.

agent and that this agent should also be made liable for the penalties provided for in Article 15 of the Convention.[1]

210. Provisions to this effect have been adopted in quite a number of countries.[2]

211. The extent to which these provisions cover different persons acting as agents of employers varies considerably from country to country. In some countries it is clear that agents share employers' responsibilities.[3]

212. In some countries the question of the responsibility of agents of the employer in the field of occupational safety has yet to be regulated.[4]

(b) Contents of employers' responsibility

213. The employer's responsibility to safeguard machinery may be defined in very wide terms, such as an obligation to ensure safety of the workplace, equipment, etc.; or in very concrete terms, for instance requiring him to install all the necessary guards on machinery in use.[5] For some particular kinds of dangerous machinery, such as hoisting appliances, the obligation of the employer or director of an undertaking to ensure its safety may go so far as to require him to examine the condition of the safety devices provided on a weekly[6] or even daily basis.[7]

214. There are countries where the legislation is particularly extensive in respect of the employers' obligations in the guarding of machinery. In Cuba, for example, the responsible officials of the central and local administrations or directors of enterprises, co-operatives and other organisations are required to manufacture safety devices for machines and to adapt these devices to facilitate the work of handicapped workers. Close consultation of trade unions in all manufacturing and testing procedures is required by law.[8]

215. An integral part of employers' obligations is the establishment of safe environmental conditions at the workplace. It

---

[1] See Niger - Direct request 1986.

[2] For example, Bahrain 1, s. 47; Bolivia 1, s. 79; Colombia 1, s. 82; Costa Rica 2, s. 3; Cyprus 1, ss. 99 and 101; Finland 1, s. 49, and 2, s. 26; France 1, s. L. 263-2; German Democratic Republic 1, s. 21; Guyana 1, s. 33; Madagascar 3, ss. 1 and 155; Morocco 1, ss. 1, 2 and 59; New Zealand 1, s. 2; Norway 1, s. 4; Sierra Leone 3, s. 5; Sweden 1, Ch. 3, s. 7; Tunisia 2, ss. 233 and 239; Turkey 1, s. 1.

[3] For example, Burundi 2, ss. 3, 4 and 29; Chile 1, s. 4; Congo - Article 22 report on C.119, 1970; Guyana 1, s. 2(1).

[4] For example, Algeria, Argentina, Belize, Burma, Central African Republic.

[5] For example, Guatemala 2, ss. 4 and 37.

[6] Congo 2, s. 47.

[7] Côte d'Ivoire 2, s. 4D 50.

[8] Cuba 2, ss. 30(e), 31 and 32(i), and 3, ss. 73-74.

is generally recognised that if work is performed in unsatisfactory environmental conditions, such as poor lighting, ventilation, reduced visibility or perception of oral commands, etc., this may considerably increase the probability of industrial accidents caused by other hazards, especially machinery. That is why an additional obligation on the employer to "establish and maintain such environmental conditions as not to endanger workers employed on machinery" covered by the instruments is included in Article 10, paragraph 2, of the Convention and Paragraph 11(2) of the Recommendation. These requirements are usually covered by the general safety and health measures laid down by the national legislation, but it is not uncommon to find special provisions to this effect in the legislation. Mention may be made of provisions obliging the employer to see that machinery should be so installed as to leave sufficient space for workers to circulate, to perform maintenance operations and to escape in case of emergency,[1] or to ensure a clear field of visibility in the operating area, which must be organised in such a way as not to require inconvenient movements of workers.[2] No less important are provisions ensuring that the floor of the working premises be kept clean and flat and that it be prevented from becoming slippery.[3] Detailed provisions are found in the legislation on the lighting of places where machines are used, for example prohibiting direct rays of light on the eyes of the operator.[4] The list of these provisions could be continued indefinitely, especially as safety legislation has recently paid particular attention to ergonomical principles in the organisation of workplaces and equipment and to the inter-relation of different aspects and factors of the working environment from the safety point of view. To illustrate this approach the following provision of the Swedish Work Environment Act may be cited: "Working conditions must be adapted to human physical and mental aptitudes. The aim must be for work to be arranged in such a way that the employee himself can influence his work situation."[5]

216. Generally speaking, modern legislation on occupational safety and health which proceeds from the concept of a safe working environment, substantially broadens employers' responsibilities for establishing and maintaining safe environmental conditions. This question will be addressed in more detail in the chapter of the survey dealing with the ILO instruments on the working environment.

III. Workers' obligations and guarantees

(a) Obligations and guarantees in respect of guarding machinery

217. Article 11 of the Convention and Paragraph 12 of the Recommendation provide that workers may not use unguarded machinery or

---

[1] For example, Colombia 2, s. 275; Kuwait 2, s. 4.
[2] Argentina 2, s. 107.
[3] Bahrain 3, s. 14, and 4, s. 9; Côte d'Ivoire 2, s. 4D 59.
[4] Guyana 3, s. 7.
[5] Sweden 1, Ch. 2, s. 1.

make its guards inoperative, while guaranteeing that whatever the circumstances they will not be compelled to use machinery where the guards are not in place or are inoperative.

218. The above-mentioned obligations of and guarantees to workers are reflected in full in the legislation of a number of countries.[1] The legislation of one country provides, for example, that "any person who works in any working area, or who frequents this area or who may enter it is responsible ... not to interfere with the functioning of these measures (of protection), nor to remove or displace them, nor to interfere with their use, and to bring to the attention of the employer or of the health service of the working area any deficiency or fault of these measures which this person may have noted and which may constitute a danger or a risk".[2]

219. The legislation of some countries includes only provisions on the obligations of workers in this respect but none on workers' rights.[3] The legislation sometimes requires that before putting a machine into operation the operator should see to it that all working parts of the machine are safeguarded and that all safety devices are firmly in place.[4] In other countries the law simply requires that the guards provided shall be constantly kept in position while a machine is in motion or use.[5]

220. The legislation of some countries expressly recognises the right of a worker to refuse to work in a situation which he has reason to believe presents a danger to his life or health, and ensures that the employer cannot require a worker to continue his work before this situation is remedied.[6]

221. On the other hand, a worker who refuses to make use of the protective devices provided may be subject to penalties.[7]

222. In some countries workers' obligations and guarantees in respect of the guarding of machinery are not specified as precisely as in Convention No. 119 and Recommendation No. 118 and are ensured mostly through the application of the general provisions requiring workers and employers to comply with safety measures prescribed in the existing legislation.

---

[1] For example, Bahrain 2, s. 3(a) and 6; Chile 3, ss. 18-19; Costa Rica 1, ss. 284(ch), 286(b, c), and 2, ss. 3(d), 7(b) and 49; Cuba 2, ss. 33(a), 34(c) and 44, and 3, s. 79; Cyprus 1, ss. 28 and 83; Finland 1, ss. 9 and 49; German Democratic Republic 2, ss. 1(b), and 5, s. 4; Kenya 1, ss. 25 and 65; Kuwait 1, ss. 8 and 9, and 2, s. 3; Mozambique 1, s. 17, and 2, ss. 4 and 51; New Zealand 1, ss. 18 and 27(1); Norway 1, ss. 14 and 16; Paraguay 1, ss. 22-23; Sierra Leone 3, ss. 5(3) and 75; Singapore 1, ss. 24 and 73; Sweden 1, Ch. 3, ss. 2 and 4; Turkey 2, s. 13; United Kingdom 2, ss. 7-8; Zaire 1, s. 28; Zambia 1, ss. 31 and 89.

[2] Kuwait 2, s. 3.

[3] Belize 2, s. 63; Burma 1, s. 104; Burundi 4, s. 28; Colombia 1, s. 85(b), and 2, s. 270.

[4] For example, Paraguay 1, s. 23.

[5] For example, Guyana 2, s. 7(1); Sierra Leone 2, s. 7(2).

[6] For example, France 1, s. L.231-8.

[7] For example, Hungary 2, s. 75(4).

223. While stressing the importance of the provisions of the Convention and Recommendation concerning workers' obligations and guarantees, it should be pointed out that they still have not been included in the legislation of some countries.[1] In this connection the Government of France points in its report to the "impossibility of integrating into French legislation obligations on employees" indicating that in French labour law the traditional idea is that within the undertaking the obligations are solely on the director of the undertaking because of his links in law to the wage earners, and these provisions of the Convention and Recommendation do not follow this logic.

(b) Safeguarding workers' rights to social security or social insurance

224. Article 12 of the Convention provides that its ratification "shall not affect the rights of workers under national social security or social insurance legislation". The same provision appears in Paragraph 13 of the Recommendation. The intention of this provision, as explained in the report of the competent Conference Committee, "was to provide that the ratification of the Convention should not affect the acquired rights of workers under national laws or regulations concerning social security and social insurance". A question arose in the Committee as to the effect that this requirement might have in respect of the provisions concerning the notion of "inexcusable fault" which appeared in certain national laws or regulations. The Committee confirmed in its report that "it should be understood that there was no intention of asking for modification of the national laws and regulations in force, as regards this point".[2]

225. Many governments have stated in their reports that the application of the Convention and Recommendation does not and would not in any way jeopardise social security and social insurance rights of workers.

226. In the light of these requirements of the Convention it may be interesting to note the recent tendency in the legislation of certain countries for social security and social insurance laws to become more and more concerned with regulating matters relating to the prevention of industrial accidents. Agencies that administer or take part in the administration of national insurance schemes may be the same ones that carry out inspection and enforcement functions in respect of the whole body of safety and health legislation,[3] or they may even establish their own inspection services.[4]

---

[1] For example, Algeria, Argentina, Central African Republic, Congo, Côte d'Ivoire, France, Morocco, Madagascar.

[2] ILO: Record of Proceedings, ILC, 47th Session, Geneva, 1963, p. 571.

[3] Chile 2, ss. 8 and 65.

[4] Costa Rica 1, ss. 268-270.

IV. Obligations of self-employed workers

227. The provisions relating to the obligations of employers and workers contained in Part III of the Convention and in Part II of the Recommendation on the use of machinery apply also to self-employed workers, if and in so far as the competent authority so determines, under Article 13 of the Convention and Paragraph 14 of the Recommendation. These provisions of the instruments, while clearly aimed at including self-employed workers in their coverage, leave a wide margin of flexibility for governments as to their application. The formula "if and in so far" was intended in particular to provide the possibility of ratifying the Convention in countries where self-employed workers are not subject to labour legislation.

228. The scope of the legislation of a number of countries covers self-employed workers without containing any special provisions concerning them.[1]

229. In other countries the obligations of self-employed workers are specifically addressed in the legislation on occupational safety.[2] In Colombia, for example, it is provided that independent workers are obliged to adopt all preventive measures laid down in the legislation to control hazards to which they or third parties are exposed during their work.[3] In Norway every person undertaking on his own account to assemble technical installations or equipment shall ensure that they are made ready and installed in accordance with the statutory requirements.[4]

230. One government has indicated in its report that the provisions referring to obligations of employers and workers apply to self-employed workers except for those categories which are excluded from the Labour Code in the private sector.[5] Another government indicated in its report that although its relevant legislation does not cover self-employed workers, it is applicable to all machinery irrespective of whether it is used by undertakings or self-employed persons. However, it referred also to difficulties in ensuring the same level of protection to self-employed persons who are not subjected to labour inspection.[6]

231. The legislation of some other countries does not seem to cover self-employed workers.[7]

232. In some countries self-employed persons are expressly excepted from the legislation dealing with the guarding of

---

[1] Argentina 1, s. 2; Congo 2, s. 2; German Democratic Republic 1, s. 15(2); France 1, s. L.231-1; Morocco 1, s. 1; Mozambique 3, s. 1(2); New Zealand 1, s. 2; Tunisia 1, s. 1.

[2] Finland 1, s. 40; Solomon Islands 1, s. 5(2); Sweden 1, Ch. 3, s. 5; United Kingdom 2, s. 3.

[3] Colombia 1, s. 84(Par.).

[4] Norway 1, s. 17(2).

[5] Kuwait.

[6] Madagascar.

[7] For example, Belize, Burma, Burundi, Chile, Côte d'Ivoire, Cyprus, Guyana.

machinery.[1] In one country though, while family and self-employed workers are excluded from the application of the legislation, provisions concerning obligations of employers and workers in safety and health are extended to them in full.[2]

D. Exceptions allowed under the instruments

233. The exceptions provided for in the Convention and in the Recommendation fall into four different categories: (1) those concerning machinery or parts thereof made safe by virtue of their construction or installation; (2) exceptions with respect to operations of maintenance and the like; (3) exceptions concerning storage, scrapping or reconditioning of machinery; and (4) possible temporary exemptions from the provisions of the instruments. Of these, the exceptions concerning storage, scrapping or reconditioning of machinery concern only Part II of the Convention and Part I of the Recommendation dealing with the sale, hire, transfer in any other manner and exhibition of machinery, whereas the other exceptions apply also to those parts of the instruments which deal with the use of machinery.

234. To make the list of the exceptions complete, it may be added that, according to the instruments, the transfer in any other manner and exhibition of unguarded machinery should be prohibited or prevented only "to such extent as the competent authority may determine" (Article 2, paragraph 2, of the Convention, and Paragraph 1(1) of the Recommendation) and that in respect of the exhibition of machinery the Convention further provides for the possibility of the temporary removal of the guards in order to demonstrate the machinery, as long as appropriate precautions to prevent danger to persons are taken. Finally, it may be mentioned that the exceptions included in the Convention and in the Recommendation do not differ in their wording, except that certain exceptions provided for in Part I of the Recommendation extend as well to measures which it prescribes in respect of the manufacture of dangerous machinery. These exceptions allow for flexibility in the application of the instruments, taking account of particular situations in which the enforcement of their provisions would not seem practicable.

235. It appears that the general tendency of recent legislation is toward stricter safety standards with fewer possibilities of exceptions and other forms of flexibility in its application. Nevertheless, in most countries there are a great many exceptions in the safety and health legislation, reflecting the technical as well as the economic difficulties involved in applying it. This is especially true of the legislation on guarding of machinery where the exceptions provided concern a wide variety of situations, types and parts of machinery, adding to the complexity of this branch of labour law.

---

[1] For example, Bahrain 1, s. 1; United States.
[2] Costa Rica 1, ss. 194(b) and 287.

I. Machinery made safe by virtue of its construction or installation

236. The first exception concerns machinery which is made safe by means other than the provision of appropriate guards. It seems logical to exclude from the scope of the instruments parts that cannot be reached without removing a component of the machine and parts which are so placed as to be normally inaccessible to persons. Article 3, paragraph 1, of the Convention provides that the prohibition of the sale, hire, transfer in any other manner or exhibition of machinery does not apply to machinery or dangerous parts thereof specified in its Article 2 which (a) are, by virtue of their construction, as safe as if they were guarded by appropriate safety devices; or (b) are intended to be so installed or placed that, by virtue of their installation or position, they are as safe as if they were guarded by appropriate safety devices. A similar exception was included in Paragraph 3(1) of the Recommendation. As concerns the use of machinery, Article 8, paragraph 1, of the Convention, and Paragraph 9(1) of the Recommendation also exclude machinery made safe by virtue of its construction, installation or position.

237. The aim of these exceptions is obviously to promote the construction of machinery which is equipped with built-in safety devices, or the safety of which does not depend on additional guards. In many countries the concept of safety by construction, installation or position is contained in the general principles of the machinery legislation on the same footing as the prohibition of the manufacture, supply, installation and use of unsafe machinery.[1] In a number of other countries the guarding requirements imposed by the law are drafted in absolute terms and do not provide for any exclusions or exceptions.[2] It is also not uncommon to find that the legislation requires machinery to be constructed and placed in such a manner as to prevent workers from entering involuntarily into contact with its dangerous parts, leaving open the possibility of granting exceptions from this provision in case of, for example, "technical impossibility".[3]

238. In a number of countries, especially in those having Factories Acts modelled on the United Kingdom's legislation, the legislation on machinery follows more closely the terms of the instruments, and excludes from the guarding requirements concerning sale, hire, etc., and use the dangerous parts of machinery which are made safe by virtue of its construction or position.[4]

---

[1] For example, in the socialist countries with centrally planned economies.

[2] For example, Burundi 4; Chile 1; Colombia 2.

[3] For example, Morocco 3, s. 2.

[4] Bahrain 2, s. 4(a); Belize 2, s. 3; Burma 1, ss. 23 and 28(1)(b); Cyprus 1, ss. 24-26 and 29; Guyana 1, s. 20(1)(b), and 2, ss. 3-6; Panama 1, s. 4; United Kingdom 1, ss. 12(3), 13(1), 14(1) and 17(1)(b).

II. Maintenance operations, etc.

239. The maintenance, lubrication, setting up and adjustment of machinery frequently require removal of guards, exposing some dangerous parts, or allowing persons to come within reach of dangerous parts of equipment which are normally inaccessible. Whereas in modern machinery guards are usually designed in such a way as to facilitate lubrication, adjustment, etc., there is still machinery being so designed and used that the guarding requirements imposed by the instruments may not be fully complied with during such operations. At the same time these operations are normally carried out by experienced maintenance teams and in accordance with special safety precautions prescribed for that purpose. The exception in respect of such machinery was accordingly included in Article 3, paragraph 2, of the Convention, and in Paragraph 3(2) of the Recommendation which concerns also the manufacture of machinery. Furthermore, it was thought necessary to specify that the prohibition of the use of unguarded machinery, as well as the obligation not to remove or to make inoperative the guards provided (Articles 6 and 11 of the Convention), also should not prevent the maintenance, lubrication setting up or adjustment of machinery or parts thereof carried out in conformity with accepted standards of safety. This is provided for in Article 8, paragraph 2, of the Convention, and in Paragraph 9(2) of the Recommendation.

240. In nearly all the reporting countries having legislation on machinery, there are provisions of more or less detailed character concerning safety measures during maintenance, and other similar operations performed on machinery. It is generally required that such operations should be carried out by specially authorised persons and only when the machine is not in motion.[1]

241. These provisions concern mostly the use of machinery and do not refer to its sale, hire, etc. For example, in countries having Factories Acts drafted on the British model, it is specifically provided that operations of examination, lubrication or adjustment of machinery in motion are not taken into account for the purpose of determining the guarding requirements. Other maintenance operations and setting up of machinery are not however mentioned for that purpose, and therefore no exceptions from the guarding requirements can be made for these operations.[2]

III. Storage, scrapping or reconditioning

242. Article 3, paragraph 3, of the Convention, and Paragraph 3(3) of the Recommendation contain a further exception to the effect

---

[1] For example, Algeria 1, s. 249; Argentina 2, s. 108; Bahrain 2, ss. 3(a) and 5; Belize 2, s. 3(j); Burma 1, s. 24; Burundi 4, s. 7; Central African Republic 1, s. 26; Chile 1, ss. 240 and 242; Colombia 2, s. 268; Cyprus 1, s. 27(b); Kuwait 2, s. 5; Madagascar 1, s. 48.

[2] For example, United Kingdom 1, s. 15(1), and the United Kingdom report.

that neither instrument prohibits the sale or transfer in any other manner of machinery for storage, scrapping or reconditioning, provided that such machinery shall not be sold, hired, transferred in any other manner or exhibited after storage or reconditioning, unless protected in conformity with the provisions of the instruments. Apart from a very few cases,[1] these exceptions have not been reflected in the legislation of any of the reporting countries.

IV. Possibility for temporary exemptions

243. Taking account of the technical difficulties which would be associated with the transformation of machinery already made or being manufactured at the time of the coming into force of the national law or regulations giving effect to the Convention, it was thought appropriate to allow ratifying countries a certain time to adjust their practice by providing for a temporary general exemption from the provisions of Articles 2 and 6 of the Convention. According to Articles 5 and 9 of the Convention, any Member may provide for such a temporary exemption, the duration of which shall in no case exceed three years from the coming into force of the Convention for the Member concerned. The duration of and any other conditions relating to such an exemption shall be prescribed by national laws or regulations or determined by other equally effective measures. In applying these Articles the competent authority is obliged to consult the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations in respect of exceptions from Article 2 of the Convention. The same provision for a temporary exemption was included in Paragraphs 5 and 10 of the Recommendation.

244. The possibility for a ratifying country to avail itself of the temporary general exemption from the prohibition of the sale, hire, transfer in any other manner, exhibition and use of unguarded machinery is another example of the flexibility of the Convention that should be taken into account in considering its ratification. This possibility may be particularly useful in those countries where the measures taken in pursuance of the ratification of the Convention would for the first time introduce the principle of the prohibition of the sale, hire, transfer or exhibition of unguarded machinery in the national setting, and where the need for a transitional period may therefore be felt in order to adapt existing machinery and to make all those concerned accustomed to the new provisions and practices.

245. In some countries (in particular, the socialist countries with centrally planned economies), the legislation permits no temporary or permanent exceptions from the prescribed regulations. In a number of other countries there are different approaches. In one case, for example, the legislation provided for a transitional period of two years during which undertakings had to ensure progressive compliance with the new regulations, and every six months had to show to labour inspectors the progress achieved.[2] In another case the

[1] For example, Panama 1, s. 5.
[2] Colombia 2, s. 709.

entry into force of certain provisions of the regulations concerning guarding of machinery was postponed for eight months to allow compliance.[1] In some countries guarding requirements in respect of machinery used, sold or hired do not have retroactive force and do not apply to machinery constructed or imported before the entry into force of the law in question.[2]

246. There are also countries where the law permits the exemption of any machine or part thereof from the guarding requirements by a special order, if it is established that such requirements are not necessary for the protection of workers[3] or if special conditions for securing the safety of workers are observed.[4] Such exceptions may concern particular parts of machines, e.g. transmission machinery.[5]

247. In other countries the competent authority is empowered to grant to undertakings permanent or temporary exemptions from, inter alia, provisions requiring guarding of the machinery in use, when it is established by the tripartite technical advisory committee that their application in the undertaking is practically impossible, provided that workers' safety and hygiene is ensured by conditions at least equal to those legally prescribed.[6] In its reports on the application of the Convention one of these governments has indicated that the requirement of "at least equal" safety conditions has resulted in no exemptions having been granted in practice under this provision.[7] As concerns the practical application of the legislation, another government stated in its report that its competent authorities, recognising that secure fencing of machinery is not always possible, may give informal exemptions in such cases which nevertheless do not affect the legal obligation of the owner to guard the machine in question.[8]

---

[1] Turkey 2, s. 17.

[2] For example, Cyprus 1, s. 29(3); Guyana 1, s. 20(4); United Kingdom 1, s. 17(6).

[3] Bahrain 2, s. 8; 3, s. 12; 5, s. 7; and 4, s. 44.

[4] Burma 1, s. 23(2).

[5] For example, Cyprus 1, s. 25(6).

[6] Central African Republic 1, s. 106; Congo 2, s. 106; Madagascar 1, s. 71.

[7] Madagascar.

[8] New Zealand.

CHAPTER II

THE WORKING ENVIRONMENT (AIR POLLUTION, NOISE AND VIBRATION)

A. Scope of the instruments

248. As do the instruments on the guarding of machinery, Convention No. 148 and Recommendation No. 156 have a very wide scope defined in a comprehensive manner. The law and practice report prepared by the Office noted that:

> ... the improvement of the working environment, which is the final aim of the efforts undertaken, has often been considered in a fragmentary way in all but a few legislations. This is particularly obvious in the measures taken against noise and vibration: in respect of noise only certain types of work or certain assignments are covered; in respect of vibration provisions are still few and limited in scope. It seems reasonable, then, as a first step, to encourage a comprehensive approach to the problems, so that the general principles of prevention and protection in the field of atmospheric pollution, noise and vibration may be properly stated and find their place in all legislation adopted as a basis for the issuing of regulations.[1]

249. In answering the Office questionnaire preliminary to the Conference's first discussion of the proposed instruments, the great majority of governments recognised that the health of workers must be protected in the same way regardless of where they are employed and that the instruments should be applicable to all activities involving exposure to the hazards under consideration.

250. Convention No. 148 and Recommendation No. 156, to balance their comprehensive coverage, also provide for flexibility on two essential points: the exceptions permitted in respect of branches of economic activity covered; and the possibility of accepting obligations under the instruments separately in respect of some risks only. One other point which will be covered in this section of the survey concerns the definition of occupational risks given in the Convention.

---

[1] ILO: Working Environment, Report VI(1), ILC, 61st Session, Geneva, 1976, p. 23.

I. Application to all branches of economic activity and possible exclusions

251. Article 1, paragraph 1, of Convention No. 148 makes it applicable "to all branches of economic activity". Under Paragraph 1(1) of Recommendation No. 156, the two instruments should be applied to all branches of economic activity "to the greatest extent possible".

252. While establishing the principle of general application, Convention No. 148 nevertheless provides in paragraph 2 of Article 1 for possible exclusion from its scope of "particular branches of economic activity in respect of which special problems of a substantial nature arise". The term "branches", according to the competent Conference Committee, "could permit the exclusion either of certain particular branches requiring particular rules, or of certain technical processes according to the level of technical development, or of certain categories of persons such as self-employed workers in certain sectors".[1] Such exclusions may be made by a ratifying government after consultation with the representative organisations of employers and workers concerned, where such exist. According to paragraph 3 of the same Article, the branches excluded should be listed in the first report on the application of the Convention submitted under article 22 of the ILO Constitution, with an explanation of the reasons for their exclusion. In its subsequent reports a ratifying government undertakes to indicate the position of its law and practice in respect of the excluded branches and the extent to which effect has been given or is proposed to be given to the Convention in respect of them.

253. The branches of activity or categories of workers which were most often cited as causing special problems were seafarers and self-employed persons. Attempts were made to include express exceptions in the Convention in their respect but they were not followed by the Conference. As concerns self-employed persons, Paragraph 1(2) of Recommendation No. 156 suggests that measures be taken to give them protection analogous to that provided for employed workers.

254. Once the Convention had entered into force, one government requested the Office's opinion as to whether the Convention applies to the public service in virtue of its coverage of "all branches of economic activity", particularly with respect to state or local administrations which have no commercial activity, and to institutions such as railway and postal services which are administered by the government and are not conducted with a view to profit. In the Memorandum prepared by the International Labour Office in answer to that request it was pointed out in the first place that "what is decisive in determining whether a particular activity is a branch of economic activity is whether the persons engaged in it form part of the economically active population, not whether the institutions or undertakings concerned are operated for commercial or profit-making purposes". Taking into account the preparatory work on Convention No. 148, and on the Occupational Safety and Health Convention, 1981

[1] ILO: Record of Proceedings, ILC, 63rd Session, Geneva, 1977, p. 361.

(No. 155), the scope of which was defined in similar terms, the Office concluded that "the term 'all branches of economic activity' is a comprehensive expression covering all fields in which members of the economically active population are gainfully employed in the public as well as in the private sector".[1]

255. A study of the national legislation on occupational safety and health shows that it is still a branch of labour law which is characterised by numerous exclusions and exceptions. This is considered by many countries to be inevitable due to their level of economic development, technical circumstances or other reasons. There is also discernible, however, a tendency towards its progressive extention to provide protection for all workers in all branches of economic activity, in the spirit of the instruments on the working environment.

256. The analysis of the reports of the ratifying countries on Convention No. 148 shows that only very limited use has so far been made of the possibility of excluding particular branches of economic activity or categories of workers. Thus, one country stated that the fishing industry was excluded from the application of the Convention after consultations with employers' and workers' organisations.[2] Another country made exclusion in respect of maritime sector.[3] However, an analysis of the scope of the principal laws on occupational safety and health in member States suggests that the possibility of excluding certain branches of economic activity, provided by the Convention, could be more widely used in the future by States wishing to ratify the Convention. Moreover, the definitions of workplaces and workers covered by this legislation vary considerably in the degree of precision and detail, both between different countries and between different laws within them. The tendencies observed here are the same that were noted above in respect of the instruments on the guarding of machinery. The most common exclusions concern self-employed persons, public service employees, military service, work in family undertakings, homework and domestic service.

257. Exclusions also affect whole branches of economic activity such as agriculture, mining, shipping, fishing, air transport, railways, posts and telecommunications. In Italy, for example, the National Health Service Act of 1978 applies to all occupational sectors except state railways, posts and telecommunications, public transport by land, ships and aircraft.[4] In many countries the activities excepted from the principal laws on occupational safety and health are covered by separate laws. In some countries the legislation does not apply to undertakings employing less than a specified number of workers. In a number of countries the legislation is based on the concept of "premises", which is now giving way to a more comprehensive concept of "employment" in general. Thus, the earlier approach of having separate laws applicable to certain sectors

[1] ILO: Official Bulletin, Vol. LXV, 1982, Series A, No. 3, pp. 132-133.

[2] Portugal.

[3] Italy.

[4] Italy 3.

is being replaced in an increasing number of countries by legislation of a general scope covering a wide range of employment types and situations. In the United States, for example, the Occupational Safety and Health Act of 1970 applies "with respect to employment performed in a workplace".[1] The tendency of making the application of general safety and health provisions as broad as possible, is reflected in the legislation of a number of both developed and developing countries.[2] Because of the broad scope of legislation on the working environment, its implementation by stages is provided for in some countries. In the Netherlands, for example, the implementation of the Working Environment Act of 1980 will be phased over an 8-year period which began in 1983. In the first phase of implementation, major sections of the Act were applied to workers in private undertakings only, while in the second phase they will be applied to public employees as well.

258. Finally, it should be noted that in some countries, as for example in the socialist countries with centrally planned economies, the occupational safety and health legislation contains no exceptions to its coverage, and applies to the whole of the national economy.[3]

II. Acceptance of obligations for some risks only

259. Article 2, paragraph 1, of Convention No. 148 allows acceptance of its obligations separately in respect of air pollution, noise and vibration, subject to consultation with the representative organisations of employers and workers, where such exist.

260. According to paragraphs 2 and 3 of Article 2 non-acceptance of obligations in respect of a given hazard should be specified when ratifying the Convention; the government's first report should give reasons for such non-acceptance; and in subsequent reports the government should state the position of its law and practice as well as measures envisaged in respect of the category or categories of hazards excluded; lastly, the government may notify later its acceptance of the obligations of the Convention in respect of a category or categories previously excluded.

261. The possibility of excluding certain categories of hazards on ratification is an important element of flexibility provided by the Convention. It permits implementation of its provisions by stages and enables the countries concerned to ratify the Convention when they are satisfied that their legislation and practice give effect to its provisions in respect of at least one category of hazards. Having done so these countries will undoubtedly gain valuable experience in the application of the Convention which will help them to extend their

---

[1] The United States 1, s. 4(a).

[2] For example, Brazil 2, ss. 1-3; Chile 1, ss. 1-3, and 5, s. 1; Colombia 4, s. 3; Egypt 1, ss. 108-109; Gabon 1, s. 1; Greece 1, s. 1; Guatemala 2, ss. 1-3; Morocco 1, s. 1; the Netherlands 1, ss. 1 and 2; San Marino 1, ss. 1 and 2; Somalia 1, s. 2; Spain 2, s. 1; Togo 1, ss. 1 and 2, and 2, s. 1; Tunisia 2, s. 1.

[3] For example, Hungary 1, s. 51; Mongolia 1, s. 132; Poland 1, ss. 2-3; the USSR 1, s. 57.

legislation to cover other hazards and to accept the corresponding obligations under the Convention.

262. Of the 18 countries which had ratified Convention No. 148, only three have limited their acceptance of its obligations to certain risks only: two in respect of air pollution only,[1] and one in respect of air pollution and noise only.[2] All three opted for the exclusion of vibration but for quite different reasons. The Government of the United Kingdom considered it "premature to prepare the legislation necessary to meet the requirements of the Convention until the knowledge of the risks involved and precautions required is sufficiently developed". Commenting on this position, the Trades Union Congress (TUC) stated that more protective measures should be implemented on the basis of the available research, which it considered adequate to prepare some appropriate form of legislation. Taking note of these views, the Committee asked the Government to continue to inform it, in the light of the comments made by the TUC, of any progress made in this respect, as required in Article 2, paragraph 2, of the Convention.[3] The Government of Spain, on the other hand, explained its non-acceptance of the obligations of the Convention in respect of vibration primarily by the difficulties in establishing technical criteria for monitoring this risk. At the same time it decided to modify and update the chapter on noise and vibrations of the General Ordinance on Safety and Health at Work taking account of the relevant provisions of the Convention. The Committee in that case requested the Government to indicate the progress made "with a view to declaring the Convention applicable to vibrations as well".[4] The United Kingdom also did not accept obligations under the Convention in respect of noise, indicating in its first report that "existing legislation and practice on noise, particularly with respect to specifying exposure limits and the application of protective measures is insufficient at present to enable the Government either to ratify the Convention or to accept the Recommendation". In its subsequent reports the Government has indicated substantial developments referring in particular to the adoption of the Code of Practice for Reducing the Exposure of Employed Persons to Noise, as well as to the action of the European Community which resulted in the adoption in 1986 of the EEC Directive on the Protection of Workers from the Risks Related to Exposure to Noise at Work (86/188/EEC).[5] Taking these developments into account, the Committee of Experts has requested the Government to indicate "whether the adoption of the EEC Directive on noise will permit the Government to reconsider the situation with a view to a possible acceptance by the United Kingdom of obligations under this Convention in respect of noise".[6]

---

[1] The United Republic of Tanzania, the United Kingdom.

[2] Spain.

[3] See United Kingdom - Direct request 1986.

[4] Spain - Direct request 1985.

[5] See Official Journal of the European Communities, L137, Vol. 29, 24 May 1986, pp. 28-34.

[6] United Kingdom - Direct request 1986.

263. The Government of the United Republic of Tanzania did not indicate any reasons for not accepting its obligations in respect of noise and vibration, stating simply in its first report its intention to safeguard workers against air pollution, noise and vibration by enacting various rules and regulations to that effect.

264. Giving these three examples of the use of flexibility provided by the Convention as to the coverage of risks, the Committee would stress that the arrangements for the progressive application of the Convention may prove valuable both for developed and developing countries and can respond, if need be, to rapid changes taking place in the development of the safety and health legislation of the countries concerned.

III. Definition of risks covered

265. Article 3 of Convention No. 148 defines the risks which it covers in respect of air pollution, noise and vibration. These definitions were elaborated by a working party of the competent Conference Committee which included in its report the following explanations:

> ... the term "substances" should cover both inorganic and organic substances, including living matter. The words "whatever their physical state" indicated that they could be gas, vapour, aerosols and dust fibres as well as fungi, bacteria, virus, and so on. As far as the term "noise" was concerned, the working party felt that the complete range of frequencies should be included, i.e. not only the audible portion of the spectrum but also the ultrasonic and infrasonic portions. However, priority for purposes of protection was to be given to hazards arising from the audible portion and particularly to loss of hearing. The words "otherwise dangerous" had been retained in each case to take account of accidents caused by audible warning signals or other useful sounds in the working environment being masked.[1]

266. It may be observed from the above explanations that the definitions given in the Convention are very broad and cover virtually every aspect of air pollution, noise and vibration which may be harmful to health or present other dangers for workers. Their purpose is mainly to provide guidance for countries in the application of the instruments on the working environment with a view to ensuring that all dangerous factors due to air pollution, noise and vibration, including new ones, should be duly considered for the elaboration of measures aimed at prevention, control and protection.

267. From the analysis of the legislation of both ratifying and non-ratifying countries, it may be concluded that where provisions concerning air pollution, noise and vibration are included in general laws or regulations they usually refer to these hazards in the same broad sense as does the Convention.

---

[1] ILO: Record of Proceedings, ILC, 61st Session, Geneva, 1976, p. 161.

B. General measures for protection of the working environment

268. Convention No. 148 and Recommendation No. 156 contain a number of general provisions which concern essentially questions of responsibilities in the matter of regulation and application of measures for the prevention of occupational risks covered. The subjects dealt with in three subsections of this section of the survey will include respectively (a) provisions in national laws or regulations on occupational hazards in the working environment, (b) general responsibilities of employers and workers, and (c) the question of the relationship between the protection of the working environment and the protection of the general environment.

I. Basic legislation dealing with air pollution, noise and vibration

269. Article 4 of the Convention lays down a general framework for the regulation of matters concerning occupational hazards in the working environment. The legal aspects of defining the framework of the working environment are dealt with in paragraph 1 of this Article, while subsidiary technical aspects are covered by paragraph 2. The practical implementation of the general measures prescribed in laws or regulations will be dealt with in the next section of the survey.

270. Paragraph 1 of this Article stipulates: "National laws or regulations shall prescribe that measures be taken for the prevention and control of, and protection against, occupational hazards in the working environment due to air pollution, noise and vibration."

271. A study of the laws and regulations of the reporting countries prescribing standards applicable to the working environment, reveals the existence of three categories of provisions. The first comprises general standards of a comprehensive nature intended to ensure at least a minimum degree of protection from the hazards generally present in the working environment, without dealing with specific hazards. These laws and regulations concerning basic safety and health principles, which vary widely in their degree of detail, often form part of the Labour Code or constitute a separate text specifically concerned with occupational safety and hygiene. In many countries both types of legislation are present, the provisions of labour codes being further developed in special safety and health laws of general application.

272. The second category of provisions consists of laws and regulations applicable to particular branches of economic activity and laying down special safety and health standards for the whole of the branch concerned. Such laws and regulations most often exist for agriculture, mining, construction, sea and air transport and dock work. In many cases these branches are excluded from the scope of the labour codes and general laws and regulations on occupational safety and health mentioned above.

273. The third category of provisions comprises a variety of specific regulations dealing with particular hazards in the working environment, such as ionising radiations, carcinogenic substances, etc., or with particular types of hazardous work, such as, for example, work in pressurised chambers.

274. All these three categories of provisions prescribe to a varying degree measures for the prevention and control of, and protection against, air pollution, noise and vibration. Moreover, they are generally supplemented by a body of subsidiary regulations, technical standards, codes of practice, guides and so on, which lay down detailed rules, criteria and exposure limits for air pollution, noise and vibration, including those relating to given work situations. It is through this body of subsidiary technical standards that the Convention provides in Article 4, paragraph 2 for the practical implementation of measures of protection and prevention against air pollution, noise and vibration.

275. The complexity of the existing body of the safety and health legislation shows that the various aspects of the working environment are difficult to separate in practice, and that all the problems involved should be borne in mind when dealing with particular aspects of the working environment, whether air pollution, noise, vibration or other hazards.

276. The first thing that becomes evident from the Committee's examination of the national legislation concerning the working environment, is the extreme differences in the levels of development of this legislation between countries, which is closely linked to the overall level of economic development of the country. On the one extreme, there are some developed countries where the occupational safety and health legislation has become a separate branch of labour law embracing all three of the above-mentioned categories of legal provisions and technical standards. On the other, there is a considerable number of developing countries which still have virtually no legislation on the protection of the working environment of the kind provided for by the Convention and Recommendation.[1] The reports of some of these countries simply stated that there are no legislative, administrative or other provisions in regard to any of the matters dealt with in the instruments[2] although several others stressed that the relevant legislation is being prepared.[3] The reports of a still greater number of developing countries referred only to a few basic provisions concerning occupational safety and health included in their labour codes or in a separate piece of legislation, such as general regulations on occupational safety and health.[4] The reports of some of these countries acknowledged that the existing provisions are fragmentary and meet the requirements of the instruments on the working environment only in a few respects.[5]

---

[1] For example, Antigua and Barbuda, Belize, Benin, Cape Verde, the Comoros, Ethiopia, Guyana, Honduras, Niger.

[2] For example, Chad, Nigeria.

[3] Afghanistan, Bahamas, Burundi, Guinea, the Lao People's Democratic Republic, Rwanda, the United Republic of Tanzania, Zambia.

[4] For example, Democratic Yemen 1; Ghana 1; Malawi 1; Mali 1; Mauritania 1; Morocco 1, s. 24, and 2, s. 3; Saudi Arabia 1; Seychelles 1; Somalia 1, s. 101; Sri Lanka 1; the United Republic of Tanzania 1; Tunisia 4; the United Arab Emirates 1, s. 91, and 2, ss. 5 and 6.

[5] For example, Madagascar, Malaysia.

One government stated in this respect that "no modification has been made to the present national laws since the Convention is touching new ground not previously covered by the national laws."[1] A few countries stated that they ratified Convention No. 148 with the intention of adopting at a later stage national legislation giving effect to its provisions.[2]

277. In many cases the general provisions included in labour codes of these countries constitute an enabling legislation, providing that safety measures in general or for particular hazards will be prescribed by regulations.[3] In other countries it is the general regulations on occupational safety and health which enable the Minister to take decisions with respect to protective measures against particular hazards in the working environment.[4]

278. Where such general regulations are adopted they are usually basic texts containing provisions on protection against occupational hazards.[5]

279. In the majority of the developing countries for which information is available, the existing provisions are limited to laying down basic protective measures against air pollution, prescribing in particular adequate ventilation of working premises and evacuation of dust, gases, fumes and other noxious impurities.[6]

280. There are still no provisions in the legislation of many of these countries specifically identifying such hazards in the working environment as noise and vibration, much less prescribing any protective measures in their respect. In that context the Government of Mali stated in its report that such measures should be studied with a view to possible inclusion in the Labour Code.

281. It should be noted, however, that in some countries of a comparable level of economic development the basic provisions have been supplemented by regulations dealing to some extent with all three categories of risks covered by the Convention and Recommendation.[7] According to the report of Suriname, for example, nine safety regulations were adopted in 1981 under the Safety Act of 1947 including regulations containing relatively detailed safety provisions

---

[1] Malawi - Report.

[2] Guinea, United Republic of Tanzania, Zambia.

[3] For example, Congo 1, s. 137(1); Côte d'Ivoire 1, s. 119; Gabon 1, s. 134; Iraq 1, s. 106; Madagascar 3, s. 100; Malawi 1, s. 57; Nepal 1, s. 60, Togo 1, s. 129; Tunisia 2, s. 152.

[4] Saudi Arabia 1, s. 130.

[5] For example, Côte d'Ivoire 1, s. 119, and 2, ss. 4D13-16; Turkey 1, s. 74, and 5, ss. 8, 59, 60-79; the United Arab Emirates 1, s. 97, and 2, ss. 5-6.

[6] For example, Burma 1, ss. 15-16, 38; Congo 2, ss. 7-10 and 12-15; Djibouti 1, ss. 3-7; Ghana 1, ss. 15 and 23; Kenya 1, ss. 15 and 51; Madagascar 1, ss. 4-8; Malawi 1, ss. 15 and 54; Mali 1, ss. 180 and 183-184; Nepal 1, ss. 8-9; Pakistan 1, ss. 15-16 and 33; Saudi Arabia 1, s. 129; Sri Lanka 1, ss. 12, 32 and 51; the United Republic of Tanzania 1, ss. 15, 35-36 and 51; Togo 2, ss. 7-8; Tunisia 4, s. 11.

[7] For example, Barbados 1; Sudan 1 and 2.

with respect to, inter alia, climate, air ventilation, noise and vibration.[1]

282. An important trend in the development of the legislation on the working environment in a number of countries, is that more detailed principles and measures for workers' protection are incorporated in the specific legislation applicable to those branches of economic activity which are particularly hazardous. Thus, a number of governments pointed in their reports to the legislation concerning safety in mines, which ensures a higher level of protection for workers against air pollution, and to a lesser extent noise and vibration, than it is yet possible to extend to the whole of the national workforce.[2]

283. In Greece, for example, the Regulation on Works in Mines and Quarries of 1984 introduced for the first time in this sector particular measures of protection and exposure limits to noise, airborne dust, gas, vapour and smoke which still are not prescribed for other branches of economic activity.[3]

284. In other countries some protective measures prescribed by the Convention and Recommendation are laid down in general for undertakings classified as dangerous. This is the case, for example, in Luxembourg, where measures against air pollution and noise are prescribed through the legislation respecting establishments classified as dangerous, unhealthy and offensive.[4]

285. In the great majority of countries, irrespective of their level of economic development, there are also specific, sometimes isolated pieces of legislation establishing protective and preventive measures in respect of certain particular hazards in the working environment due to air pollution, such as, for example, ionising radiations, benzene, lead, etc.

286. The general tendency observed by the Committee of Experts in the development of specific protective legislation applicable to particularly risky occupations, is that in many cases it appears to be at an experimental level, serving as a basis for later incorporation of its more advanced provisions in the safety legislation of a general scope.

287. An interesting trend in occupational safety and health legislation is that, while its contents become more and more diversified and technical, it has also recently tended towards consolidation and generalisation on the basis of certain fundamental principles of protection of the human being in the working environment. For instance, these fundamental principles have been included in the Constitutions of many States, especially those adopted or amended in recent years, as a general recognition of the basic

[1] Suriname - Regulations on Working Conditions, No. 72 of 1981.
[2] For example, Greece, India, Morocco, Turkey.
[3] Greece - Report.
[4] Luxembourg - Report.

right of each person to the protection of his health and welfare at work.[1]

288. In the socialist countries, for example, the obligation of the State to secure the basic right of all working people to the protection of their health and labour is guaranteed in their Constitutions by such measures as provision of free health system, planned improvement of working conditions, elimination of all arduous labour, etc.[2]

289. Moreover, the labour codes of some of these countries provide for special funds and material resources to be allocated on a planned basis by each undertaking for carrying out safety and health measures. The use of such funds is governed by collective agreements or industrial safety agreements concluded between the management of the undertaking and the trade union concerned.[3]

290. In some countries which have well-developed legislation on occupational safety and health the labour codes or similar Acts are the principal legal instruments prescribing general measures against air pollution, noise and vibration in the working environment. For example, in the Ukrainian SSR, the Labour Code expressly obliges the management of the undertakings, among others, "to decrease and eliminate air pollution in industrial premises due to dust and gases, to limit the intensity of noise, vibrations, radiation, etc.".[4] In France the Labour Code regulates in detail questions regarding protection against dangerous substances, air pollution by other impurities and noise.[5]

291. The Consolidation of Labour Laws of Brazil, while laying down general safety measures and special measures for some unhealthy and dangerous activities, provides also for additional special measures to be prescribed in supplementary legislation for "the protection of employees who are exposed to harmful chemical substances, ionising and other radiation, noise, vibration and actions or effects on the human body, compulsory medical examinations, abnormal jolting or pressure at the workplace; an indication shall be given of suitable means of eliminating or reducing these effects, the maximum periods of exposure to them and the maximum limits for their age limits, the permanent supervision of workplaces and such other requirements as may be necessary".[6]

---

[1] For example, Argentina 3, s. 14bis; Colombia 5, s. 17; Congo 3, s. 23; Greece 3, s. 22(1); Guatemala 3, ss. 93-94; Haiti 1, s. 38; Honduras 1, ss. 127 and 145; India 3, s. 42; Italy 2, ss. 32 and 41; Luxembourg 1, s. 11; Nicaragua 1, s. 30; Panama 3, ss. 103 and 104(5); Thailand 1, ss. 65 and 73; Turkey 6, s. 56; Yugoslavia 1, ss. 161-162.

[2] For example, Bulgaria 1, s. 41(2); Byelorussian SSR 2, s. 21; Cuba 8, s. 48; Czechoslovakia 1, s. 23; German Democratic Republic 6, s. 35; Ukrainian SSR 2, s. 21; USSR 8, ss. 21 and 42.

[3] For example, Bulgaria 2, s. 274(1); Mongolia 1, s. 140; Ukrainian SSR 1, s. 162; USSR 1, s. 62.

[4] Ukrainian SSR 1, s. 158; see also Poland 1, s. 213(1).

[5] France 1, ss. R.231-46 to R.232-4 and R.232-9.

[6] Brazil 1, ss. 189-197 and 200(VI).

292. As is shown by these examples, in many countries the kind of measures referred by Article 4 of Convention No. 148 for the prevention of and protection against air pollution, noise and vibration are prescribed to a varying degree of detail already in the labour codes while mere technical aspects are referred to the subsidiary legislation provided for in these codes.[1] This is the traditional approach taken by national legislatures.

293. In an increasing number of countries, though, the rights and guarantees of workers to a safe and healthy working environment, the corresponding responsibilities of the employers, and the role of the State are further defined in separate basic Acts on occupational safety and health and the working environment. The development of this new kind of "umbrella" legislation of a comprehensive nature is a major development in safety and health legislation in the last two decades. Examples of this approach include the United States Occupational Safety and Health Act of 1970 and Japan's Industrial Safety and Health Act of 1972. Similar reforms were introduced in the 1970s in Norway, Sweden, the United Kingdom and other European countries. More recently a new Act on Occupational Safety and Health was adopted in Greece in 1985.[2] Such umbrella Acts on occupational safety and health have been adopted also in a number of Latin American countries.[3] The reports of some countries indicate that such Acts will be adopted soon or are under consideration.[4]

294. It was with the development of this kind of legislation that the concept of the safe working environment which is consecrated in the Convention and Recommendation, evolved and found expression in legal terms. The common features of this legislation consist in its general scope, its comprehensive approach to all factors in the working environment from the point of view of ensuring safety of workers, its enlarging of the concept of employers' responsibility to cover the establishment and maintenance of the quality of life for workers in the working environment. Such legislation also normally requires instituting procedures for close employer-worker collaboration on safety and health at different levels, provides for the responsibility of other persons concerned in relation to the protection of the working environment and, finally, rationalises existing administrative arrangements and responsibilities for the enforcement of this legislation.

295. The adoption of such basic Acts on the working environment has resulted also in a certain restructuring of the occupational safety and health legislation of the countries concerned, which consists of replacing gradually previous regulations on occupational safety adopted under general provisions of labour codes and other legislation, by new and more comprehensive regulations drawn up under

---

[1] For example, Mexico 2, s. 512, and 3; Federal Republic of Germany 1, s. 120(e), and 3.

[2] Denmark 1; Greece 1; the Netherlands 1; Norway 1; Sweden 1; the United Kingdom 2.

[3] Argentina 1; Bolivia 2; Colombia 1; Costa Rica 1; Cuba 2; Venezuela 1.

[4] Algeria.

these basic Acts.[1] This transition may take various forms. In some cases the old legislation is completely repealed even before the new one has been adopted.[2] In others, it remains in force during a transitional period for some categories of workers,[3] and in still other cases the old legislation remains in force as regulatory provisions under the new basic Act on the working environment.[4] Notwithstanding the apparent complexity of the structure of this revised occupational safety and health legislation in some countries, a new pattern emerges in which it is arranged in a coherent system of national regulations consisting of a basic Act on the working environment, which becomes the principal instrument implementing the Convention's and Recommendation's requirements. This is supplemented by general regulations prescribing its means of application, and by a set of special regulations covering more specific questions of protection.[5]

296. There are some countries, however, where the structure of the legislation on occupational safety and health presents particular features. In Belgium virtually all the legislation on health and safety at work is contained in the General Regulations for the Protection of Labour (RGPT).[6] The RGPT gathers together different laws, decrees and orders concerning similar subjects into sections, but there is no overall framework law on health and safety at work.

297. In other countries, there are a number of separate laws and subsidiary regulations containing provisions on health and safety at work. In Italy, while the principal legislation on occupational health and safety is Act No. 833 of 1978 on the National Health Service, most of the detailed protective provisions currently in force are contained in several decrees issued under Act No. 51 of 1955 which assigns the power to introduce health and safety regulations.[7]

298. A particular group of laws found in many countries, and which should be mentioned separately, are those governing dangerous substances. These laws aim to control such substances not only in the working environment but also in the external environment. They therefore form a separate framework legislation with its own subsidiary regulations.

299. In all the countries where the occupational safety and health legislation has developed into a separate branch of labour law, the practical application of the preventive, control and protective measures laid down by the instruments in the working environment is ensured through an extensive body of subsidiary legislation which takes the form either of specific regulations or of technical standards and norms, which are usually adopted by the national standardisation institutions. In some countries both types of

---

[1] For example, Venezuela 1, s. 41.
[2] Algeria.
[3] The Netherlands.
[4] For example, the United Kingdom.
[5] For example, Argentina 1 and 2, including Annexes.
[6] Belgium 1.
[7] Italy 1, 5 and 6.

provisions are present, sometimes amounting to many dozens of instruments.

300. An important source of health and safety legislation concerned with preventive and protective measures against air pollution, noise and vibration is found in many countries, also in the social security and social insurance schemes and technical rules established under them.[1] These rules may have the force of law, or may be enforced by means of financial sanctions (e.g. by increasing or decreasing contributions or by levying fines).

301. Finally, in many countries, non-statutory provisions are of varying importance in interpreting the practical application of the occupational safety and health legislation. These provisions, in the form of guide-lines (contained in circulars, notes, directions, instructions, etc.), are not directly enforceable in law, but are widely taken as indicators of the level of protection required to achieve compliance with the law on protection against air pollution, noise and vibration.

II. General responsibilities of employers and workers

302. Convention No. 148 establishes the general responsibility of employers and workers in respect of compliance with the prescribed measures against air pollution, noise and vibration. These general responsibilities are spelled out in more detail in various provisions of Recommendation No. 156, which will be dealt with later in the appropriate sections of the survey.

303. These provisions of the instruments on the working environment reflect a new concept found in modern legislation on occupational safety and health, according to which the law should establish a clear framework of basic statutory obligations which place responsibilities on employers and others in a clearly understandable manner. The obligations not only cover safeguards against physical risks; they concern the total working environment.

(a) Employers' responsibilities

304. Article 6, paragraph 1, of the Convention makes employers responsible for compliance with measures prescribed under the Convention.

305. The responsibility of employers to ensure compliance with measures for the prevention and control of, and protection against the hazards concerned is laid down in the relevant legislation of virtually all reporting countries where such legislation exists.

306. In the majority of countries the employer's responsibilities are defined in very broad terms in the basic texts, requiring them to ensure the overall safety and health of their employees at work and to

[1] For example, France - the Social Insurance Code; the Federal Republic of Germany - the Reich Insurance Code of 1911.

comply with all measures prescribed for this purpose in the legislation.[1]

307. In some countries the employer's obligation to adopt measures necessary for the health and safety of workers is recognised in the Constitution and is further reinforced in the relevant basic legislation.[2]

308. In the socialist countries, the legal obligations of each undertaking and its management to ensure safe and healthy working conditions are reinforced by their obligations under the plans for social and economic development, which include special provisions for the promotion of occupational safety and health. The Labour Code of Bulgaria, for example, stipulates in section 274(1) that "the constant improvement of safe and healthy working conditions shall be carried out on the basis of the uniform plan for the social and economic development of the country and the means provided for in the plan for the implementation of the national programme to improve the safety and health aspects of working conditions".[3]

309. In some other countries employers are required to draw up annual safety, health and welfare plans or a written statement of general policy in these matters, which must be made available to workers as well as to prepare an annual report on such activities during the previous year.[4]

310. The provisions of the general legislation referring to employers' obligations in the field of occupational safety and health have been noted above in connection with similar requirements of the instruments on the guarding of machinery. As was pointed out there, while recognising the critical place of the employer in the working environment, the modern legislation places duties on everyone concerned with work activities, e.g. manufacturers, designers, suppliers, owners, people in control of premises, etc. As the risks inside the working environment may extend to the general environment, these duties are not only for the protection of the workers but also that of the general public.

---

[1] For example, Argentina 1, ss. 8-9, and 4, s. 75; Bolivia 1, s. 67; Brazil 2, s. 157; Bulgaria 2, ss. 105 and 132; Chile 1, s. 4; Colombia 1, s. 84, and 2, s. 2; Côte d'Ivoire 2, ss. 4D 13, 4D 282-284, 4D 311; Democratic Yemen 1, s. 31(1); Denmark 1, ss. 15-16; Egypt 1, s. 3; Ethiopia 1, s. 10; Federal Republic of Germany 1, s. 120(a), and 3, s. 3; Greece 1, s. 25; Guatemala 2, ss. 4-7; Hungary 1, s. 51; Iraq 1, s. 106; Italy 1, 5 and 6; Japan 1, s. 3; Kuwait 3, ss. 40, 42-43, and 2, s. 1; Mongolia 1, s. 132; Panama 1, ss. 128 and 282-283; Peru 2, s. 104; Philippines 1, Rule 1005; Poland 1, ss. 207 and 234-235; San Marino 1, s. 3; Saudi Arabia 1, s. 128; Spain 2, s. 7; Tunisia 2, s. 5; Turkey 1, s. 73, and 5, s. 4; United Arab Emirates 1, s. 91, and 2, ss. 5-6; United Kingdom 2, s. 2; United States 1, s. 5(a).

[2] Costa Rica 4, s. 66; 1, ss. 282 and 289; 2, s. 3; Mexico 1, s. 123(XV); 2, s. 132(XVI), and 3, s. 188.

[3] Bulgaria 2, s. 274(1).

[4] For example, Ireland 2, s. 39; Netherlands 1; United Kingdom 2, s. 3.

311. It should be noted that in the majority of countries the law imposes on the employer a positive duty to ensure safety and health of employees at work, rather than the more limited duty of ensuring that their safety and health are not harmed. The employer usually bears this more limited duty towards members of the general public.

312. Employers' general obligations to protect their employees are expressed in a variety of ways. In the majority of countries, as was already mentioned, the law includes a general requirement for employers to protect the health and safety of their employees.

313. In the socialist countries, in Greece, Italy, the Netherlands, the United Kingdom and a number of other countries the law extends this protection to cover the welfare of workers.

314. In some countries the general responsibilities of the employer are defined in a less comprehensive manner. In Luxembourg, for example, the employer is required to observe the requirements of the relevant laws and insurance rules.

315. In Ireland there is no general obligation placed on employers to provide a healthy working environment. However, the implementation of specific legislation is largely the responsibility of employers, who are thus required, for example, to take all practicable measures to protect the persons employed against inhalation of dust, fumes or other impurities.[1]

316. Substantial differences may be noted in the extent of care that must be taken by the employer. In Belgium, for example, the law requires employers to ensure "with the diligence of a good father" that all work takes place in suitable conditions from the point of view of the health and safety of workers.[2] In the United Kingdom and a number of other countries having similar legislation, all reasonably practicable measures must be taken to ensure health, safety and welfare at work.[3] In the Federal Republic of Germany employers must ensure that workers are afforded such protection against hazards to safety and health "as the nature of the undertaking permits".[4] This is interpreted in subordinate legislation to mean that the undertaking should be ordered so as to meet commonly accepted up-to-date technical standards, observing the current state of knowledge of occupational medicine and of the study of labour methods and problems. In France the Labour Code requires establishments to be maintained in a state of cleanliness and hygiene necessary for the health of workers and to be managed in a way that guarantees their safety.[5]

317. These provisions of the legislation referring to the general statutory obligations of the employer are usually further amplified and give concrete effect in the specific subordinate legislation dealing with particular aspects of the protection of the working environment. Thus, in countries where there are special regulations and technical standards on air pollution, noise and vibration they

[1] Ireland 1, s. 58.
[2] Belgium 2.
[3] United Kingdom 2, s. 2(1).
[4] Federal Republic of Germany 1, s. 120(a).
[5] France 1, ss. L.232-1 and L. 233-1.

invariably define employers' responsibilities in a very detailed manner with respect to compliance with the safety measures prescribed.[1]

318. Without giving an exhaustive picture it may be observed that in most of these countries the general matters on which the employers' duties and responsibilities in respect of safeguarding the working environment are focused include:

(i) safety in developing, planning and arrangement of workplace;
(ii) safety of the plant which includes machinery, equipment, appliances and other technical devices used or positioned in the workplace;
(iii) planning of the work and its arrangement to provide a suitable and safe system of work;
(iv) maintaining and monitoring a safe and healthy working environment using proper industrial hygiene techniques;
(v) adequate safety precautions and better housekeeping to prevent injuries from falls, slips and other comparable factors;
(vi) adequate precautions against fires, explosions and electric shock;
(vii) restricting and minimising the use of substances liable to cause ill-health and ensuring that conditions for maintaining safety and health exist at all times;
(viii) providing adequate health, hygiene, welfare, medical examinations and first-aid facilities;
(ix) providing and maintaining in proper condition the personal protective equipment and clothing;
(x) providing information, instruction, training and supervision in respect of safety and health matters;
(xi) co-operating with workers in promoting and developing measures to ensure safety and health, establishing safety committees in the undertaking, or providing for other arrangements.

319. While the content of employers' responsibilities becomes both broader and more detailed in scope, the same tendencies may be observed in the evolution of the corresponding responsibilities of the competent state authorities and of workers. The law in some countries generally indicates, as it does for example in Mexico, that "responsibility for safety and hygiene at work belongs as much to the authorities as to workers and employers, as specified in the legislation".[2] Their respective responsibilities become more and more unified, requiring increasing close co-operation in ensuring the quality of the working environment.

320. Thus, in many countries employers now share with their employees the obligation to co-operate in promoting a concern for safety, health and welfare.[3]

---

[1] For example, Brazil 3, s. 1.7, and 4, s. 9.4; Federal Republic of Germany 3, s. 3, and 5, s. 3; Mexico 4, No. 11, ss. 2, 3 and 5; No. 17, ss. 2, 4, 6-7.

[2] Mexico 3, s. 188.

[3] For example, Netherlands 1, s. 13; Spain 2, ss. 7(9) and 11.

321. It may be interesting to note in this respect that in some countries employers are also obliged to ensure that workers comply with the provisions and instruments governing occupational safety and health.[1] At the same time employers should ensure that workers who have duties arising from legal requirements are given the necessary powers and facilities.[2]

322. In addition, in the majority of countries the employer is also under a duty not to levy on workers any charge in respect of anything done or provided in pursuance of any specific requirement of the relevant statutory provisions concerning safety and health at work.

(b) Collaboration of two or more employers at one workplace

323. As was pointed out in the law and practice report, the question of responsibilities "leads to others, one of which, though often ignored by national legislation, yet no less important, concerns the sharing of responsibility in the implementation of preventive measures where there are two or more employers at the same workplace. Owing to the modern tendency to subcontract, this situation is occurring more and more often, particularly in building, fitting-out and maintenance work".[3] Convention No. 148 was the first international labour Convention to address this issue, introducing an important innovation in the field of international labour law.[4] It may be pointed out that the issue was ripe for international regulation, as shown by the fact that 62 out of 69 countries replied in the affirmative on the question of the inclusion in the instrument of appropriate provisions on this subject.[5]

324. Paragraph 2 of Article 6 of the Convention requires that "whenever two or more employers undertake activities simultaneously at one workplace, they shall have the duty to collaborate in order to comply with the prescribed measures, without prejudice to the responsibility of each employer for the health and safety of his employees. In appropriate circumstances, the competent authority shall prescribe general procedures for this collaboration". In the discussion of this provision in the competent Conference Committee a number of divergent views were expressed as to how the collaboration of several employers at one worksite should be ensured, the question essentially being whether the action of the competent authority in prescribing general procedures should consist of intervening systematically or only in appropriate circumstances. It was proposed,

---

[1] For example, Mongolia 1, s. 139; Poland 1, s. 235(5).

[2] For example, Denmark 1, s. 19; Netherlands 1, ss. 23 and 26.

[3] ILO: Working Environment, Report VI(1), op. cit., p. 23.

[4] The principle of collaboration of several employers at one workplace was later included also in Article 17 of the most comprehensive instrument in the field of safety and health yet adopted by the International Labour Conference, the Occupational Safety and Health Convention, 1981 (No. 155).

[5] ILO: Working Environment, Report VI(2), ILC, 61st Session, Geneva, 1976, p. 28.

for example, that there should be a written agreement approved by the competent authority or, where such agreement could not be reached, that this authority should prescribe the procedure to be followed and allocate responsibility. These proposals were aimed at making the collaboration of employers in the implementation of preventive measures not merely voluntary but obligatory. On the other hand, a number of Government members of the Committee pointed to the administrative difficulty of supervising all such details on a large number of worksites and doubted whether the competent authority even had the right to impose such details. In some countries the law specified who had responsibility in certain cases, whereas in other cases employers were free to agree on sharing responsibility.[1]

325. The views expressed in the Committee reflected the variety of national situations which called for a flexible approach in the Convention. The Convention thus provided for the intervention of the competent authority "in appropriate circumstances" where in its opinion prescription of the general procedures for collaboration of employers would be useful.

326. In a number of countries the problem of having two or more employers at one workplace is approached in the legislation from the point of view of defining their respective liabilities in respect of the safety and health of the workers concerned. This legislation often goes further and lays down principles of concurrent responsibilities of the owners or occupiers of the premises, employers, contractors and subcontractors, etc.

327. In Saudi Arabia, for example, it is provided that "in the event there are several partners or managers in any establishment, one of them, who is resident in the place of employment, shall be appointed to represent the employer and be responsible for any violation of the provisions of this Code". The Labour Code also regulates mutual responsibilities of the concessionary companies and contractors in matters relating to occupational protection of their workers.[2]

328. Nevertheless, only in a relatively small number of countries are employers placed under the duty to collaborate whenever two or more of them are working in the same place. In still fewer countries are there provisions encouraging collaboration by laying down procedures to follow, or by requiring employers themselves to adopt such procedures.

329. In all cases where the legislation has dealt with this question, the procedures focus on the selection from among employers sharing one worksite the one who will be responsible for co-ordinating measures for the prevention of accidents and risks to health and safety of all persons at the site. Other questions involved concern the extent of the responsibility of the "principal employer" vis-à-vis other employers at the same workplace, the duty of other employers to comply with the instructions given by the principal employer, the parallel co-operation of workers employed by different employers and,

---

[1] ILO: Record of Proceedings, ILC, 61st Session, Geneva, 1976, p. 161; ibid., 63rd Session, Geneva, 1977, pp. 363-364.

[2] Saudi Arabia 1, ss. 11 and 138-140.

finally, the power of the competent authority to regulate all these questions especially when agreement among the parties concerned cannot be reached. On all these points considerable differences exist in the legislation of different countries on this subject.

330. In Denmark the law simply stipulates that "several employers who have work carried out at the same place of work and all persons employed at the same place of work shall co-operate to create safe and healthy working conditions for all employees"; the rules for such co-operation may be laid down by the Minister of Labour.[1]

331. In the Netherlands, if two or more persons, not being employed, jointly perform work affected by regulations made under the Working Environment Act, they are considered to be both employers and employees for the purposes of the regulations, unless one is manifestly responsible for directing the work, in which case he is considered to be the employer. Such joint employers should co-operate to ensure compliance, and for types of activities to be designated in regulations they should set out in writing how this co-operation should be achieved.[2]

332. In Norway a written agreement for the designation of the employer responsible for co-ordination is required at workplaces where more than ten employees are employed at the same time, and no one of the enterprises involved can be regarded as the main establishment. In the event that no such agreement is reached, the Labour Inspectorate shall be notified and shall decide which employer shall be responsible for co-ordination.[3]

333. In Finland and Sweden the role of the competent authorities in establishing procedures for co-operation between several employers is not mentioned in the law, which simply gives them the right to agree together on the appointment of one of them as the person responsible for co-ordination (Sweden) or as a "joint labour protection supervisor" (Finland).[4] In Sweden other employers and persons working at the workplace have the duty to comply with the instructions given by the responsible person. A special notice to this effect should be put up by him at any workplace common to several enterprises.[5] In Finland there is an additional provision that workers engaged by such joint employers also have the right to elect "a joint labour protection representative to act on their behalf in co-operation ... with all the employers concerned and in relations with the labour protection authorities".[6]

334. Particularly detailed provisions on the collaboration of several employers at one workplace exist in Japan in connection with construction work and work carried out by contractors.[7] Where two or more contractors exist or two or more employers exist there will be a "master employer" out of the two or more employers and he must

---

[1] Denmark 1, s. 20.
[2] Netherlands 1, ss. 29-30.
[3] Norway 1, s. 15.
[4] Finland 2, s. 9; Sweden 1, Ch. 3, ss. 6-7.
[5] Sweden 2, s. 4.
[6] Finland 2, s. 9.
[7] Japan 1, ss. 5 and 15-16.

appoint an overall "controller" who shall have to direct and co-ordinate the work of different safety and health personnel of the contractor(s) or subcontractor(s). The responsibility is thus mainly on the employer who engages the principal contractor for the work which is partly or fully executed by the subcontractor(s). Also, when there are two employers in an establishment, the responsibility is borne by the one who engaged the first contractor. Measures for the application of these provisions are laid down in special orders.

335. In the socialist countries with centrally planned economies, the question of collaboration between several undertakings on the same worksite is regulated mostly through the establishment of unified plans for safety and health measures that are required for each such workplace. Their legislation contains detailed provisions with the aim of encouraging different forms of such co-operation in safety and health matters: exchange of experience, joint training, creation of common bodies and services, etc.[1] All such measures may be initiated and supervised by the trade union committees of the undertakings brought together in one place, as well as by the local area authorities and trade union bodies. Basic provisions on this subject may also be found in the labour codes of some of these countries. In Poland, for example, according to the Labour Code "an establishment on whose premises work is carried out by other establishments shall enable the latter to organise the work in such a way as to ensure that their workers are afforded safe and healthy conditions of work".[2]

336. In some countries, while there is no specific provision requiring the collaboration of several employers at the same workplace, the general duties of employers are formulated in such a way that they may imply such collaboration. In the United Kingdom, for example, employers and self-employed persons are under the duty to conduct their business in such a way that all persons, including those who are not their employees, are not exposed to risks to their health and safety.[3] As the Government stated in its Article 22 Report on Convention No. 148, "the practical effect of this requirement is to ensure the need for collaboration of two or more employers undertaking activities simultaneously at the workplace, and it has not proved necessary or appropriate to prescribe further general procedures".

337. The Committee of Experts wishes to stress both the innovative character of these provisions of Convention No. 148, and the increasing number of work situations to which they apply. Such situations, moreover, most frequently arise in those industries such as shipbuilding, construction or chemical enterprises, which involve a particularly high level of occupational risk. Safety of the workers engaged by different employers but working side by side can be jeopardised in the absence of clearly defined responsibilities and co-operation between the employers and undertakings concerned. The Committee of Experts therefore hopes that the experience of some

[1] For example, Cuba 3, ss. 2-12, and Act No. 1323 of 30 November 1976, s. 52.

[2] Poland 1, s. 207(2).

[3] United Kingdom 2, ss. 2-3.

countries in dealing with such situations, illustrated briefly in this section of the survey, will prove helpful to the large majority of countries which have yet to provide in their legislation and practice for measures aimed at combining individual efforts of different employers at one workplace for the protection of all the workers concerned.

(c) Workers' responsibilities

338. Article 7, paragraph 1, of Convention No. 148 requires workers "to comply with safety procedures relating to the prevention and control of, and protection against, occupational hazards due to air pollution, noise and vibration in the working environment".

339. As in the case of the employers' obligations, workers' responsibilities are laid down in the basic labour legislation of the large majority of countries and provide in particular for the observance by them of safety and health measures prescribed in the legislation, as well as in specific rules and instructions adopted in the undertakings employing them.[1]

340. With the development of occupational safety and health legislation which, as indicated repeatedly in this survey, increasingly tends to regulate all the aspects of the working environment in its entirety, and due to the increasing complexity of the working environment itself, the share of workers' responsibilities for ensuring their own safety and that of others is becoming larger and is being expressed in the legislation in more detailed form.

341. In many instances workers' obligations are developing parallel to those of employers. While employers, for example, are required to train and instruct workers in protective measures, workers are often obliged to observe the instructions given and to attend the training courses.[2] Employers are required to provide personal protective equipment, while workers are required to make proper use of it.[3] Where employers have to provide medical examinations of workers, the latter have to take the examinations.[4] Of course, the obligations imposed on workers vary in their nature and detail. Nevertheless, in the law of many countries these obligations now cover the following questions:

---

[1] Argentina 1, s. 10(a); Brazil 1, s. 158; Colombia 1, s. 85, and 2, s. 3; Costa Rica 1, ss. 285-286, and 2, ss. 6-7; Democratic Yemen 1, s. 32(3); Denmark 1, ss. 27-29; Ghana 1, s. 78; Guatemala 2, ss. 8-9; Iraq 1, s. 107; Ireland 1, s. 125(2), and 2, s. 8; Italy 1; Japan 1, s. 4; Kuwait 2, s. 3; Malawi 1, s. 71; Mexico 2, s. 134(I and II), and 3, ss. 7 and 188; Mongolia 1, s. 138; Panama 1, s. 126(8); Philippines 1, Rule 1005; Poland 1, s. 233; San Marino 1, s. 5; Saudi Arabia 1, s. 98; Singapore 1, ss. 73-74; Spain 2, s. 11; Sri Lanka 1, s. 95; Tanzania 1, s. 65; Togo 2, s. 61; Turkey 1, s. 73; Ukrainian SSR 1, s. 159; United Arab Emirates 1, ss. 91 and 100; United Kingdom 2, s. 7.

[2] For example, Spain 2, ss. 7(10) and 11(a).

[3] For example, Spain 2, ss. 7(4) and 11(b).

[4] For example, Spain 2, ss. 7(5) and 11(e).

(i) to make proper use of means provided for their health and safety, including personal protective equipment; and not to damage or remove guards and other safety devices;[1]

(ii) not to carry out wilful or intentional acts likely to endanger themselves or others and to take care for their own and others' health and safety, particularly in respect of those who are carrying out any work under their supervision;[2]

(iii) to notify the employer and others concerned of any fault or defect of which he may become aware;[3]

(iv) to participate actively in organised safety arrangements at the workplace.[4]

342. Specific regulations in many countries oblige employees in certain trades connected with the use of controlled substances, or who are exposed to occupational diseases, to submit themselves to regular medical examinations.[5]

343. While the tendency towards spelling out workers' obligations clearly in the basic legislation may be increasing, in some countries there are very few obligations laid on employees with respect to safety and health matters. In France, for example, the only specific obligations laid on employees concern limited instances in which they are required to use protective clothing or equipment provided.

III. Relationship between the protection of the working environment and the protection of the general environment

344. The working environment is not a closed system isolated from the general environment. The relationship between the two environments in which people work and live is a complex problem which has only recently been approached by scientists. Its features are multiple and, if overlooked, may lead to disastrous consequences affecting the lives of the general public as well as of workers.

345. There is growing recognition on the part of the international community of the complementarity of and interaction between the working and general environments. A series of catastrophic accidents in many parts of the world (Three-Mile Island, Bhopal, Chernobyl and Basel (Sandoz) to name but a few) have created an awareness of the potential risks resulting from industrial activities to nature and society in general. As a result, the need for providing a satisfactory working environment for all workers now arises not only from the spread of risks to safety and health from industry to other occupations, but also beyond the worker to the

---

[1] For example, Colombia 2, s. 3(b); Guatemala 2, s. 9(a, b, c, d); Ireland 2, s. 8; Netherlands 1, s. 26; United Kingdom 2, s. 8.

[2] For example, Guatemala 2, s. 9(e); Ireland 1, s. 125(2); United Kingdom 2, s. 7.

[3] Colombia 2, s. 3(d); Denmark 1, s. 28(2); Netherlands 1, s. 26.; Spain 2, s. 11(c).

[4] Denmark 1, s. 27; Ireland 2, s. 8.

[5] For example, Ireland 3; Spain 2, s. 11(e).

public and the environment at large. At the same time one should not forget that the potential risks to the general public or environment may arise only in certain exceptional situations when they escape from the working environment. It is therefore in the working environment that the primary control should be exercised, and the approach taken should be that of ensuring co-ordination between the general environment and the working environment. In fact, one of the needs that the ILO's International Programme for the Improvement of Working Conditions and Environment (PIACT) is intended to meet is "the fact that problems of working conditions and environment should be approached globally within the framework of all aspects of economic, educational and social policy".[1] It is consistent with this global approach that the concept of the relationship between the working and the general environments has found its way into recent international labour standards concerning occupational safety and health.

346. Recommendation No. 156 was the first ILO instrument to draw attention to this inter-relationship. Paragraph 15 of the Recommendation states: "In prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take account of the relationship between the protection of the working environment and the protection of the general environment."[2]

347. At its 71st Session in 1985 the International Labour Conference once again stressed the need for such measures at the national and international levels in the resolution concerning the promotion of measures against risks and accidents arising out of the use of dangerous substances and processes in industry. The resolution proposed in this respect the inclusion in the agenda of an early session of the International Labour Conference of the subject of hazard control and accident prevention related to the use of hazardous substances and processes in industry. In this respect the Committee recalls that in the revised classification of international labour Conventions and Recommendations (adopted recently by the Governing Body of the ILO), among the possible subjects for new instruments is included the subject of prevention of accidents arising out of the production and storage of dangerous substances. In the view of the Committee, the elaboration of such instruments would present a favourable occasion for further development of the principle of the inter-relationship between the protection of the working environment and the protection of the general environment.

348. National measures taken for the protection of the general environment in relation to hazards that may emanate from the working environment consist of a wide variety of legislative, administrative, scientific, educational and other practical actions, including public campaigns. The analysis of these measures, however, would fall

---

[1] ILO: International Programme for the Improvement of Working Conditions and Environment (ILO document GB.200/PFA/10/8), p. 17.

[2] The Occupational Safety and Health Recommendation, 1981 (No. 164) in Paragraph 4(e) provides for specific measures to prevent catastrophes, particularly in industrial zones where undertakings with high potential risks for workers.

outside the scope of the present survey, being a separate subject of a very complex nature.

349. It can be noted, nevertheless, that in occupational safety and health legislation itself there are often provisions dealing with the observance of general environmental laws[1] or establishing safeguards against the pollution of the general environment.[2] The content and the extent of these provisions vary greatly in different countries. The same applies to a number of different practical measures highlighted by some governments in their reports. A few examples may illustrate the vastness of the subject. According to the report of the Government of Cyprus, for instance, a special service has been established within the Factory Inspectorate for the protection of the general environment in relation to the working environment.

350. In Tunisia the Industrial Real Estate Agency was created in 1973 to see that industrial zones are separated from populated areas and organised in such a way as to prevent pollution of the general environment. Since 1977 the Government has been implementing a programme of placing small undertakings outside the city limits of the capital in order to reduce the possibility of industrial accidents.[3]

351. In conclusion, the Committee of Experts finds that the information supplied in a number of reports shows that the question of the relation between the working and the general environment is receiving considerable attention from governments, employers and workers, giving practical effect to the concept enunciated in Recommendation No. 156.

C. Establishment of criteria and exposure limits

352. Many dangerous substances and processes in actual use await the development of acceptable replacements or other protective techniques ensuring the highest possible degree of protection. This is the reason that permissible concentrations should be established so as to provide guidance in assessing the degree of hazard presented by the working environment and to study and supervise preventive or protective measures. Internationally accepted exposure standards would make it possible to ensure adequate safeguards for the greatest possible number of workers and, by the same token, would avoid a multiplicity of divergent national standards which could interfere with international trade.

I. Requirements of the Convention

353. Article 8, paragraph 1 of the Convention provides that the competent authority shall establish criteria for determining the hazards of exposure to air pollution, noise and vibration in the working environment and, where appropriate, shall specify exposure

[1] For example, Mexico 4, No. 9, s. 17.
[2] For example, Peru 2, s. 103.
[3] Tunisia - Report.

limits on the basis of these criteria. In doing so the competent authority is required by paragraph 2 to take into account the opinion of technically competent persons designated by the most representative organisations of employers and workers concerned. Finally, the established criteria and exposure limits should be supplemented and revised regularly in the light of current national and international knowledge and data, taking into account as far as possible any increase in occupational hazards resulting from simultaneous exposure to several harmful factors at the workplace (paragraph 3).

354. It should be noted that the term "exposure limit" was used for the first time by the International Labour Conference in drafting Convention No. 148. The term was coined as a general expression that is intended to embrace the various formulations currently used to refer to quality limit values in workplaces, such as "maximum allowable concentration", "threshold limit value", "permissible level", "limit value", "average limit value", "permissible limit", "time-weighted average", "industrial hygiene standards", etc. It was intended to replace expressions referring to allowable or permissible limits. The reason for the change is that "allowable" or "permissible" seems to imply an administrative decision, which is not always the case at the national level, or to suggest a biological harmlessness which in fact is not necessarily a reliable guide.[1]

355. In this connection attention should be drawn to the fact that Convention No. 148 does not require that exposure limits should be prescribed by legislation. Article 8 of the Convention requires the competent authority to establish criteria and exposure limits. As was pointed out earlier, Article 4(2) of the Convention specified that provisions concerning the implementation of the prescribed measures may be adopted by means of technical standards, codes of practice and other appropriate methods. Such non-statutory measures may be made binding by statutory reference thereto.

356. Several reasons argue in favour of the adoption of non-statutory standards, particularly in developing countries. Codes and guide-lines can be revised easily when new knowledge or experience becomes available, while statutory prescriptions require considerably more time for their adoption and revision. Also the Meeting of Experts on Policies for the Establishment of Occupational Exposure Limits to Chemical Substances in the Working Environment held by the ILO in 1983 "strongly suggested that there were very significant advantages in not normally incorporating the numerical values for exposure limits directly in the legislation. Reference to the principle of exposure limits in legislation was, however, considered desirable".[2]

357. Another important feature of flexibility contained in Article 8 of the Convention is that the duty of the competent authority to establish criteria and exposure limits was qualified by the phrase "where appropriate" which enables member States to make, for example, a modest start on a programme for setting exposure limits

---

[1] See article on "Exposure limits" in the ILO: Encyclopaedia of Occupational Health and Safety, Vol. 1, 3rd (revised) edition, Geneva, 1983.

[2] ILO document GB.224/4/3, p. 10.

on a substance-by-substance basis. Where specific criteria for particular hazards cannot readily be laid down, more general criteria may also be appropriate. What is necessary is that the criteria should provide a basis on which the competent authority can, as appropriate, reach a decision as to exposure limits in the light of its assessment of the health risks involved. In supervising the application of the Convention in ratifying States, the Committee of Experts has always noted with interest any standards which introduce criteria and exposure limits for new occupational hazards not previously covered, thus giving better effect to Article 8 of the Convention. The Recommendation No. 156 also approaches this subject from the point of view of fixing in appropriate cases the emission levels of machinery and installations as regards air pollution, noise and vibrations (Paragraph 8).

358. In addition to what is prescribed in Convention No. 148 and Recommendation No. 156, the subject of determining criteria and setting exposure limits in respect of different noxious substances is dealt with in a number of other ILO Conventions and Recommendations concerning occupational safety and health. The Benzene Convention (No. 136) and Recommendation (No. 144), 1971, for example, provide that the competent authority should fix a maximum of concentration of benzene in the air of places of employment that should not exceed a ceiling value of 25 parts per million (80 mg/m^3). Recommendation No. 144 further provides that this maximum should be lowered as soon as possible if medical evidence shows this to be desirable. The Occupational Cancer Convention (No. 139), 1974, lays down measures for the control of the use of carcinogenic substances and agents in the working environment, and its accompanying Recommendation No. 147 calls on the competent authority to establish criteria for determining the degree of exposure to the substances or agents in question, and where appropriate to specify levels as indicators for surveillance of the working environment. Maximum permissible doses of ionising radiations which may be received from sources external to or internal to the body and maximum permissible amounts of radioactive substances which can be taken into the body, should be fixed for various categories of workers in accordance with the Radiation Protection Convention (No. 115) and Recommendation (No. 114), 1960. The most recent ILO instruments on this subject were adopted in 1986, the Asbestos Convention (No. 162) and Recommendation (No. 172), which also contain provision to prescribe limits for the exposure of workers to asbestos.

359. It is common to all the instruments mentioned above to require that established criteria and exposure limits should be periodically reviewed and updated in the light of technological progress and advances in scientific knowledge, particular consideration being given to the latest information contained in the codes of practice, guides or other sources provided by the ILO or other competent bodies.

II. Current international data and national standards of general reference

360. According to Article 8, paragraph 3, of Convention No. 148, criteria and exposure limits shall be established, supplemented and

revised regularly "in the light of current national and international knowledge and data". Paragraph 14 of Recommendation No. 156 specifies that "in prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take into consideration the most recent codes of practice or guides established by the International Labour Office and the conclusions of meetings of experts which may be convened by the International Labour Office, as well as information from other competent bodies".

361. There are two basic sources of reference for the purpose of these provisions of the instruments: (a) data and research provided by the competent international institutions of a governmental or non-governmental character, and (b) standards adopted at the national level, particularly those of the most advanced countries which set examples widely followed by other countries.

362. The need for international co-operation and the establishment of international guide-lines for general reference in the field of prevention and protection against hazards in the working environment, is particularly evident when only a limited number of countries can mobilise the necessary resources, considerable volume of special equipment and large number of specialised personnel to carry out all the work necessary to cover most occupational hazards. By drawing on the efforts of many countries it is possible to avoid costly duplication of work, generate comparable epidemiological statistics and adopt comparable criteria that may eventually lead to the establishment of generally accepted exposure limit values. Developing countries should benefit from the results of research undertaken at international level, from exchanges of information and knowledge, and from safety and health measures taken in connection with the transfer of technology.

363. The role of international institutions in developing common theoretical as well as practical approaches is all the more important as the limits recommended for given hazards and consequently the measures of protection, often vary from one country to another. Some such differences arise from different concepts of what constitutes damage to health, and others result from the different experimental and epidemiological methods used to establish the limits. Resolution of such differences would be assisted by greater international co-operation and by dissemination of information on the criteria and procedures used in establishing permissible limits, as well as by creating common methodology for the testing and evaluation of health hazards in the working environment. This work is being carried out by a number of international organisations, such as the United Nations Environment Programme (UNEP), the World Health Organisation (WHO), the International Organisation for Standardisation (ISO), the International Union of Pure and Applied Chemistry (IUPAC), and the Permament Commission and International Association of Occupational Health (PCIAOH). Other organisations such as the Commission of the European Communities (CEC) and the Organisation for Economic Co-operation and Development (OECD), and the Council for Mutual Economic Assistance (CMEA) are active at the regional level. Still others, for instance the International Agency for Research on Cancer (IARC) and the International Commission on Radiological Protection

(ICRP), provide recommendations on criteria and exposure limits in respect of specific hazards.

364. The ILO's International Programme for the Improvement of Working Conditions and Environment (PIACT), the WHO's Workers' Health Programme and the inter-agency UNEP/ILO/WHO International Programme on Chemical Safety (IPCS) constitute examples of effective international co-operation in this field. The ISO has an elaborate programme for the preparation of international standards on sampling strategies and the measurement of airborne substances, noise and vibration which is particularly useful for countries with highly developed occupational hygiene services. The OECD Chemicals Programme and the OECD Guide-lines for the Testing of Chemicals, Provisional OECD Data Interpretation Guides, and OECD Principles of Good Laboratory Practice which have been prepared under the Chemicals Programme, also have direct relevance to preventive measures in the area of occupational safety. A long-term programme for the development of the system of standards on occupational safety and health is pursued by the CMEA and accounts at present for 74 CMEA standards adopted in this field.

365. ILO activities connected with the elaboration of criteria and exposure limits for different hazards in the working environment are numerous and diversified. In the general framework of the PIACT programme they range from standard setting to provision of equipment and technical advice. A considerable part of the activities of the ILO consists of the provision of information. In the collection and dissemination of information on criteria and exposure limits various ILO programmes are involved: the International Occupational Safety and Health Information Centre (CIS), the International Occupational Safety and Health Hazard Alert System, and the ILO programme of publications including various codes of practice, the Encyclopaedia of Occupational Health and Safety, and the Occupational Safety and Health Series. Questions of occupational safety and health dealing with air pollution, noise and vibration have frequently appeared on the agenda of ILO Industrial Committees with special reports being prepared by the Office. The ILO Governing Body from time to time convened small meetings of experts to examine specific problems and to advise it on action which might be taken. The reports of these meetings on many occasions constitute a first step to the adoption later of Conventions and Recommendations. Some expert meetings are entrusted with the task of preparing codes of practice in the field of safety and health.[1]

366. In all of the above-mentioned activities the ILO collaborates closely with the WHO through the Joint ILO/WHO Committee on Occupational Health. The criteria applied and the exposure limits recommended by these two organisations are of a complementary character. In fact, the term "exposure limit" at present has two definitions. One is the concentration in the air of a harmful

[1] See, for example, the report of the Meeting of Experts on the Revision of the ILO Manual of Industrial Radiation Protection (Geneva, 16-23 September 1986) and the report of the Meeting of Experts on Occupational Safety and Health and Working Conditions Specifications in Transfer of Technology to Developing Countries (Geneva, 30 September-7 October 1986).

substance or the intensity of noise and vibration which is not considered, in the light of present scientific knowledge, to cause adverse health effects, including long-term effects and effects on future generations of workers exposed to a normal work schedule. The other is the level of exposure permitted, taking account of both the medical evidence and what is reasonably achievable in the workplace, but which does not ensure that ill effects will not occur, albeit in a very small proportion of workers who are exposed for a considerable period.

367. The first definition corresponds to the "health-based exposure limits" introduced by WHO and established only on medical and scientific data. These health-based exposure limits indicate the target to be achieved in providing absolute security to the workers. The second definition reflects the ILO approach of defining operational levels which could be implemented at the workplace, and corresponds to Article 8 of Convention No. 148, according to which the competent authority shall establish criteria for determining the hazards of exposure to air pollution, noise and vibration in the working place. The operational exposure limits envisaged by the ILO are based on the values of health-based exposure limits, modified as necessary after evaluation of their acceptability at the national level and their feasibility at the plant level.

368. As may be seen, there is no contradiction between the WHO and ILO approaches. On the contrary, they are complementary and may be regarded as constituting distinctive stages in the process of transferring absolute or target values into operational ones. In fact, the Meeting of Experts on Policies for the Establishment of Occupational Exposure Limits to Chemical Substances in the Working Environment held by the ILO in 1983 recommended a two-stage procedure in establishing permissible levels in occupational exposure to harmful agents, which is also advocated in WHO Technical Report No. 601. First, the derivation of exposure limits which are purely health based; secondly, the conversion of health-based exposure limits into operational occupational exposure limits which take account of other relevant but non-medical factors such as technical, social and economic considerations.[1] As both concepts have distinct merits, member States could adopt the concept most appropriate to their situation. Convention No. 148 does not express any preference in this respect, leaving the establishment of criteria and exposure limits to the discretion of the competent national authority.

369. In line with ILO policy, Convention No. 148 aims at the definition of operational levels which could be implemented at the workplace. It should be kept in mind that as operational values do not always coincide with the health-based levels, it is necessary that at the workplace every effort should be made to reduce the exposure as far as possible below the numerical value of the exposure limit. Convention No. 148 and Recommendation No. 156 provide for administrative, technical, organisational and other measures to be taken to that end, which will be examined in subsequent sections of the survey.

[1] See ILO document GB.224/4/3, p. 6.

III. Air pollution

370. The operational exposure limits referred to above have been recommended by the ILO in respect of numerous air pollutants. With respect to air pollution attention should be drawn to Publication No. 37 of the Occupational Safety and Health Series on Occupational Exposure Limits for Airborne Toxic Substances[1] which provides a review of the present approach to the problem of exposure limits to noxious substances in the working environment and presents, in tabular form, the limits prescribed or recommended in a number of countries. Subject to the specific and detailed explanations given in the various lists (toxic substances, particulate matter and carcinogens), this publication allows a certain amount of comparison of criteria and values applied in the countries reviewed and may help official services, professional organisations and management to gain a wider insight into this complex problem. A new revised edition of this publication is currently being prepared by the ILO in collaboration with the International Register of Potentially Toxic Chemicals (IRPTC) of UNEP.

371. The ILO has also issued the Code of Practice on Occupational Exposure to Airborne Substances Harmful to Health[2] which sets objectives to be attained in successive stages in different countries and enterprises according to local circumstances and possibilities. Chapter 3 of this Code contains detailed provisions on the establishment and application of exposure limits for harmful airborne substances.

372. In supervising the application of Article 8 of Convention No. 148 in respect of air pollution, the Committee of Experts has often inquired what criteria and exposure limits have been established or are considered to be necessary for some particular groups of agents such as non-ionising radiation. In this respect the Committee would like to draw attention to ILO Occupational Safety and Health Series No. 57 - Protection of workers against radio-frequency and microwave radiation - A technical review as well as to issue No. 53 entitled Occupational hazards from non-ionising electromagnetic radiation, both prepared as part of the PIACT programme in collaboration with the International Non-Ionising Radiation Committee (INIRC) of the International Radiation Protection Association (IRPA).

373. At the national level, the first lists of maximum allowable concentrations of airborne toxic substances at the workplace were issued between 1933 and 1938 in the USSR (the first country to make them a statutory obligation), the United States and Germany. In more recent years a number of other developed countries have followed suit by establishing their own national lists. A few examples may be given to illustrate this process.

---

[1] ILO: Occupational Exposure Limits for Airborne Toxic Substances, 2nd (revised) edition, Occupational Safety and Health Series, No. 37, ILO, Geneva, 1980.

[2] ILO: Occupational Exposure to Airborne Substances Harmful to Health, ILO Code of Practice, Geneva, 1980.

374. In Czechoslovakia an official list of maximum allowable concentrations was established in 1954 and subsequently updated. In 1955 the first national commission in a Western European country dealing with occupational exposure limits was established in the Federal Republic of Germany. At first the commission limited its activities to publishing the list of threshold limit values (TLV) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), but since 1969 it has started publishing its own annual list. In Denmark the working party of the Committee on Safety in the Chemical Industry started publishing lists of exposure limits in 1961, and since 1976 the list of control limit values is regularly established by the Labour Inspectorate. The 1984 list includes "Hygienic limit values" for about 600 substances. In Bulgaria on the basis of the Public Health Act the Ministry of Public Health adopted in 1971 a table of maximum allowable concentrations of harmful substances in the air of working areas which at present covers a total of 258 substances. In Finland limit values for toxic substances were issued by the Ministry of Social Affairs and Health in 1972. In the Netherlands a two-stage process for establishing exposure limits was introduced in 1977: first, a committee of experts reviews the available data and submits it to the National Committee; which at the second stage makes the final recommendations to be approved by the Labour Inspectorate. In Italy in 1978 a Technical Committee on exposure limits to dangerous substances was created in the Ministry of Labour and published a list of recommended exposure limits. In the United Kingdom the first national list of occupational exposure limits was published by the Health and Safety Commission in 1984 in Guidance Note EH 40, and updated in 1985.

375. Notwithstanding these recent developments, only a few countries have set up the machinery necessary for determining exposure limits and keeping them under continuous revision. Other countries generally establish their lists on the basis of the values prescribed by one of these countries. In this connection the most widely used lists are those prepared and updated each year in the United States and in the USSR. The United States ACGIH list is widely recognised in a great number of countries as a reference criterion of good practice and is published by the labour inspectorates of several countries as a guide (for example, in Belgium and Italy). The 1976 edition of this list, which is the most recent available, included 537 substances, 43 carcinogens, 28 nuisance particulates and 12 simple asphyxiants. Another United States list establishing a federal standard is published jointly by the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA); the 1976 edition of this list included 385 substances and 13 carcinogens.

376. The USSR list is prepared by the official permanent commission regularly engaged in determining maximum allowable concentrations in the air of the workplace and is published by the Ministry of Health. With the advice of the Institute of Industrial Hygiene and Occupational Diseases of Moscow, USSR Academy of Medical Sciences, these values are declared as state standards and are legally binding as absolute limits. The 1976 edition of this list included 646 substances and 57 dusts.

377. The criteria and methods for determining exposure limits in the countries examined in the present survey, vary depending on which approach they follow. They vary in practice between the stringent USSR concept of maximum allowable concentrations (MAC) which in no case should produce biological or functional changes, and the more elastic approach of the ACGIH of the United States, whose threshold limit values (TLV) make allowance for reversible clinical changes. These two kinds of criteria for determining exposure limits by the two countries are described as follows in the ILO's Encyclopaedia of Occupational Health and Safety:

USSR maximum allowable concentration. The MAC as defined in the USSR is that concentration of a harmful substance in the air of the working area which, in the case of daily exposure at work for 8-hour working day, throughout the entire working life, will not cause any disease or deviation from a normal state of health of the workers or of their offspring, detectable by current methods of investigation, either during the work itself or in the long term.

USA ACGIH threshold limit value. The term TLV refers to concentrations of air contaminants in the working environment to which it is believed nearly all workers may be exposed repeatedly, day after day, without adverse effect. A TLV-TWA is a time-weighted average for a normal 8-hour workday or 40-hour workweek. Exposure above this limit may occur if compensated, during the workday, by equivalent exposure below the limit.

378. While the USSR MAC values and the USA ACGIH TLV appear to be the most widely used, other countries adopt different approaches and establish different values.

379. Two types of exposure limits have been established in the Federal Republic of Germany: "maximum permissible concentrations" (MAK) which according to current knowledge will not generally impair the health of workers after repeated exposure for an average of eight hours per day and 40 hours per week over a long period, and "technical reference concentrations" (TRK) used for substances for which MAK values confirmed by toxicological and occupational medical experience cannot be defined at present. The TRK values are used mainly for carcinogens, and indicate concentration of air contaminants to which the requisite protective measures and monitoring of the workplace are to be geared. MAK values have so far been established for about 350, and TRK values for 18 substances and groups of substances. It should be particularly stressed that these values are established after independent consideration and are not based on exposure limits established in other countries. The Federal Republic of Germany's MAK values are also used in Luxembourg by the Accident Insurance Association.

380. In the Netherlands MAC values - maximum accepted concentrations - are defined as average concentrations which, as far as is known at present, do not cause detrimental effects to the health of normal, healthy workers or their offspring after repeated exposure of eight hours per day and 40 hours per week over a whole working life; or as ceiling values which should never be exceeded. It is noted that MAC values do not guarantee safety and concentrations should therefore be kept as low as possible.

381. In Italy the advisory exposure limits published are based on values believed not to endanger workers' health except in cases of hypersensitivity or predisposition due to genetic factors, primary organic or functional disorders or drug interactions.

382. Other types of exposure limits are also in use in a number of countries for dealing with particular situations in the working environment. A "short-term exposure level" (STEL) may be prescribed for short exposures not exceeding a specified duration. The United States Occupational Safety and Health Administration refers to a "permissible exposure limit" (PEL) which is a work-shift TWA level. The "immediately dangerous to life and health" (IDLH) concentration represents a maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects.

383. In Poland, for example, the exposure limits prescribed include maximum allowable concentrations (MAC), instantaneous concentrations to which exposure may not exceed 30 minutes, and threshold concentrations in which no work can be performed.[1]

384. Some countries specify in their national lists only maximum exposure limits,[2] while others indicate both an average and maximum limit[3] or a maximum and a tolerated limit.[4] The national list for 1978-79 adopted in the Netherlands included different definitions of maximum accepted concentrations used in several other countries for reference.

385. As regards methods of establishing exposure limits, two basic approaches have been noted: adoption of official, legally binding standards, and establishment of advisory standards as indications of good practice. Between these two extremities the legal status of exposure limits varies widely from country to country, the general trend in developed countries being to make them increasingly compulsory. The majority of countries are still in the intermediate position: their national lists may be enforced by indirect means, while for certain substances there are statutory obligations. In certain countries the exposure limits are included in collective agreements by branch of industry.[5]

386. The intermediate position is typical, for example, for many Western European countries. In the Federal Republic of Germany, Greece and Luxembourg, statutory limit values are prescribed for vinyl chloride, and in Belgium and the Netherlands they are established also for asbestos. In France such substances as benzene, methyl bromide and carbon monoxide are added to that list. In the United Kingdom the substances covered by statutory limits include acrylonistrile, carbon

---

[1] Poland 2 and 3.

[2] For example, Mexico, Venezuela, Chile.

[3] For example, Czechoslovakia and Romania.

[4] Brazil.

[5] For example, in Italy the National Collective Agreement in the Chemical Industry prohibits processes in which the concentration of noxious substances in the atmosphere exceeds the ACGIH TLV; for substances for which a TLV has not yet been established, concentrations should be kept as low as possible.

disulphide, ethylene oxide, isocyanates, lead, styrene, trichlorocthylene, vinyl chlorides.

387. In Spain, apart from benzene and asbestos, criteria and exposure limits were adopted in 1986 for metallic lead and its inorganic compounds, and vinyl chloride monomer, maximum concentrations for carbonic acids are also fixed.[1]

388. In Finland the exposure limits to asbestos, benzene and lead are statutorily specified and, as far as other substances are concerned, the labour protection authority inspecting a workplace is entitled to determine legally binding maximum contents of impurities in the air for each workplace. In order to facilitate this decision-making process the National Board of Labour Protection has published a safety bulletin on the impurities in the air at the workplace, which includes normative, non-binding limits required by industrial hygiene for about 500 compounds and groups of compounds.

389. According to the Government's Article 22 Report on Convention No. 148, proposals are to be prepared for binding limits on impurities in the air by the newly established Labour Protection Committee on Chemistry composed of experts nominated by the authorities and by the labour market parties.

390. No legally enforceable exposure limits seem to be established in Denmark, Ireland and Italy. However, in all of the above-mentioned countries except Greece, the competent authorities publish lists of advisory exposure limits which are taken as an indicator of compliance with the statutory requirements for the protection of workers. In France, for instance, these limits are published by the Government in circulars which so far cover approximately 80 substances. In Ireland and Spain the national inspection authorities accept the TLV recommended by the ACGIH.

391. In the framework of the European Economic Community measures are under way to adopt common limit values for 100 chemical agents frequently present in the working environment, and a new directive has been proposed to the Council for this purpose.[2]

392. Legally enforceable national lists of exposure limits have been established, for example, in Brazil, Bulgaria, Cuba, Czechoslovakia, German Democratic Republic, Hungary, Mexico, Poland, USSR, United States, Venezuela and Yugoslavia.

393. Many countries have adopted special regulations dealing with occupational hazards due to air pollution and the use of dangerous substances, which lay down detailed protective measures and fix exposure limits for certain specified substances, dusts, gases and fumes.[3]

394. The range of dangerous agents present in the air of the working environment, exposure to which is regulated in the national legislation, varies greatly from country to country. The most common

---

[1] Spain 3, 4 and 2, s. 30(3).

[2] See: Commission of European Communities, COM(86) 296 Final, Brussels, 30 May 1986.

[3] Chile 5, ss. 16-26; Cyprus 5; Egypt 1, s. 6 and tables 4-6; Egypt 2; Kuwait 5, tables 4-5; Philippines 1, Rule 1070 and tables 8 and 8a.

hazards covered include toxic chemicals, dusts and ionising radiations. In Egypt, for example, criteria and exposure limits are established as regards the following classes of pollutants: gases and vapour, dusts and liquid toxic particles in the atmosphere, natural dusts, dangerous substances; carcinogenic substances are listed but no exposure limits to them are prescribed.

395. The Mexican legislation establishes maximum exposure limits that should not be exceeded at the workplace in respect of ionising radiations, non-ionising electromagnetic radiations (including radio and microwaves, laser radiation, infra-red, ultraviolet and visible radiations) and solid, liquid and gaseous pollutants, including dangerous substances.[1]

396. The standards adopted by the Venezuelan Commission on Industrial Standards (COVENIN) establish criteria and maximum permissible concentrations of chemical substances, carcinogens, some substances of variable composition, dusts and lead.[2]

397. In Brazil tolerated limits calculated on the basis of exposure for 48 hours per week are established for approximately 200 chemical substances. If these limits are exceeded, the activities concerned will be classified as dangerous or unhealthy and fall under corresponding statutory provisions applicable to such activities. For some of those substances maximum limit values are also established that should never be exceeded in the working environment. Criteria and exposure limits are also laid down for certain mineral dusts and for ionising radiations.[3] As the Government has indicated in its Article 22 Reports on Convention No. 148, these standards are revised annually and are discussed with technical experts and workers' and employers' organisations. Trade unions also have the right to appeal to the Ministry of Labour in order to designate activities to be classified as dangerous.[4]

398. The criteria and exposure limits analysed by the Committee of Experts show that only in some particular cases is account being taken of the increase in occupational hazards resulting from simultaneous exposure to several harmful factors at the workplace, as is required by Article 8, paragraph 3, of Convention No. 148. The basic reason for this is apparently that current scientific knowledge is in many respects insufficient to define the results of cumulative exposure to several substances at once, or their mixtures or in combination with other hazards in the working environment. Some general provisions may, however, be found in national legislation, which is intended to ensure a higher level of protection in case of such simultaneous exposure. In Czechoslovakia, for example, occupational hygiene services can fix average exposure limits below the maximum allowable concentrations when there is exposure to several harmful factors or other unfavourable conditions are present.[5]

---

[1] Mexico 3, ss. 135-146, and 4: No. 9, No. 10, No. 12 and No. 13.

[2] Venezuela 7, 8 and 12.

[3] Brazil 5.

[4] Brazil 2, s. 195.

[5] Czechoslovakia 2, s. 18.

399. In its comments addressed to ratifying countries on Convention No. 148, the Committee of Experts has consistently drawn attention to the need to take into account in establishing criteria and exposure limits, the increase in occupational hazards that may result from simultaneous exposure to several harmful factors at the workplace.[1]

400. In countries where exposure limits were established by one of the ways explained above, arrangements also exist for their revision and updating in the light of current national and international knowledge. These arrangements may be divided roughly into two types: those providing for a continuous revision carried out by a specially instituted competent national body, and those providing for periodic revision from time to time, for which purpose an ad hoc technical body may be established. The arrangements of the first type exist as a rule in countries which produce their own national lists of exposure limits. In the Federal Republic of Germany it is the Committee on Dangerous Substances in the Workplace which is permanently engaged on this work, in the Netherlands - the National MAC Commission, in the United Kingdom - the Advisory Committee on Toxic Substances, and in Poland - the Interministerial Commission for Amendments of the List of Maximum Allowable Concentration of Harmful Agents in the Working Environment. Apart from such specially created bodies of a technical character composed of qualified experts, and entrusted with setting exposure limits to dangerous substances in the working environment, in the majority of countries there are a number of other agencies and institutions engaged in the elaboration, revision and adoption of criteria and exposure limits for air pollutants in general. In some countries this function goes to the labour inspectorate,[2] in others to insurance agencies.[3] In many countries the leading authority in these matters is the National Commission on Occupational Safety and Health or a similar body which exercises the overall responsibility for elaborating and co-ordinating the national policy in this area.[4] It is under this authority that in some countries the relevant expert committees are established.[5] In the majority of cases such national commissions, and expert committees created under their aegis, are of a tripartite character and include nominated representatives of employers' and workers' organisations. In Venezuela, for example, the representatives of the central workers' and employers' organisations form part of the membership of the National Council of Occupational Prevention, Health and Safety and its executive organ, the National Institute of Occupational Prevention, Health and Safety, as well as of the Commission entrusted with the revision of the Regulations on Hygiene and Safety Conditions at Work, which provide for the

[1] For example, Brazil - Direct request 1986, Spain - Observation 1986, Portugal - Direct request 1986.
[2] For example, Denmark, Ireland.
[3] For example, Luxembourg.
[4] For example, Mexico, Spain.
[5] For example, United Kingdom.

establishment and revision of appropriate standards on criteria and exposure limits.[1]

401. It is through the participation of the employers' and workers' representatives and of technically qualified experts designated by their respective organisations in such national bodies and committees that the requirements of Article 8, paragraph 2, of Convention No. 148 are met in most countries which have established exposure limits in question.

402. It should be noted that in many countries the law empowers the competent authorities to prescribe legally binding exposure limits, and appropriate action may thus be taken whenever considered necessary. A number of governments have indicated in their reports that such action is actually under way. New legislation on the prevention of air pollution by dusts and asbestos will soon come into effect in Luxembourg. In Malaysia the Factories and Machinery (Mineral Process) and the Factories and Machinery (Asbestos Process) Regulations will establish permissible exposure limits for 27 substances and dusts and for asbestos. In Ecuador, according to the Government's report, maximum permissible concentrations of toxic substances in the atmosphere at the workplace will be specified in the recommendations appended to the new general occupational safety and health regulations to be adopted soon after the process of tripartite consultations is concluded. In the United Kingdom tripartite consultations are going on concerning the preparation of the draft Control of Substances Hazardous to Health Regulations which, among other things, would ensure the necessary statutory backing for the occupational exposure limits recommended by the Health and Safety Commission, and lay down requirements for the appointment of a competent person to assess and monitor the air pollution levels at workplaces not covered by the existing legislation.[2]

403. One government, while indicating that its legislation empowers the minister concerned to issue orders specifying permissible levels of toxic substances in the working area of a factory, stated that "it would not be possible to specify any occupational exposure limits as these limits may change from time to time and legal instruments are too inflexible in their application".[3] The Committee of Experts would point in this connection to the practice of establishing advisory exposure limits, highlighted above.

404. In conclusion, it should be recalled that in the majority of the countries surveyed, no criteria for exposure limits to air pollution have ever been established, this fact undermining considerably the effectiveness of whatever other measures of protection have been prescribed. The Committee would stress that the instruments on the working environment provide for the establishment of criteria and exposure limits as the key requirement upon which the use of other protective measures is conditioned in many instances. It is therefore essential for the implementation of Convention No. 148

---

[1] Venezuela 1, ss. 9 and 13, and Decree No. 2218 of 12 September 1983.

[2] See United Kingdom - Direct request 1986.

[3] Singapore 1, s. 54(5) and the Report.

that such limits be established at the national level, by any of the methods explained above.

IV. Noise and vibration

405. The subjects of noise and vibration have been dealt with extensively in a number of ILO studies and publications. Particular mention should be made of Publication No. 33 of the Occupational Safety and Health Series Noise and Vibration in the Working Environment[1] and of the ILO Code of Practice on the Protection of Workers against Noise and Vibration in the Working Environment.[2] The appendices to the Code of Practice contain extensive references to existing international standards on criteria and exposure limits to noise and vibration, in particular those set by the ISO and recommended in publications of the International Electrotechnical Commission (IEC).

406. Recommended criteria and exposure limits to noise are set out in Chapters 3 and 4 of the Code which deal respectively with noise measurement and assessment, and noise limit levels. According to section 4.2.1 of the Code, to prevent a risk of hearing impairment and depending on the degree of protection wanted, the following limit values should be determined -

(a) a warning limit value that sets the noise level under which there is very little risk of hearing impairment to an unprotected ear for an eight-hour exposure; and

(b) a danger limit value that sets the noise level above which hearing impairment and deafness may result from an eight-hour daily exposure of an unprotected ear.

In the light of present knowledge, section 4.2.2 of the Code recommends a warning limit value of 85 decibels (dB(A)), and a danger limit value of 90 dB(A).

407. Section 4.3 of the Code sets out some values for special circumstances and provides in particular that, no matter for how short a time, a worker should not, without appropriate ear protection, enter an area in which the noise level is 115 dB(A) or more. The Code also recommends that levels of exposure to ultrasound and infrasound should be reduced and kept at a reasonable value (section 4.4) referring to some examples of national standards on that subject.

408. For the sake of completeness, it should be mentioned that the noise exposure limit of 90 dB(A) is also suggested in the ILO's Code of Practice on Safety and Hygiene in Shipbuilding and Ship Repairing (section 2.8.1) and in its Code of Practice on Safe Construction and Operation of Tractors (section 10.0.1).

409. As regards vibration, existing scientific knowledge was not yet sufficient in 1977 to allow the establishment of numerical exposure limits in the Code of Practice on the Protection of Workers against Noise and Vibration in the Working Environment, which simply

---

[1] ILO: Noise and Vibration in the Working Environment, Occupational Safety and Health Series, No. 33, ILO, Geneva, 1976.

[2] ILO: Protection of Workers against Noise and Vibration in the Working Environment, ILO Code of Practice, ILO, Geneva, 1977.

requires that maximum permissible levels of vibration be fixed in respect of (a) vibration affecting the hands and arms (vibrating tools), and (b) whole-body vibration transmitted through the supporting surface. In the Encyclopaedia of Occupational Health and Safety it is said that "exposure to whole-body vibration of certain frequency ranges (4-5 and 8-12 Hz) is associated with resonance phenomena (increase in oscillation amplitude of the anatomic organ and system structures), and vibration of these frequencies therefore has the most adverse effects".[1] It may be added that the principal international standard laying down some criteria for exposure to vibration is the ISO Standard 2631 - 1978: "Guide for the evaluation of human exposure to whole-body vibration".[2]

410. The situation as regards fixing criteria for and exposure limits to noise and vibration in the member States differs in many respects from that concerning air pollution.

411. First of all, there do not seem to be any national standards of general reference, as is the case for air pollution, which set approaches generally followed by other countries. There is, on the other hand, greater reliance on the standards developed at the international level and, in respect of noise at least, greater similarity in the criteria used for evaluating the hazards and in the exposure limits adopted on the basis of these criteria. Some countries expressly refer to international standards for the purpose of application of their national regulations. In Brazil, for example, criteria and exposure limits for vibration set out in ISO standards ISO 2631 and ISO/DIS 5349 are applied.[3] The Government of Yugoslavia also indicated that for vibration international standards are applied while national standards are being prepared; and for noise, measurements (calibration) are carried out in compliance with ISO Recommendation R.495.[4] Argentinian regulations on noise prescribe compliance with different international standards established by IEC.[5] In many other countries national provisions on noise and vibration are improved by the standards established by the competent international organisations, and several governments particularly mentioned that criteria and exposure limits recommended by the ILO were primarily taken into account.

412. Another particularity that may be observed as regards national standards on noise and vibration, is that in general they tend to be more recent than those concerning air pollution. In fact, for the most part such national standards have been adopted only in the present decade. In the United States, for example, standards on noise were adopted and codified as general industry standards in 1985, while in a number of countries the process of incorporation of noise

---

[1] ILO: Encyclopaedia of Occupational Health and Safety, Vol. 2, 3rd (revised) edition, Geneva, 1983, p. 2250.

[2] See: Acoustics, vibration and shock, ISO Standards Handbook 4, Geneva, International Organisation for Standardisation, 1980, pp. 493-507.

[3] Brazil 5, Annex No. 8.

[4] Yugoslavia - Article 22 Report on Convention No. 148.

[5] Argentina 2, Annex V, s. 3.

and vibration standards into the system of safety and health regulations has not yet been completed. This accounts for the fact that not much information is available to the Committee of Experts on questions related to the implementation, revision and updating of such standards, as the appropriate procedures in some countries have as yet to be developed.

413. It is also true that fewer countries have adopted national provisions regulating exposure to noise and vibration than is the case for exposure to air pollution. This is particularly apparent for vibration, in respect of which only some ten to 15 countries have established some sort of exposure standards and protective regulations.

414. The legal status of standards on noise and vibration varies considerably from country to country, showing the same pattern as standards on air pollution examined above. In some countries, for example in the socialist countries, these standards are obligatory for the whole of the economy, while in others they may be simple recommendations. There are countries where these standards are enforced on an administrative basis and where they may be used as evidence in courts.

415. As to the content of the national provisions on noise and vibration, they range from the simple recognition of noise and vibration as occupational hazards requiring preventive and protective measures, which is the case for quite a number of countries; to having scores of technical standards and regulations where every possible measure of detection, monitoring, measuring, controlling, etc. of noise and vibration is set out. National systems of occupational safety standards of States Members of the Council of Mutual Economic Assistance (CMEA) present an example of the latter approach. The majority of countries which have adopted national provisions on noise and vibration, however, may be situated in the intermediate position, clearly showing a tendency to developing a comprehensive set of general as well as technical regulations on the subject.

416. One more general factor contributing to the complexity of analysis of the content of national regulations concerned, is that while in the majority of countries noise and vibration are treated as separate occupational hazards, in some countries no such distinction is drawn, and vibration is generally considered to be an extension of the concept of noise.[1] The report of the United States stated, for example, that "vibration is treated and measured as a noise level".

417. It may be seen from this wide variation in approaches that the regulation of noise and vibration at the workplace is still in a period of development. It is particularly revealing that in the recent EEC Council Directive on the protection of workers from the risks related to exposure to noise at work, adopted on 12 May 1986, it is recognised that "the current situation in the member States does not make it possible to fix a noise-exposure value below which there is no longer any risk to workers' hearing", and that "current scientific knowledge about the effects that exposure to noise may have on health, other than on hearing, does not enable precise safety

[1] For example, Costa Rica 5.

levels to be set".[1] In this situation the role of the ILO instruments on the working environment in guiding efforts at the national level is all the more important, and further serious efforts on the part of the ILO and other competent international organisations is needed to bring better and more uniform protection to working people and to helping governments in achieving this aim.

418. In surveying the legislation of the reporting countries, the Committee has to express its concern over the fact that in the large majority of them the legislation does not even mention noise and vibration as distinct occupational hazards. Even less does it provide for special measures of protection for workers exposed to these risks. In some countries these hazards are simply indicated in the relevant general provisions of the legislation as requiring adequate protective measures, though no specific measures have yet been prescribed.[2] In a number of other countries some protective measures, sometimes quite extensive ones, are laid down in the legislation which, however, does not yet establish any criteria or exposure limits concerning noise and vibration, as provided for in the instruments on the working environment.

419. The Committee is concerned also by the fact that very few of these countries have indicated in their reports that measures are being taken to regulate occupational exposure to noise and vibration. Of those which have mentioned this, the Government of Malaysia stated in its report that the Factories and Machinery (Noise Exposure) Regulations are being discussed with employers' and workers' organisations, and pending their implementation enforcement is carried out on an administrative basis. Regulations on noise and vibration are also being prepared in Sri Lanka, according to the Government's report.

420. As regards Western European countries members of the EEC, their legislation and administrative provisions should be brought into compliance with the EEC Directive on Noise mentioned above by 1 January 1990. For Greece an additional one-year transition period was granted (EEC Directive on Noise, article 13).

421. The Government of Luxembourg, indicated in its report that protective measures against noise are prescribed by the Accident Insurance Association and that legislation to give effect to the EEC Directive on Noise is under preparation.

422. No mention of setting any criteria and exposure limits to noise and vibration is made in the relevant legislation of Japan. In fact the only provision found in the legislation and referred to in the Government's report concerns "an indoor workshop which produces a tremendous noise" where the employer is required to install partitions or to take other measures necessary to prevent such noise from being propagated.[3] There are no provisions in respect of vibration.

423. This situation is even more prevalent as concerns vibration. Some protective measures against risks due to vibration

---

[1] Official Journal of the European Communities, L 137, Vol. 29, 24 May 1986, pp. 28-29.

[2] For example, Côte d'Ivoire 2, s. 4D 19; Ghana 1, s. 26; Singapore 1, s. 58; United Arab Emirates 2, s. 5.

[3] Japan 3, s. 584.

are prescribed, but no criteria for evaluating them and no exposure limits are supplied.[1]

424. Besides the Government of the United Kingdom, the Austrian and Luxembourg Governments also indicated in their reports that there is insufficient experience to draw up any regulations as regards protection against vibration and therefore no special provisions exist on criteria, exposure limits or medical examination of workers in case of exposure to vibrations. In Colombia, on the other hand, while no exposure limits to vibration are prescribed, the legislation sets out detailed protective measures to be taken.[2]

425. A certain insight into the problem on the basis of more extensive experience in dealing with vibrations is given in the information reported by the Norwegian Government in its last Article 22 Report on Convention No. 148. It stated that a total of seven Norwegian standards exist in the field of vibrations including standards on whole-body and hand-arm vibrations, all of which refer to the relevant ISO standards.[3] But these standards are not binding and have a recommendatory character. However, the labour inspectorate does not operate with general limits for vibration and deals only with medical questions concerning vibration injuries. Such injuries, of which there were 15 in 1984, are reported to the inspectorate as occupational diseases. The real figure, in the opinion of the Government, could be ten to 100 times higher if all types of vibration injury were taken into account. Studies undertaken by the Central Bureau of Statistics in 1983 stated that 15 per cent of all male employees are exposed to "strong shaking, vibrations". Thus, concludes the report, "vibration is a widespread problem and affects many trades". At the same time the Government indicates that "as of today the labour inspection has not adopted a formal position on the use of the above-mentioned Norwegian standards concerning vibrations physically affecting people, but they will naturally fulfil a guide-line role in any cases submitted".[4]

426. In other countries, criteria and exposure limits to vibration are incorporated in the legislation and serve to determine the obligations of undertakings particularly as concerns the application of protective measures. In Argentina, for example, the law stipulates that no worker can be exposed to vibrations exceeding the established maximum permissible values, and if these values are exceeded necessary corrective measures should be taken to reduce them.[5]

427. In Chile protection is provided against vibrations in the range of frequency between 1 and 1,000 Hz, and different permissible levels of such vibrations are fixed for the hands, for the whole body and for the spine and head.[6]

---

[1] See, for example, Ecuador 1, s. 13; Kuwait 2, s. 19; Morocco 2, s. 33bis; Uruguay 1, s. 26.

[2] Colombia 2, ss. 93-96.

[3] NS 4625-NS 4931.

[4] Norway - Article 22 Report on Convention No. 148.

[5] Argentina 2, Annex I, s. 94 and Annex V, s. 10 and Graphic 2.

[6] Chile 5, ss. 36-37.

428. The situation would appear to be better as concerns setting criteria and exposure limits for noise, which have been established in a greater number of countries. Still the differences encountered from country to country are no less considerable. In some countries the legislation simply prescribes the maximum permissible sound level in conditions that may be taken to provide criteria only in a very general sense. This is the case, for example, in Ecuador where such levels are established at 85 dB(A) for the environment in which a worker normally holds his head, and at 70 dB(A) for offices and workplaces intended primarily for intellectual work.[1] In comparison, the same exposure limits are laid down in Colombia where the legislation also prescribes detailed measures for evaluating and measuring noise, and the criteria of exposure are set out in a special technical standard - "Basic norm on occupational noise".[2]

429. In some countries the problem of occupational noise is approached in a narrower context. In Spain the General Ordinance on the Safety and Hygiene at Work does not establish criteria and exposure limits to noise, but indicates the noise level at which personal protective equipment should be used. Certain criteria and measurements are nevertheless laid down in respect of hearing protectors.[3] As the Government indicated in its report, the chapter on noise and vibrations of the General Ordinance is at present being revised, taking account of the new EEC Directive on Noise mentioned above. The report also mentioned a recent publication of the Spanish Technical Standard on Vibrations and Shocks (PNE 97 001 82).

430. Criteria and statutory exposure limits to noise are prescribed in the legislation of a number of countries.[4] The technical content of these provisions and standards concerning, for example, types and sources of noise covered, is of course very unequal. Less common are national standards that establish criteria and exposure limits, for instance, to ultrasound and infrasound.[5]

431. In the socialist countries which are members of the CMEA, criteria of evaluating exposure hazards, different measurement techniques, and exposure limits prescribed on that basis for different types of noise and vibrations, are spelled out in detail in the binding national safety standards dealing with those hazards[6] and

---

[1] Ecuador 1, s. 12.

[2] Colombia 2, ss. 88-92, and 6.

[3] Spain 2, s. 31(9), and 5.

[4] For example, Argentina 2, Annex I, ss. 85-94; Austria 4, ss. 17 and 51; Brazil 5, Annexes 1 and 2; Chile 5, ss. 27-35; Colombia 2, ss. 88-92, and 6; Cyprus 5; Czechoslovakia 3 and 4; Egypt 1, s. 5(c) and table 3; Finland 3 and 4; Hungary 5 and 6; Kuwait 5, table 2; Panama 4 and 5; Philippines 1, Rule 1070 and table 8b; Poland 2; Sweden 3 and 4; Uruguay 2; Yugoslavia 3.

[5] For example, Argentina 2, Annex I, s. 93, and Annex V; Czechoslovakia 4; Sweden 4; USSR 9.

[6] Bulgaria 6; Cuba 9 and 10; German Democratic Republic 9, 10, 11 and 12; Hungary 10; Poland 4; USSR 9, 10, 14, 15 and 16.

through the common CMEA safety standards.[1] These standards establish both general safety requirements as regards occupational exposure to noise and vibration and specific requirements for a large range of particular activities, processes, equipment, etc. In some of the above-mentioned countries, as is the case in the USSR, a number of rules and norms dealing with exposure to noise and vibration are also issued by state sanitary control bodies.[2]

432. The Government of Romania stated in its report that protective measures concerning air pollution, noise and vibration are laid down in Republican Standards on Occupational Safety, which establish criteria and maximum exposure limits to heat (radiations caloriques), noise and vibration.

433. The only relevant piece of legislation mentioned in the report by the Government of China is the national "Standards of Noise Health for Industrial Undertakings" of 1979, which were issued in the form of regulations to enterprises and organisations all over the country and, according to the Government's report, have achieved good results in decreasing noise.

434. Exposure limits to noise and measures against vibrations which are laid down in generally applicable legislation, are sometimes included, with the necessary modifications, in regulations concerning particular branches of industry (most often in the mining and construction industries).[3] In the United States, permissible noise levels for exposure are established for industry in general and for the construction industry.[4] In the socialist countries general regulations and standards are supplemented by branch of industry regulations and safety rules. In some countries, while no statutory exposure limits to noise of general application are prescribed, there are specific statutory requirements establishing such limits in respect of particular occupations or installations. In the United Kingdom, for example, the Agriculture (Tractor Cabs) Regulations, 1974, as amended in 1984, stipulate that noise levels inside safety cabs fitted to tractors must not be more than 90 dB(A). In Greece statutory exposure limits to noise have been laid down in respect of work in mines and quarries.[5]

435. As is the case for air pollution, national criteria and exposure limits to noise may have a non-binding recommendatory character, but be used in interpreting the general requirements of the legislation. In the United Kingdom this applies to the Code of

---

[1] CMEA standards on noise, for example, 1930-79, 3076-81, 3080-81, 1412-78, 1414-78, 1413-78, 1928-79; on vibration: 1932-79, 2602-80, 1931-79, etc.

[2] For example, No. 3223-85: Sanitary norms of permissible noise levels at workplaces; No. 3044-84: Sanitary norms for vibration at workplaces; No. 3041-84: Sanitary norms and rules in the operation of machines and equipment causing local vibration transmitted to the hands of workers, etc.

[3] For example, Colombia 7, ss. 66-67, and 8, ss. 224-225.

[4] United States 2, s. 1910.95, table G-16 and s. 1926.52, table D-1.

[5] Greece 2, s. 21.

Practice for reducing the exposure of employed persons to noise. The Norwegian Anti-Noise Association has issued a guide-line entitled "Away with Noise".

436. In India the Government's report states that Model Rules on operations involving high noise levels have been made for adoption by the state governments in their State Factory Rules, and prescribe engineering control or administrative measures to be taken so that workers are not exposed to sound levels exceeding the levels prescribed for a specific exposure time. No rules have been framed on vibration. As regards mines, noise levels are recommended by the General Directorate of Mines Safety based on the ILO Code of Practice.

437. In Norway all regulations containing exposure limits and protective measures against noise are taken by the labour inspectorate, on the board of which the central organisations of employers and workers are represented, and applied as administrative norms. The principal instrument in this respect is the Labour Inspection circular No. 398 of 1982, "Noise at the workplace - Regulations with comments". Guide-lines have also been issued for the control of sound conditions at the workplace (Circular No. 421) and on noise data for machines and equipment (No. 422).[1]

438. As indicated above, standards on air pollution passed through stages of being merely recommendatory in character, or being enforced through administrative decisions, before becoming compulsory. A similar evolution can be discerned for standards on noise and vibrations.

439. While technical exposure standards established in Portugal are not binding in general, such standards for noise and vibration have been made obligatory.[2] These standards are generally based on the recommendations contained in the relevant international ISO standards. Portuguese norms are established by the tripartite Portuguese Technical Standards Committee. It is interesting to note that the legislation expressly provides for representatives of the occupational organisations on another tripartite body concerned, the Permanent Committee for the Revision of the List of Occupational Diseases, to be chosen from among technically competent persons.[3] Moreover, the members of the National Council on Occupational Safety and Health, which advises the Government on general policy measures, may be consulted by the technical specialists.[4]

440. In Sweden the basic Directives on noise and infrasound and ultrasound at work (Nos. 110 and 110:1) issued by the National Board of Occupational Safety and Health (NBOSH), are being revised and will be re-issued in the form of regulations under the Work Environment Act. These Directives refer to criteria of assessment of hearing impairment risks established in the Swedish Standard SEN 590111 "Assessment of Hearing Impairment Risks Entailed by Exposure to Noise" compiled by the Swedish National Committee of the International Electro-technical Commission, and approved by the Swedish Standards

[1] Norway - Article 22 Reports on Convention No. 148.
[2] Portugal 1, s. 26(2), 2 and 3.
[3] Portugal 4, s. 2(4).
[4] Portugal 5, s. 10.

Association. A number of other Directives have been issued by the NBOSH for protection against noise and vibrations in particular operations and types of machinery. Work is in progress also on the compilation of regulations containing safety rules and limit values concerning the exposure of workers to vibrations. In its last Article 22 Report on Convention No. 148 the Government indicated that the draft Ordinance on hand-tool vibrations had been finalised.

441. In the majority of the countries examined which have established exposure limits to noise, the maximum permissible level of continuous exposure for an 8-hour working day is established at 85 dB(A) which corresponds to the "warning limit value" recommended by the ILO and other international bodies. This limit is also prescribed by the EEC Directive on Noise (article 4). In some countries, for example in the United States, the maximum exposure level is fixed higher - at 90 dB(A) - which corresponds to the ILO's "danger limit value" - but the 85 db(A) level is taken as the "action level" at which the employer shall administer a hearing conservation programme.[1]

442. The Committee of Experts draws particular attention to the fact that in a number of countries the standards set permit exposure of workers, be it only for very brief periods, to a noise level of 115 db(A). In Brazil, for example, such exposure is permitted for a period of 7 minutes,[2] in Chile for 7.5 minutes,[3] and in the United States and Egypt for 15 minutes or less.[4] The Committee recalls that the recommendations of the ILO Code of Practice on the Protection of Workers against Noise and Vibration in the Working Environment do not allow any exposure to a noise level of 115 db(A), no matter for how short a time, without appropriate ear protection.

D. Preventive and protective measures

443. A variety of measures exist to cope with the harmful effects of atmospheric pollution, noise and vibration. These measures are aimed either at combating the hazard itself or at making those concerned more aware of its presence and of the need for precautions. Preventive and protective measures aimed at combating hazards in the working environment are comprised of administrative measures, technical measures of protection, and organisational measures and personal protective equipment.

444. The administrative measures in question consist essentially of a determination by the competent authority of the processes, substances, machinery and equipment which involve exposure of workers to occupational hazards in the working environment due to air pollution, noise and vibration, and applying appropriate restrictions to their manufacture, supply and use.

---

[1] United States 2, s. 1910.95(c).

[2] Brazil 5, Annex No. 1.

[3] Chile 5, s. 30.

[4] United States 2, s. 1910.95(b)(2), table G-16; Egypt 1, table 3.

445. With regard to the other measures of prevention and protection outlined in Convention No. 148, two basic ideas were put forward by the competent Conference Committee, as explained in its report: "that of the prevention of occupational hazards and that of personal protection. The prevention of hazards was dealt with in Article 9, a distinction being made between technical measures and supplementary organisational measures. Personal protective measures, dealt with in Article 10, had been reinforced by prohibiting employers from obliging workers to work without protective equipment when the latter was necessary".[1] The approach taken by the Convention to the prevention of occupational hazards thus reflects the idea of collective prevention as well as of individual protection.

446. These measures for improvement of the quality of the working environment are generally supplemented by measures aimed at the information and training of workers and at the promotion of research activities in the field of occupational safety and health, which are dealt with in Chapter III of this survey.

I. Administrative measures

447. In many countries the use of dangerous substances and processes is regulated by administrative measures to be taken by the competent authority, with special powers vested in it to that end. This practice is reflected in Article 12 of Convention No. 148 which stipulates: "The use of processes, substances, machinery and equipment, to be specified by the competent authority, which involve exposure of workers to occupational hazards in the working environment due to air pollution, noise or vibration, shall be notified to the competent authority and the competent authority, as appropriate, may authorise the use on prescribed conditions or prohibit it." In respect of dangerous substances causing air pollution this provision is extended in Paragraph 7 of Recommendation No. 156, according to which "the competent authority should determine the substances of which the manufacture, supply or use in the working environment should be prohibited or made subject to its specific authorisation, requiring compliance with particular measures of prevention or protection".

448. The administrative measures giving effect to these provisions may be generally subdivided into prohibitions and restrictions on the use of such substances and processes. These measures constitute an essential element of a coherent national policy on occupational safety and health and the working environment.[2]

449. The international regulation of the use of dangerous substances started with the adoption at Berne in 1906 of the International Convention on the Prohibition of the Use of White Phosphorus in the Manufacture of Matches. At its First Session in 1919 the International Labour Conference adopted the White Phosphorus Recommendation (No. 6), in which it called upon member States to adhere to this International Convention.

---

[1] ILO: Record of Proceedings, ILC, 63rd Session, 1977, p. 367.

[2] cf. the Occupational Safety and Health Convention, 1981 (No. 155), Article 11(b).

450. One of the first ILO Conventions - the White Lead (Painting) Convention, 1921 (No. 13) - prohibited the use of white lead and sulphate of lead and of all products containing these pigments in the internal painting of buildings, subject to certain exceptions (Articles 1 and 2).

451. Since that time, the ILO has assumed a leading role in establishing international standards regulating occupational exposure of workers to certain dangerous substances.

452. As concerns further prohibitions it may be useful to recall other more recent ILO Conventions dealing with particular risks, i.e. instruments concerning benzene, occupational cancer and asbestos mentioned above.

453. Measures imposing restrictions consist generally of notification of use to the competent authority, obtaining permission for use from the competent authority, and imposition of special conditions for use. These measures may be included in national legislation separately or in different combinations. For certain particularly dangerous substances or processes all three of these requirements may be used simultaneously.

454. An example of the cumulative use of these measures is found in the recent Asbestos Convention No. 162, which requires notification by employers to the competent authority, in a manner and to the extent prescribed by it, of certain types of work with asbestos (Article 13), as well as the laying down of special rules and procedures, including authorisation, for the use of asbestos (Article 9(b)). It may be noted that the EEC Directive concerning protection of workers from asbestos[1] provides that any activity likely to involve a risk of exposure to asbestos dust must be notified in advance to the authorities, and asbestos spraying should be prohibited.

455. The notification of the use of certain processes, etc., involving health hazards to be specified by the competent authority, is a measure essential to close surveillance and control and to the laying down of suitable protective measures. In practice the requirement to notify the relevant authorities before using certain dangerous processes may or may not be accompanied by provisions requiring that these processes should only be used after obtaining permission from the authorities concerned. In cases where such permission is not expressly required, the law generally leaves open the possibility for the competent authority to intervene if it thinks it necessary. Where formal permission must be obtained, it is usually subject to such conditions as the competent authority may impose. In the last case conditions and restrictions may be imposed either through direct permits for use or through systems of licensing establishments which may be classified as dangerous or unhealthy by reason of using, for example, certain types of substances.

456. When speaking of administrative measures of protection against air pollution, noise and vibration, it should be recalled, as appears from the previous sections of the survey, that the safety and health legislation of most countries (and consequently the administrative measures laid down) are considerably more developed in

[1] 83/477/EEC of 19 September 1983.

respect of protection against air pollution and the use of dangerous substances than for protection against noise and vibration. In case of the latter hazards the administrative measures of protection outlined above are in general only beginning to be established in legislation and implemented in practice. For vibration in particular, such measures are being considered only in a few of the countries where this hazard is already covered by relevant safety standards.

457. As concerns air pollution, the situation is quite different. In a great number of countries very strict and elaborate administrative procedures are established, for example, for the notification and obtaining permits for use of radioactive substances and agents, their use quite often being administered by special government agencies. Corresponding developments also may be observed in an increasing number of countries as concerns air pollution by dangerous chemicals.

458. As was pointed out previously in the survey, in many countries laws and regulations governing dangerous substances, such as poisons, explosives, petroleum spirits, agricultural pesticides, ingredients of food and other consumer products, etc., form a separate body of legislation which aims at protecting the wider public, including consumers and the external environment, and not only workers and the working environment. For the most part, therefore, the analysis of this legislation will fall outside the scope of the present survey, which is concerned primarily with studying those measures of protection in respect of substances and processes that are introduced in occupational safety and health legislation of the member States.

459. At the same time the Committee has taken into account a tendency in some countries for the general legislation on dangerous substances to be made applicable to such substances whenever they occur. When this is superimposed on the occupational safety and health regulations on the same subject, the analysis of this combined legislation becomes an extremely complicated matter. To illustrate these developments reference may be made to the structure of such legislation in the Federal Republic of Germany where the Order on Dangerous Substances in the Workplace is subsidiary to the Chemicals Act, to the Industrial Code and to other principal Acts.[1]

460. Nevertheless, some general observations on the different approaches taken may be made on the basis of the available legislation and the very scarse information provided by governments in their reports.

461. First of all, it should be pointed out that some prohibitions and restrictions in the use of certain dangerous substances and processes are found in the legislation of a great number of countries, whether this be only a single substance prohibited in a defined process, or a whole list of different substances in various industrial uses. In many countries these measures have been introduced under the general provisions enabling the competent authorities to regulate the manufacture, trade and use of dangerous substances, processes, etc., which in many cases

[1] Federal Republic of Germany 6, s. 17(2).

expressly assigns to these authorities the power to prohibit or restrict their use on health and safety grounds.[1]

462. An example of comprehensive general provisions to that effect is provided by the Swedish Working Environment Act, under which the Government or, by authority of the Government, the National Board of Occupational Safety and Health (NBOSH), may prohibit the use of a work process, working method or device or a substance, if such a prohibition is considered of particular importance in the interest of safety. The Government may also prescribe that a work process, working method or facilities intended for a particular kind of activity may not be used without permission, and that a device or a substance may only be used after prior approval, which may be subject to prescribed conditions, including control testing and continuous inspection of the conditions of their use.[2] It is interesting to note here that NBOSH is a tripartite body and thus workers' and employers' organisations become directly involved in the elaboration of, among others, the administrative measures of protection contained in the regulations adopted by it.

463. In other countries the legislation on occupational safety and health confers no general powers on the competent authorities to prohibit or restrict the use of dangerous substances, processes, etc., and such measures may result from the general duty of the employer to provide a healthy working environment.[3]

464. Close administrative control over the use of dangerous substances, processes, etc., is exercised in many countries under the provisions requiring previous authorisation by the competent authorities for putting into operation any newly built or modified industrial unit, process, technology, etc. The procedures established under this system usually provide for the obligation of the undertaking to notify the labour inspection of any changes in technological processes, so that the labour inspectorate can make preliminary inspections and tests and issue operation permit subject to application of any special conditions that may be imposed by the inspectorate to ensure the health and safety of workers. Coupled with the general powers of labour inspectors to prohibit any activity that may present grave danger to the life and health of workers, this system of administrative control plays an important role in protecting workers against air pollution, noise and vibration. As one government pointed out in its report, due to such arrangements the labour inspectorate has an insight into working conditions and can prevent work during which workers would be endangered by exposure to these risks.[4] In the socialist countries the effectiveness of this system is further reinforced by the direct participation of trade unions which have to give their approval to the issuance of a permit to operate[5] and have

---

[1] For example, Austria 1, s. 26(1-6); Denmark 1, s. 49; Federal Republic of Germany 6, s. 17; France 1, ss. L.231-7 and R.231-48; United Kingdom 2, s. 15(2); United States 1, s. 6(b)(5).

[2] Sweden 1, Ch. 3, ss. 12 and 14.

[3] For example, Belgium.

[4] Yugoslavia - Article 22 Report.

[5] For example, Mongolia 1, s. 134; USSR 1, s. 59.

the right jointly with the competent government authorities to prohibit the use of specified materials or technical processes on account of their danger, or to make their use conditional upon the observance of specified conditions.[1]

465. In Democratic Yemen, for example, under this system the permit to operate for any establishment is delivered by the occupational safety and health authorities and approved by the Trades Union Confederation.[2]

466. A system of administrative control closely resembling the one explained above exists in a number of countries, particularly in most Western European countries, in respect of establishments classified as dangerous, dirty or noxious.

467. In Belgium, Greece, Luxembourg and the Netherlands, for example, it is provided in the laws governing such establishments that the health and safety of workers should be considered in deciding upon permits to operate, and substances referred to in the list of such establishments may be used only after approval by the appropriate authority.

468. Administrative measures established in some developed countries may be very extensive. In Denmark, for example, the approval of the Minister of Environment is required for the manufacture and trade of about 1,400 listed dangerous substances and compounds, approval from the labour inspectorate is necessary for the use of polyurethane and epoxy products, pest and weed control agents, previous notification of the Inspectorate is obligatory in respect of any new chemical substances, asbestos and products containing it, etc. Direct prohibition of use imposed by the legislation relates only to crocidolite and other asbestos products, except for specified uses, and solders containing more than 0.1 per cent cadmium.

469. The example of Denmark is characteristic in the sense that it reflects the approach taken by the majority of the developed countries, where emphasis is laid more on various measures of administrative control of the use of dangerous substances, processes, etc., than on such exceptional measures as total prohibition of their use. In some countries, for example, in the United States, while very strict regulations exist in respect of a number of dangerous substances, none of them seems to be prohibited from use.

470. In fact, an analysis of the legislation of the reporting countries shows that substances commonly identified as requiring prohibition are very few and include mostly those already covered by existing international standards, for example:

- white phosphorus in matches;
- white lead and other lead substances, most often for use in paints for interior painting or painting of ships;
- benzene and products containing benzene, especially used as solvents or in cleaning;
- crocidolite and some other asbestos products, asbestos spraying and painting, use of asbestos for insulation, cladding or decoration and in some other uses;

---

[1] For example, Poland 1, s. 221.

[2] Democratic Yemen 1, s. 76.

- arsenic and its compounds in certain uses.

471. While noting the obvious influence that international standards have exercised on national legislation, it should be noted also that only in very few countries does the legislation include prohibitions in respect of all of these substances.

472. Some examples, nevertheless, may be given of countries which adopted restrictions taking into account the diversity of substances prohibited under statutory provisions and the methods used for applying such prohibitions.

473. In the Federal Republic of Germany the Order on Dangerous Substances in the Workplace mentioned above prohibits the use of various substances and processes in which they are used, including various carcinogenic substances. Provisions are also found in the regulations on pesticides, listing prohibited and restricted use of certain pesticides, in the technical rules concerning dangerous substances in the workplace, and in some accident prevention regulations issued by the Central Organisation of Industrial Employers' Associations (for example, prohibiting certain asbestos uses).

474. In other countries the regulations on the use of dangerous substances and processes consist of separate specific laws which are not within any kind of a framework legislation, making the situation very complex. To some extent this situation is characteristic of the Italian legislation, where some prohibitions on the use of certain substances are introduced through specific legislation and some through collective agreements. There are two laws which contain such prohibitions, concerning respectively white lead in paint and the use of benzol and its homologues in work processes,[1] and further applied by a ministerial decree. In addition to the legislation, the National Collective Agreement of the Chemical Industry (March 1983) prohibits manufacturing processes in which the concentration of noxious substances exceeds the upper limits established by the ACGIH. This agreement also lists certain carcinogenic substances which should not come into contact with workers at all.

475. As a general conclusion, the administrative measures of control over the use of dangerous agents in the working environment due to air pollution, noise and vibration are still of a very fragmentary and piecemeal character, and require considerable development in the light of national conditions and the corresponding provisions of the ILO instruments on the working environment. This conclusion appears to be true both as regards developed and developing countries, for countries which have adopted general provisions for the administrative control of the use of dangerous substances and processes but which sometimes have not adopted subsidiary measures of application and for countries where such control is exercised through special legislation without any framework provisions or through collective agreements.

476. Quite often national legislation contains enactments standing alone or particular provisions that prohibit, for example,

[1] Italy 7 and 8.

the use of lead in painting[1] or white phosphorus in matches.[2] They may require previous notification of the use of certain dangerous substances[3] or processes capable of provoking occupational diseases caused by dangerous substances[4] or, in a more general sense, of any construction, putting into service or modification of industrial buildings and plant,[5] and of any substances used in undertaking and of any new production technique to be introduced.[6]

477. Previous authorisation of the competent authority may be required in other more risky cases as, for example, the use of listed carcinogenic substances,[7] acquisition and use of radioactive substances or apparatus.[8] Approval of the competent authority is sometimes required for plans of construction and installations in respect of noise and vibration hazards.[9] The use of a number of dangerous substances, particularly carcinogens, is permitted in many countries only in closed systems.

478. The above examples only illustrate the variety of situations dealt with by measures of prohibition, notification, previous approval or authorisation on the part of the competent authorites, as reflected in national legislation.

II. Technical measures

479. The effective application of exposure limits depends largely upon the technical means of protection. Moreover, as operational exposure limits do not always coincide with health-based levels and some of them still carry a significant risk, it is necessary that every effort should be made at the workplace to reduce the actual exposure as far as possible below the numerical value of the exposure limit. It is generally agreed that among the measures to be taken, priority should be given to technical preventive measures, and only when these cannot be applied should other protective methods (for example, reduction of exposure time or use of personal protective equipment) be used. As was pointed out in the law and practice report prepared by the Office for these instruments, "unfortunately, in many cases the results obtained by general technical prevention are inadequate, making it necessary to resort to individual means of protection ... Furthermore, recourse is often had to administrative measures such as the reduction of exposure time, increased leave, shift rotation, etc. It must be clearly emphasised that while these administrative measures may be indispensable in some special cases where technical prevention is as yet ineffective, they should in principle be considered strictly as transitional measures since their

---

[1] For example, Gabon 4; Togo 3.
[2] For example, Sri Lanka 1, s. 55.
[3] For example, Sri Lanka 1, s. 55.
[4] Gabon 3, s. 3.
[5] For example, San Marino 1, s. 135.
[6] Guinea 2, s. 8.
[7] Kuwait 2, s. 10.
[8] Egypt 1, s. 5(d).
[9] Argentina 2, Annex I, s. 90.

effectiveness is highly debatable".[1] This view was further emphasised by the Meeting of Experts on Policies for the Establishment of Occupational Exposure Limits to Chemical Substances in the Working Environment, which stated that Article 9 may be regarded as a key provision of Convention No. 148, as it sets out the objective to be achieved.[2] This Article provides that, as far as possible, the working environment should be kept free from any hazard due to air pollution, noise or vibration, by technical measures applied to new plant or processes in design or installation, or added to existing plant or process; or where this is not possible, by supplementary organisational measures.

480. All measures that may be used for the purpose of applying this Article can be regarded as being broadly covered by the expressions "technical" and "organisational". No further precision was thought advisable concerning the definition of these measures because of the danger that any kind of enumeration will be incomplete and raise problems of definition that often have the effect of being restrictive.

481. Technical measures of protection in terms of the Convention cover an extremely wide range of engineering methods, from the design stage of machinery or technological processes to the neutralisation of a given hazard at its source in existing plant or processes.

482. The most commonly used technical measures against air pollution recommended in the ILO Code of Practice on occupational exposure to airborne substances harmful to health consist in, for example, the use of harmless or less harmful substitute materials and processes in place of dangerous substances and processes, carrying out the dangerous processes in an enclosed system, isolating dangerous operations from the remainder of the working premises, automatic handling of harmful substances or the use of remote control systems, and local exhaust ventilation. Some of these measures, like the use of enclosed systems, are expressly referred to in certain Conventions and Recommendations concerning particular occupational hazards.

483. As regards technical measures against noise and vibration, apart from the provisions included in different ILO Codes of Practice, special mention may be made of the provisions of the Hygiene (Commerce and Offices) Recommendation, 1964 (No. 120) and of the Crew Accommodation (Noise Control) Recommendation, 1970 (No. 141). The recommended measures are usually concerned with design, installation and isolation of machinery and equipment producing harmful noise or vibration.

484. Among the technical measures generally referred to in Convention No. 148, particular attention is drawn in Recommendation No. 156 to the monitoring of the working environment, fixing emission levels of machinery and installations, and replacement of dangerous substances and processes.

485. Provisions concerning monitoring of air pollution, noise and vibration in the working environment are included in Paragraphs 2, 3

---

[1] ILO: Working Environment, Report VI(1), ILC, 61st Session, 1976, Geneva, 1975, p. 5.

[2] ILO document GB.224/4/3, p. 9.

and 4 of Recommendation No. 156. These provisions suggest that the competent authority should prescribe the nature, frequency and other conditions of monitoring to be carried out on the employer's responsibility. Special monitoring in relation to the exposure limits referred to in Article 8 of Convention No. 148 should be undertaken when machinery or installations are first put into use or significantly modified, or when new processes are introduced. The Recommendation further specifies that it should be the duty of the employer to arrange for monitoring equipment to be regularly inspected, maintained and calibrated. The workers and/or their representatives and the inspection services should be afforded access to the records of the monitoring of the working environment and to the records of inspection, maintenance and calibration of the apparatus and equipment used therefor.

486. The role of the competent authority in organising appropriate monitoring of the working environment is particularly emphasised in the Recommendation. Although it would seem easier to adapt monitoring procedures to the different and sometimes changing situations in undertakings if the application of this provision were made suitably flexible by, for example, leaving the employer free to organise the monitoring in whatever way he deems fit, this might result in monitoring being haphazard and sometimes even inappropriate, with similar situations being monitored differently and the degree of hazard possibly being underestimated. Therefore, it is important that wherever monitoring is being organised, it should be done according to common rules and procedures prescribed for that purpose by the competent authority. At the same time, the Recommendation gives full latitude to the competent authority as to the conditions under which monitoring is to be effected.

487. Although Recommendation No. 156 was the first ILO instrument to lay down detailed provisions on the general monitoring of the working environment in respect of air pollution, noise and vibration, some provisions on this subject are found in other international labour standards on occupational safety and health, in particular in the Radiation Protection Convention, 1960 (No. 115) (Article 11); the Benzene Convention, 1971 (No. 136) (Article 6, paragraph 3); the Occupational Cancer Recommendation, 1974 (No. 147) (Paragraph 4(3)). The Asbestos Convention (No. 162) and Recommendation (No. 172) include special parts which deal with surveillance of the working environment and workers' health. Finally, assessment and surveillance of the risks from health hazards in the workplace are included among the functions of the occupational health services under Article 5(a) and (b) of the Occupational Health Services Convention, 1985 (No. 161).

488. Further guidance on control and monitoring is found in the relevant ILO Codes of Practice and in standards established by other competent bodies, particularly the International Standards Organisation, referred to earlier in the survey. It may be observed from the above that the question of appropriate monitoring of the working environment has received increasing attention in the framework of international labour standards as an essential element of controlling the quality of the working environment and implementing other protective measures. The importance attached to proper monitoring of the working environment was further emphasised by the

Meeting of Experts on Policies for the Establishment of Occupational Exposure Limits to Chemical Substances in the Working Environment, which recommended that "the ILO should consider developing guide-lines for good monitoring practice in co-operation with international organisations concerned", and that "there was a great need for providing developing countries with simple methods of environmental measurement".[1]

489. While noting that more guidance is needed on the monitoring of air pollution, noise and vibration to help those concerned, particularly the developing countries, to meet the relevant provisions of Recommendation No. 156, the Committee of Experts welcomes the above-mentioned proposals concerning future ILO action in this respect and considers that analogous measures should be taken in due time to strengthen the ILO capacity to advise on good monitoring practice in respect of noise and vibration as well.

490. Paragraphs 8, 9, 10 and 11 of Recommendation No. 156 contain provisions concerning standards for the emission levels of machinery and installations as regards air pollution, noise and vibration. Such standards should be approved by the competent authority in appropriate cases and should be attained as appropriate by design, or built-in devices, or technical measures during installation. An obligation to ensure compliance with these standards should be placed on the manufacturer or the supplier of the machinery or installations. If, in the light of the most recent knowledge, the machinery and installations cannot meet the approved standards for the emission levels, their manufacture, supply or use, where necessary, should be made subject to authorisation by the competent authority requiring compliance with other appropriate technical or administrative protective measures. It is specified that these provisions of the Recommendation should not relieve the employer of his responsibility for compliance with the measures required in pursuance of Article 6 of Convention No. 148. Finally, the Recommendation provides that the employer should ensure the regular inspection and maintenance of machines and installations, with respect to the emission of harmful substances, dust, noise and vibration.

491. The question of controlling emission levels of machinery and installations is closely related to monitoring of the working environment. In prescribing the conditions of monitoring, the competent authority should be able to take into account the emission levels of machinery and installations used, these levels being defined by the technical specifications for the type of machinery or installation in question. For both methods of protection to function effectively the competent authority should approve standards for the emission levels, if it has not set them itself, and should make subject to its authorisation the manufacture, supply or use of machinery and installations that do not meet the standards set.

492. While the competent authority has responsibilities in implementing both measures of protection, there is a profound difference between them as to the obligation of compliance. If the proper monitoring of the working environment is the obligation of the

[1] ILO document GB.224/4/3, p. 10.

employer, it is the manufacturer or the supplier of the machinery or installations who should ensure their compliance with the approved standards for emission levels. As was indicated in the report of the Conference Committee when it discussed the adoption of Convention No. 148, "it was felt that there was an obligation to be shared by the designer, the manufacturer, the importer or seller, and the installer and it was finally decided that the responsibility should be placed on the manufacturer or the supplier of the machinery".[1] What is also involved here is a principle intended to serve as a guide-line in the design of machinery and installations so that they can be operated in such a way as to conform to the technical standards for such machinery. By making the manufacturer or supplier responsible for compliance with these standards, the provision virtually poses the problem from the actual design stage of the machinery and serves as an incentive to those responsible for research to find technical solutions that are compatible with the relevant standards. Here, a similarity of approach is apparent between Recommendation No. 156 and the instruments on the guarding of machinery dealt with in the first part of this survey.

493. While introducing the new idea of limiting harmful emissions of machinery and installations, at the same time it is recognised in the Recommendation that the practical implementation of the measures imposing new standards on the emission levels of machinery and installations may give rise to substantial difficulties. The required changes in method of construction of machinery and equipment would often entail considerable expenditure and take some time. With that in mind, different approaches are taken by the Recommendation in respect of newly manufactured machinery and equipment, and of existing machinery and equipment. As laid down in Paragraph 28, in respect of the former, provisions of the Recommendation which relate to the design, manufacture and supply of machinery and equipment to an approved standard should apply forthwith; whereas in respect of the latter, the competent authority should, as soon as possible, specify time limits for the modifications required.

494. Measures aimed at replacement of dangerous substances and processes are suggested in Paragraphs 5 and 6 of the Recommendation. According to Paragraph 5, substances which are harmful to health or otherwise dangerous and which are liable to be airborne in the working environment should, as far as possible, be replaced by less harmful or harmless substances. The same applies to processes involving air pollution, noise or vibration which should be replaced as far as possible by processes involving less or no air pollution, noise or vibration.

495. It should be noted that replacement of certain dangerous substances by harmless or less harmful substitute products in the working environment and the use of alternative technology is required by other ILO Conventions. At present such requirements are included in the above-mentioned instruments on benzene, occupational cancer, and asbestos, as well as in the Hygiene (Commerce and Offices) Recommendation, 1964 (No. 120) which recommends that the competent authority should encourage and advise on such measures of substitution.

---

[1] ILO: Record of Proceedings, ILC, 61st Session, 1976, p. 168.

496. There is not a single country in which, where occupational safety and health legislation exists, there are not some general or specific provisions referring to some kind of technical measures to be taken in order to keep the working environment free from occupational hazards. The extent of the measures prescribed depends, however, on the overall economic and technical development of the country concerned, and on the corresponding development of its occupational safety and health policy and institutions. It would be unrealistic therefore to expect to find comprehensive regulations to that effect apart from a few highly developed countries. This is particularly evident when considering such elaborate technical measures as establishing standards for the emission levels of machinery and installations. Such measures are only envisaged in some developed countries. The Austrian Government, for example, indicated that an ordinance on the measurement of sound levels and the frequency analysis of machines and devices is being prepared by the Federal Ministry for Trade, Commerce and Industry.[1]

497. In countries where noise and vibration are not yet expressly recognised in the legislation as specific occupational risks, requiring prescribed protective measures, such measures could be nevertheless taken in practice to protect exposed workers, for example, through appropriate actions on the part of the labour inspectorate, as is mostly the case.

498. In other countries some isolated provisions concerning technical measures to be taken may be found in the legislation providing, for example, that where machinery and equipment produce high vibration and noise they should be installed so as to avoid dangerous vibrations[2] or on shock-absorbing platforms[3] or on isolated platforms.[4]

499. In countries where protection against noise and vibration forms a separate area of the occupational safety and health legislation, the technical measures prescribed are on the contrary quite extensive, particularly as concerns protection against noise.[5] Apart from the measures mentioned above, the legislation of Colombia, for example, stipulates that, where possible, equipment producing vibrations should not be used, and that its design should be improved to reduce vibration. Various special measures are also prescribed for particular types of machinery producing vibrations, such as circuits of forced circulation, pneumatic tools, etc.[6] As concerns noise, all undertakings producing noise are required to carry out technical studies in order to introduce systems and methods of work reducing it to a maximum, attaching particular attention to old or defective machinery, replacing metallic gears with gears made from other less noisy materials, etc. Special studies are required where

---

[1] Austria - Report on Recommention No. 156.

[2] Morocco 2, s. 33bis.

[3] Kuwait 2, s. 19.

[4] Ecuador 1, s. 13(a).

[5] For example, Austria 4, s. 17(1-4); Ecuador 1, s. 13; Spain 2, s. 31; Yugoslavia 3, ss. 24-26, and 6, s. 56.

[6] Colombia 2, ss. 93-96.

noise levels exceed the prescribed permissible maximum of 85 dB(A).[1] In these countries the legislation sometimes spells out the concept behind the protection measures to be applied. In Argentina, for instance, engineering control measures should be applied to the source of noise, to the ways it is propagated and to the areas which it affects; in the second place, individual measures for the hearing protection of a worker should be used; and in the third place, reduction of the time of exposure should be envisaged, if previous measures have proved to be insufficient.[2]

500. The Committee of Experts has always closely monitored the situation in the ratifying countries as regards technical measures of protection against noise and vibration, requesting them to report any progress achieved, particularly as regards technical measures to test new equipment or machinery when it is designed or marketed with a view to eliminating as far as possible the risks caused by such hazards.[3]

501. As regards technical measures of protection against air pollution, they occupy considerably more place in the occupational safety legislation of most countries, even of the least developed among them, as there is now hardly any country where provision has not been made for adequate ventilation of working premises and evacuation of dangerous dust and fumes.[4] There is, however, a vast technical and technological gap between these basic provisions for preventing air pollution and the whole arsenal of more developed measures in certain countries providing for, to give but a few examples, local extract ventilation systems and general mechanical ventilation,[5] checking of such systems for efficiency before use, separation or replacement of harmful substances and processes, general monitoring of the working environment[6] and monitoring of particular substances,[7] specific protective measures for particular substances[8] and for operations entailing particular risks.[9]

502. In its comments under Article 9 of the Convention, the Committee of Experts has invariably pointed to the need to enlarge the range of protective measures prescribed through legislation or by any other method in conformity with national practice and conditions, with a view to giving full effect to the requirements of the Convention both as regards new plant or processes and for those already in existence.[10]

---

[1] Colombia 2, ss. 88-90.

[2] Argentina 2, Annex I, s. 87.

[3] For example, Norway - Direct request 1986.

[4] See, for example, footnote attached to para. 279.

[5] Ecuador 1, ss. 18-19; San Marino 1, ss. 119-125; Singapore 1, ss. 54 and 59.

[6] Austria 4, ss. 16 and 55; 1, ss. 6(2) and 18; and 2, s. 94.

[7] Spain 8, s. 4 (for asbestos).

[8] Yugoslavia 6, ss. 31-33 (against dusts), and ss. 35-46 (against poisonous substances).

[9] Argentina 2, Annex I, Ch. 17; Colombia 2, Ch. IX.

[10] For example, Spain - Observation 1986.

III. Organisational measures and personal protective equipment

503. Technical measures of protection against air pollution, noise and vibration obviously are not the only means available to ensure protection of workers, particularly in situations where their application is limited for technological or other reasons. In these cases additional protective measures are required which consist of introducing special systems of work organisation and the use of individual means of protection.

(a) Measures regarding work organisation

504. Article 9 of Convention No. 148 provides for the use of "supplementary organisational measures" where the use of appropriate technical measures is not sufficient to keep the working environment free from any hazard due to air pollution, noise and vibration. Such organisational measures are specified in Paragraph 13 of Recommendation No. 156, according to which "the competent authority should, as appropriate, provide for or promote, in consultation with employers' and workers' organisations, the reduction of exposure through suitable systems or schedules of work organisation, including the reduction of working time without loss of pay".

505. The organisational measures provided for in the instruments should be aimed at the reduction of the number of workers exposed, the duration and the degree of such exposure to the minimum compatible with safety, and may comprise, for example, the following, which are compiled from various ILO Codes of Practice and other ILO publications:

- limiting the number of persons exposed;
- rotation of jobs;
- reorganisation of work, so that part of the work can be done without exposure to risks, for example, by setting up varied work teams;
- the laying down of statutory rest breaks by virtue of a suitable reorganisation of work;
- limiting the time of exposure by, for example, establishing a limit on the total time of exposure during a shift;
- limiting access to premises where hazards are present;
- requirements concerning qualifications of, or ability of, people exposed;
- restricting unsupervised work or providing for special supervision of work with dangerous substances;
- posting of warning notices;
- prohibiting or limiting employment of particularly sensitive groups of workers (mainly young workers and female workers) on certain jobs involving exposure to air pollution, noise or vibration, etc.

506. In many countries provisions exist for setting shorter hours of work, longer rest periods and additional rest breaks for workers employed on types of work involving special dangers to their health.

In some countries such enabling provisions still require implementation through specific legislation.[1]

507. In Argentina, for example, working hours in unhealthy occupations may be reduced to six hours daily or 36 in a week, such occupations being determined by different decrees and including work exposing employees to various dangerous substances and to noise.[2] In Colombia, in work involving vibration and noise, supplementary protection measures include special selection and training of personnel and the reduction of working time and rotation of workers.[3] In Poland, besides technical measures, such other preventive activities are carried out as shortening of hours of work, introducing technological breaks (in forges 15-minute breaks every two hours on account of excessive noise), additional paid leave (6, 9 or 12 working days a year), payment of supplements for work in harmful, arduous or dangerous conditions, and providing meals with regenerative and preventive effects.[4]

508. In supervising the application of the Convention, the Committee of Experts consistently draws attention to the question of improving and increasing the protection of workers by such supplementary organisational measures.[5]

509. In general, such organisational measures of protection as are listed above have found wide use in the legislation and practice in countries where appropriate technical measures are also prescribed. However, they are very rarely found in the statutory provisions of those countries where technical measures of protection are also poorly developed.

(b) Provision and use of personal protective equipment

510. Technical and organisational measures of protection may be reinforced by the use of the individual means of protection. Article 10 of Convention No. 148 stipulates: "Where the measures taken in pursuance of Article 9 do not bring air pollution, noise and vibration in the working environment within the limits specified in pursuance of Article 8, the employer shall provide and maintain suitable personal protective equipment. The employer shall not require a worker to work without the personal protective equipment provided in pursuance of this Article."

511. Recommendation No. 156 further provides in Paragraph 12 that "the competent authority should, when necessary for the protection of the workers' health, establish a procedure for the approval of

---

[1] For example, Austria 3, s. 21, and the Report on C.148. The only ordinance adopted under this provision deals with work with compressed air.

[2] Argentina 5, s. 2, and Report.

[3] Colombia 2, s. 93.

[4] Poland - Report on Convention No. 148.

[5] Costa Rica - Direct request 1986; Portugal - Direct request 1986; Spain - Observation 1986.

personal protective equipment". In adopting this provision the competent Conference Committee agreed that even where formal approval might not be required, it should be open to the competent authority to exercise supervision over the standards of personal protective equipment.[1] The aim of this provision is to ensure that only such personal protective equipment as has been duly tested for efficiency according to a recognised method should be allowed in places of work.

512. As regards personal protective equipment against air pollution, the ILO Code of Practice on occupational exposure to airborne toxic substances harmful to health recommends (section 2.2.17) the use of appropriate respiratory protection and, if necessary, protective clothing, gloves, aprons, goggles, where a worker has to enter a contaminated atmosphere or where there is risk of contact with corrosive, radioactive or toxic substances.

513. Personal protective equipment against noise and vibration recommended by the ILO Code of Practice on protection of workers against noise and vibration in the working environment (sections 10.1.1 and 10.2.5) may consist of ear-plugs, ear-muffs, helmets and other specialised ear protectors, as well as of more complicated protection devices, such as soundproof booths and anti-vibration working platforms or stands.

514. The use of personal protective equipment is perhaps the one area where the legislation of the reporting countries shows the greatest uniformity of approach, as was already mentioned by the Committee in relation to the corresponding provisions of the instruments on the guarding of machinery. In virtually all of the reporting countries there are provisions requiring the supply of personal protective equipment to workers in case of exposure to occupational hazards and its proper maintenance and use by the persons concerned.[2]

515. In many countries procedures have been established for the approval of the personal protective equipment by the competent authorities, as, for example, in Ecuador, where it must conform to the specifications issued by the Ecuadorian Standardisation Institute.[3] Special national standards on different types of such equipment have been developed in a number of countries.[4]

516. There are, however, still many countries where the corresponding provisions are limited to establishing only general obligations on employers to supply individual means of protection to

---

[1] ILO: Record of Proceedings, ILC, 61st Session, 1976, p. 168.

[2] Argentina 1, s. 8(c), and 2, Annex I, Ch. 19; Austria 1, s. 11, and 4, Ch. VI; Colombia 1, ss. 122-123, and 2, ss. 176-177; Egypt 1, ss. 1(m), 7 and 9; Democratic Yemen 1, s. 77(b); German Democratic Republic 1, s. 206; Mexico 2, s. 132(XVI); Mongolia 1, s. 141; Philippines 1, Rule 1080; Poland 1, s. 227; San Marino 1, s. 141; Spain 2, s. 7(4); United Arab Emirates 2, ss. 5-6; USSR 1, s. 63.

[3] Ecuador 1, s. 88.

[4] For example, Brazil 7; Hungary 7; Mexico 4, No. 17; Spain 5; USSR 17; Venezuela 10; Yugoslavia 5.

workers where they are needed. In many countries the law specifies what equipment should be provided but covers only means of protection against inhalation of dangerous substances or their absorption through the skin.[1] Less often it provides for protection against noise.[2]

517. As regards individual means of protection against vibration, the Committee does not dispose of any examples from the information available where these means and equipment have been specified in the legislation. In supervising the application of Article 10 of the Convention in ratifying countries, the Committee has sometimes specifically inquired whether employers are required to provide personal protective equipment against vibration, and whether this equipment includes such items as double-layer gloves specially designed to prevent the transmission of vibrations through the hands, shoes with soles that absorb vibration transmitted by the ground, etc.

518. Clearly, as regards personal protective equipment against vibration, there is much scope for action and research to be done even in countries which otherwise have provided for various technical measures of combating this hazard. The ILO's facilities for conducting research in this area, and for collecting and disseminating information, should be more widely used by member States, as well as by the employers' and workers' organisations concerned. For the time being, not much has been done in this field, although reference may be made to the comprehensive bibliography on vibration compiled by the International Occupational Safety and Health Information Centre.

E. Supervision of the health of workers

519. The protection of workers' health and physical integrity is ensured mainly by technical measures for the elimination of hazards, but as long as these hazards do exist in the workplace suitable medical supervision of the workers is necessary. It is worth noting that the question of protection and supervision of the health of workers has long been one of the major preoccupations of the ILO, and is widely reflected in its standard-setting activity. A number of Conventions and Recommendations have been adopted over the years dealing with the question of medical supervision either in respect of particular categories of workers, or in connection with certain specific occupational risks. In 1985 the International Labour Conference adopted the Occupational Health Services Convention (No. 161) and Recommendation (No. 171), which constitute an important step in promoting further development of national systems of medical supervision of workers.

520. Supervision of the health of workers is also specifically provided for in Convention No. 148 and Recommendation No. 156 in respect of workers exposed to air pollution, noise and vibration. In

[1] For example, Côte d'Ivoire 2, ss. 4D 13, 4D 283-284, 4D 311; Malawi 1, s. 49; Togo 2, s. 5.

[2] Ecuador 1, ss. 13 and 87; Singapore 1, s. 56.

the context of their provisions three basic questions concerning the systems of medical supervision are considered in this section of the survey: (a) medical examination of workers; (b) a system of medical records; and (c) the situation of workers whose continued employment is medically inadvisable.

I. Medical examination of workers

521. Medical examination of workers consists of examinations conducted by physicians, and of biological and other tests or investigations which are usually prescribed and carried out on the occasion of the examination by the physician. The ILO instruments on the working environment provide for three types of medical examinations: pre-assignment and periodic, and supervision after cessation of the assignment. A distinction should be made between the pre-assignment medical examination and pre-employment examinations, which is another type of medical supervision not specifically covered by these instruments. In fact, a draft amendment aimed at providing in the instruments for pre-employment examinations was not adopted by the competent Conference Committee. The difference, as explained in the Committee, consists essentially in the fact that the expression "pre-assignment examination" referred to "any medical examination that took place before a worker was assigned or transferred to a given workpost, and that the worker could be already in the employ of the undertaking. The text under discussion did not deal with the question whether he should or should not be given a pre-employment medical examination".[1] In this context the role of the pre-assignment medical examination in providing a bench-mark necessary to evaluate the results of subsequent medical supervision was particularly stressed in the Committee.

522. Two other questions are directly related to medical examinations: the cost of examinations and tests, and whether they may be carried out during working hours.

523. Before examining the provisions of Convention No. 148 and Recommendation No. 156 in this connection, it should be pointed out that the question of medical examinations has been the subject of several other ILO instruments in the field of occupational safety and health, namely those already mentioned concerning benzene, occupational cancer and asbestos.

(a) Pre-assignment and periodic medical examinations

524. Article 11, paragraph 1, of Convention No. 148 stipulates: "There shall be supervision at suitable intervals, on conditions and in circumstances determined by the competent authority, of the health of workers exposed or liable to be exposed to occupational hazards due to air pollution, noise and vibration in the working environment. Such supervision shall include a pre-assignment medical examination

[1] ILO: Record of Proceedings, ILC, 63rd Session, 1977, p. 368.

and periodical examinations, as determined by the competent authority." This provision of the Convention is further developed in Paragraph 16(1) of Recommendation No. 156.

525. This Article establishes the principle of medical supervision of the workers concerned while allowing great flexibility in its implementation. It is in fact left to the competent authority to decide in which cases pre-assignment and periodical medical examinations should be carried out and to fix the methods and conditions under which they shall take place. Attention should be drawn, however, to the preventive aspect of this provision, which extends the medical supervision not only to the exposed workers but also to workers "liable to be exposed" to hazards concerned.

526. In the second subparagraph of Paragraph 16 of Recommendation No. 156 it is recommended that "the competent authority should require that the results of any such examinations or tests be made available to the worker, and at his request to his personal physician". In view of some concern expressed in the competent Conference Committee on the possible ethical difficulties and interference in the patient-physician relationship in connection with this provision, it was explained that making the results of examinations available to the worker "signified the worker's right simply to be informed of the technical results of these examinations, and that it was not a matter of telling him the diagnostic conclusions to which these results might lead".[1]

527. An examination of the legislation of the reporting countries as concerns requirements for medical examinations of workers shows that several basic approaches exist. These may be divided into three categories:

(a) establishment of a universal system of medical supervision covering the whole of the national workforce;
(b) providing for special medical supervision of workers exposed to occupational hazards; and
(c) laying down requirements for general as well as special medical examinations for particularly vulnerable categories of workers.

528. The legislation in some countries establishes a universal system of medical supervision of workers, providing that all employees must be medically examined before starting work and periodically thereafter in order to determine their fitness for the particular type of work to be undertaken. In Poland, for example, as well as in some other socialist countries, every worker should be given initial and periodic medical examinations and clearance tests.[2] Both types of examinations are required also in Democratic Yemen.[3]

529. In France, the Labour Code requires that all employees should have an annual medical examination. They should also be examined after a change of employment, and when a worker returns to work after absence due to disease or accident, repeated absence from work or maternity leave.[4]

---

[1] ILO: Record of Proceedings, ILC, 63rd Session, 1977, p. 372.
[2] Poland 1, s. 216.
[3] Democratic Yemen 1, s. 83(a).
[4] France 1, ss. R. 241-48 to R. 241-51.

530. In the Federal Republic of Germany, all employees must be examined within 12 weeks of starting work and at subsequent intervals prescribed for different activities, to determine fitness for their particular employment. Employees may also request an examination to be carried out due to a suspected connection between an illness and their employment.[1]

531. This requirement that all workers be covered by regular medical supervision, wherever they are employed, is closely linked with the development of occupational medical services in the countries concerned. These services usually have a general duty to supervise the health of workers, to undertake the necessary medical examinations, to keep health records and to report accidents.[2] Under this duty the occupational medical services in some countries carry out medical examinations of workers in the undertakings where such services exist, even though there are no specific legislative provisions requiring workers to be examined.[3] In many countries where occupational medical services are organised in certain industries and/or in undertakings of a specified size, the general tendency is to extend the structure of these services progressively to include the industries, undertakings and categories of workers not yet covered.

532. In an increasing number of countries several national programmes of promoting occupational medicine are being carried out at all levels of the economy. In Colombia and in the Philippines, for example, medical supervision of workers forms part of the programme of preventive medicine in workplaces, which is organised in every undertaking.[4] Provision of pre-assignment and periodical medical examinations is also envisaged in the National Occupational Health Plan of Costa Rica. As the Government indicated in its last Article 22 report, the requirement as to medical examination of workers contained in section 285 of the Act respecting occupational risks, is being put into effect by stages with the favourable reaction of the employers. Medical supervision of workers provided under different national arrangements as a rule includes pre-employment and periodical examinations, but sometimes may be considerably more elaborate. In Argentina, for example, six types of medical examinations of workers are provided for in the legislation: pre-employment examination, examination for adaptation to a job, periodical, before changing work, after prolonged absence from work and before leaving the undertaking.[5]

533. In some countries general medical supervision of all workers is provided only for pre-employment examinations. For example, pre-employment medical check-ups for all workers to be employed in a

---

[1] Federal Republic of Germany 5, s. 17.

[2] For example, Argentina, Belgium, France, the Netherlands and Spain.

[3] For example, in Denmark.

[4] Colombia 1, ss. 125-127, 4, s. 30, and 2, s. 2(c); Philippines 1, Rule 1960.

[5] Argentina 2, Annex I, s. 23.

factory are required in Nepal.[1] A contract of employment may not be concluded without a medical examination in Bolivia.[2]

534. In Belgium, all persons under 21 years of age should undergo an examination before beginning work.[3]

535. The second of the above-mentioned general approaches which is followed in the majority of countries, consists in providing medical supervision (pre-assignment and periodical) for workers exposed to particular risks in the working environment. These risks may be defined in terms of industries or processes in which workers are employed,[4] by substances and other agents to which they may be exposed,[5] or by occupational diseases which they may risk contracting.[6]

536. In the socialist countries with centrally planned economies special medical supervision is obligatory for workers engaged in arduous jobs or jobs with unhealthy or dangerous conditions[7] or if the work involves a health risk for the worker or constitutes a danger to life and limb.[8] The same is provided if the general interest so requires[9] and in jobs connected with transportation.[10] In Yugoslavia all workers exposed to increased concentrations of harmful substances, to noise exceeding the permissible level and to vibrations are required to undergo pre-assignment and periodical examinations.[11] Moreover, in some of these countries the law stipulates that if a worker refuses to undergo a medical examination, he shall be prohibited from continuing to perform his work until he does so.[12]

537. For unhealthy occupations in Brazil which include exposure to air pollution, noise and vibration, medical examination is required upon entry into employment, every six months thereafter and upon the termination of employment.[13]

538. In France and Tunisia the law requires that occupational doctors spend one hour per month on medical supervision for every ten workers engaged in listed activities. These comprise any work habitually involving the preparation, use, handling or exposure to

---

[1] Nepal 1, s. 15 A.
[2] Bolivia 1, s. 95.
[3] Belgium 1, Title II-3, s. 125.
[4] For example, Brazil 6.
[5] For example, San Marino 1, s. 128 and annexed table; Singapore 1, s. 62 and Seventh Schedule, and 2 (excluding vibration).
[6] For example, Belgium 1, Title II 3, ss. 125 and 128bis; Egypt 3, s. 122, and 4; Gabon 3, s. 5; Kuwait 4, ss. 1 and 3; United Arab Emirates 1, s. 95.
[7] German Democratic Republic 1, s. 207; Mongolia 1, s. 145; Ukrainian SSR 1, s. 169; USSR 1, s. 65.
[8] Hungary 1, s. 52(2), and 8.
[9] Hungary 2, s. 79(1)
[10] Hungary 2, s. 79(1); Mongolia 1, s. 145; USSR 1, s. 65.
[11] Yugoslavia 7 and Article 22 Report.
[12] Hungary 2, s. 79(2).
[13] Brazil 6.

listed chemical agents and any of a list of specific activities including exposure to noise over 85 dB(A) and to vibration in case of the use of hand pneumatic tools.[1] In deciding which workers are "habitually exposed" and should be specially supervised, the occupational doctor takes into account the following factors: duration and frequency of exposure to the hazard, nature and gravity of the hazard and the health of the individual employee.[2]

539. In Italy, fifty-seven risk factors (mostly chemical substances) in a number of defined activities and processes are listed as requiring medical examinations of workers exposed to them. The list includes activities exposing workers to vibration and shocks (use of pneumatic tools) and to noise, in case of which annual medical examinations are required. Workers in firms where processes entailing such risks are carried out, but who are not employed on the processes themselves, are also required to undergo regular medical examinations if the labour inspectorate feels they are exposed to risks. The inspectorate may order examinations of workers engaged in processes other than those on the list, which expose workers to similar risks and which are subject to compulsory insurance against occupational disease.[3] Under separate legislation where cases of lead poisoning have been notified, medical examinations must also be carried out.[4] Other statutory provisions establish medical supervision of young workers.

540. In some of the developed countries, however, in addition to the majority of the developing countries, statutory provisions requiring medical examinations of workers exposed to occupational hazards are very scarce and cover only a very small minority of the national workforce. The Committee of Experts has regularly requested governments of countries which have ratified Convention No. 148 to advocate measures being considered with a view to ensuring the medical examination of exposed workers, other than those covered by the existing regulations.[5]

541. The periodicity of medical examinations varies considerably, not only from country to country, but also depending on the intensity of the hazards to which workers may be exposed. As concerns air pollution, for example, in Austria different frequencies of medical examinations are established depending on the kind of pollutant to which a worker is exposed, and may be required at intervals between three months and two years.[6] This approach is typical for countries which have provided for periodical examinations of workers exposed to dangerous substances. As concerns noise, the diversity is more apparent. In Colombia, for example, audiometric supervision of workers is required every six months,[7] in Argentina pre-employment

[1] France 2; Tunisia 3.
[2] France 3.
[3] Italy 5, ss. 33-34.
[4] Italy 7.
[5] For example, see United Kingdom - Direct request 1986.
[6] Austria 1, ss. 8 and 2.
[7] Colombia 2, s. 91.

examination should be followed by an examination after the first six months of work and every year thereafter,[1] and in Austria periodic examination of workers exposed to noise should be carried out every three years. Such examinations concern in many countries only workers exposed to noise levels exceeding the permissible maximum, e.g. 85 dB(A). The Committee of Experts has had occasion to point out in its comments on the application of the Convention that "according to the Convention all workers exposed to occupational hazards due to noise or vibration (or to air pollution), and not only those exposed to levels exceeding the permitted maximum, must be kept under medical supervision".[2]

542. The third general approach to be noted here consists in providing in the occupational safety and health legislation for medical examination of certain particular classes of workers, notably young workers, women workers (especially pregnant women and mothers of young children) and workers who have been absent from work or who have changed jobs. In carrying out the examination of these particular categories of workers, account is taken of their possible exposure to occupational hazards in the working environment including those connected with air pollution, noise and vibration. For these hazards more frequent medical examinations may often be prescribed. In some cases, such examinations are also prescribed for workers responsible for equipment and materials which may present a danger to others, which is of course aimed at protecting other persons through medical supervision of these workers.

(b) Medical supervision after cessation of the assignment

543. Apart from pre-assignment and periodic medical examinations, the Conference thought it useful to consider the question of continuing medical supervision when the worker is no longer liable to certain particularly insidious forms of exposure, to be determined by the competent authority. It is well known that a long period may elapse between exposure to some hazards and the manifestation of their effects. Whether for epidemiological reasons, for the long-term verification of the effectiveness of preventive measures or to facilitate immediate action against delayed effects, the principle of continued medical supervision was incorporated in the conclusions of the Meeting of Experts on Control of Atmospheric Pollution in the Working Environment, held in 1973, and it appears in the instruments concerning the prevention of occupational cancer and safety in the use of asbestos.

544. This principle was also discussed and developed by the Conference in elaborating the instruments on the working environment with a view to applying it to certain other forms of exposure that are particularly insidious or whose action remains ill-defined. Paragraph 16(1)(d) of Recommendation No. 156 states that the supervision of the

[1] Argentina 2, Annex I, ss. 24(8) and 92.
[2] Ecuador - Direct request 1984.

health of workers provided for in Article 11 of Convention No. 148 should include, as determined by the competent authority, "medical examinations or biological or other tests or investigations after cessation of the assignment which, when medically indicated, should be made available as of right on a regular basis and over a prolonged period".

545. This provision gave rise to a lengthy discussion in the competent Conference Committee, a number of governments pointing to the difficulties that might arise in carrying out medical examinations after cessation of the assignment. Reference was made in particular to the case of migrant labour, and it was suggested that international agreements between national social security systems would no doubt have to be established on this matter in the future. In the Office commentary following the first discussion it was said that "the Office realises that the application of this provision is likely to raise certain difficulties as regards organisation and administration but this is a new approach to the problem of protecting the health of workers who, because of their work, are exposed to particular hazards. Practical experiments are being carried out in certain countries with certain limited groups of workers exposed to the risk of cancer caused by chemical products and ionising radiation. This work will no doubt have to be extended to other types of risks and other groups of workers in so far as it is not technically possible to keep in check the aggressive agents dealt with in the proposed Recommendation".[1]

546. Some comments may be necessary as to the substance of this provision of the Recommendation. First, it is for the competent authority to determine what medical examinations or tests should be made available. Second, medical examinations or tests to be provided after cessation of the assignment do not cover all cases but only those for which they are "medically indicated". Taken together these two considerations ensure that the Recommendation is sufficiently flexible on this point. Third, this provision places no obligation on workers to accept such examinations but makes these examinations available to workers concerned "as of right".

547. Two situations are to be considered in practice in respect of the use of this right. In the first place, it would be fairly easy to ensure continuous medical supervision of workers if they remained employed within the undertaking after leaving the assignment that exposed them to particular hazards. In this case the employer may be obliged to ensure that the employee is examined periodically. Such supervision, for example, may continue to be exercised by the occupational medical service of the undertaking, where such exists. Another and more difficult situation emerges where previously exposed workers leave the undertaking. They may then be working for a different employer or stop working altogether. In fact, during the discussion of this provision it was pointed out that it would be difficult to oblige workers to undergo an examination if the work relationship had come to an end. In that case continuous medical

[1] ILO: Working Environment, Report IV(2), op. cit., p. 47.

supervision should be made available to workers through some kind of special arrangement provided by the competent authority within, for example, the framework of the laws and regulations on preventive measures. Here the Recommendation suggests actions on the part of the competent authority such as requiring that the results of any medical examinations and tests be made available to the worker or to his personal physician, and development of an appropriate system of records of medical information to be kept for a sufficiently long period of time.

548. As to the practical implementation of the Recommendation in respect of medical supervision after cessation of the assignment, the information available to the Committee does not yet permit any concrete evaluation of this issue. However, some information is available in connection with keeping medical records (see below).

(c) Carrying out supervision free of cost and in working hours

549. Article 11, paragraph 2, of Convention No. 148 requires that the supervision of the health of workers provided for in the Convention "shall be free of cost to the worker concerned". Paragraph 17 of Recommendation No. 156 provides, besides the gratuity, that this supervision "should normally be carried out in working hours". The expression "normally" in this case provides for work situations where, as for example for night work, it is not possible for medical examinations to be carried out during working hours. In addition certain specialised examinations can be carried out only at specific times of day, which may not correspond to working hours.

550. The principle that medical examinations should not involve the workers in any expense and should be carried out as far as possible in working hours, without any reduction in workers' pay, has found wide recognition in a number of ILO instruments in which questions of occupational medicine have been considered. As a principle of general application it was recently included in Article 12 of the Occupational Health Services Convention, 1985 (No. 161). Other instruments cited earlier establish this principle in respect of workers exposed to benzene, carcinogenic substances, radiation and asbestos.

551. The principle of free medical examinations is now commonly recognised in the legislation of nearly all countries which provide for such examinations. In the socialist countries, where the cost of medical services is borne by the State, the law simply stipulates that medical examinations shall be free of charge[1] adding sometimes an additional guarantee that any expenses incurred in this connection shall be repaid to the worker.[2] In other countries the formula most often used in the legislation is that the cost of medical examinations should be borne by the employer.[3] This is also the general practice

[1] For example, German Democratic Republic 1, s. 207; Poland 1, s. 216(4).

[2] Hungary 2, s. 79(3).

[3] For example, Norway 1, ss. 11 and 14(c); Singapore 2, s. 7(1); Sri Lanka 1, s. 104(9); Tunisia 2, s. 156.

in countries where there are no express provisions on medical examinations being free of cost to the workers[1] or where these provisions are worded in an impersonal way.[2] In a number of countries, though, different arrangements may be made whereby medical examinations are provided at the cost of the government or of accident insurance bodies, and voluntary and benevolent organisations are also active in this field in some countries.

552. As regards carrying out medical examinations in working hours without any reduction in the workers' pay in the majority of countries the legislation is still silent on this point, but some have covered it. In one country, for example, it is provided that workers should be granted paid leave of absence for such examinations[3] and in another it is specified that no loss of pay should be encountered by workers but not that the examinations be carried out in working hours.[4] In still another country the law specifically requires conducting examinations outside working hours.[5]

II. System of records of medical information

553. The question of establishment of a system of records of medical information concerning workers exposed or liable to be exposed to air pollution, noise and vibration is considered in Paragraph 18 of Recommendation No. 156. This was not the first ILO instrument to provide for the establishment of a system of medical records for certain categories of workers exposed to occupational hazards. Its provisions were based on analogous provisions included in earlier international labour standards and on the experience gained by the Office in supervising their application, all the more so because the systems of medical records set up under those instruments may be regarded, and in fact are regarded in some countries, as elements forming part of the more general system of records provided for in Recommendation No. 156. Thus, medical records are required in ILO instruments in respect of workers exposed to ionising radiations, to carcinogenic substances or agents, and to asbestos, and in a more comprehensive manner in the Occupational Safety and Health Recommendation (No. 164), 1981.

554. The attention given in various ILO instruments to the question of establishing national systems of records of medical information concerning workers exposed to different occupational hazards, reflects the importance of such measures in the general framework of national occupational safety and health policies. Obviously, for the countries which have ratified some or all of the above-mentioned instruments, sooner or later a problem may arise of bringing together different systems of records established under these

---

[1] For example, India - Report; Japan - Report; Sweden - Article 22 Report.

[2] United Kingdom 2, s. 9.

[3] Singapore 2, s. 7(2).

[4] Austria 1, s. 8(5) and Report on R. 156.

[5] Poland 1, s. 216(4).

instruments into a coherent national pattern. The development of a national occupational health service may provide the necessary structures for administration and co-ordination of the existing systems of records. In other countries, the provisions of the above-mentioned Conventions and Recommendations may usefully be taken into account at the initial and later stages of the process of instituting a national system of medical records for workers exposed to air pollution, noise and vibration hazards in the working environment.

555. The basic elements in the process of establishing a system of medical records, which may be compiled from the mosaic of national statutory provisions concerning medical surveillance of workers, consist of the following requirements:

(a) Employers must keep registers of workers employed in hazardous occupations[1] or exposed to specified harmful agents in specified activities[2] in order that they may undergo regular medical examinations or for other purposes.

(b) Employers must keep registers of workers suffering from occupational or other diseases[3] and registers of occupational accidents.[4] Lists of recognised occupational diseases are established by law or regulation.

(c) Individual records of medical examinations of workers should be kept in the undertaking,[5] as should a special register for such examinations.[6]

(d) Suspected and confirmed cases of occupational diseases, as well as cases of occupational accidents, are generally required to be reported to the competent authorities (sometimes also to the organisation responsible for occupational insurance) either by the employer himself or by the doctor attending the case. Dangerous incidents and findings of unfitness for work must also be reported in some countries. A copy of a report made is kept in the worker's health record.[7] A register including information on all incidents should be kept in every factory and an annual report should be made to the inspectorate.[8]

(e) The competent authority prescribes special report forms for notifiable occurrencies or, more generally, criteria may be established for compiling registers of biostatistical data on the health of workers for uniform use in the regional or national framework.[9] "Biostatistical" data comprises the statistical results of physical examinations and periodical medical tests, as

---

[1] Singapore 2, s. 9.
[2] Italy 5, s. 33.
[3] Kuwait 2, s. 27.
[4] Denmark.
[5] Austria 2, s. 5; Brazil 6; Sweden 1, Ch. 3, s. 17.
[6] Egypt 4, s. 5; Kuwait 4, s. 4.
[7] For example, Belgium.
[8] For example, the United Kingdom.
[9] For example, Italy 3, s. 27 and Regional Law for Lombardy No. 64 of 25 October 1981, ss. 18-19.

well as data on absences from work due to occupational diseases or accidents.

(f) Workers as well as their personal physicians are informed of any pathological effects on health revealed as a result of medical examinations.[1]

(g) Where health records are kept for individual employees, when leaving employment they should usually be given a copy of the records to be shown to their next employer or doctor. Alternatively such records should be kept in the establishment (by the occupational medical services for example) for a prescribed period of time.[2] Such records, if they are not kept by the undertaking, may be given to the departing worker by the local competent authorities if the workers concerned were engaged in the operations liable to cause cancer or other serious health impairment.[3] If upon termination of employment the examination shows an occupational disease, the undertaking is obliged to inform the competent service for further medical supervision of the worker concerned.[4] In this respect a general principle is established in one country according to which "the Government shall take the necessary measures in connection with the medical examination of a person in possession of a personal health record".[5]

(h) At the regional level, combined registers of biostatistical data and personal health records may be created and maintained by the competent authorities who have the right of access to the data contained within them. In Lombardy, Italy under the regional law made in implementation of Act No. 833 on the National Health Service, local health units keep records of workers exposed to special listed substances compiled from information provided by employers or collected by the units themselves. Employers are required to provide information to local health units on the type of processes used in their firms, including their toxicological characteristics. From these records they compile a record of special work risks, a copy of which is given to workers to inform their own doctors and other local health unit services of the risks they may face. They also draw up risk maps for the various industrial sectors within their area, for different types of firms and for certain specific manufacturing units.[6]

(i) Finally, an example of the comprehensive measures to be taken at the national level is provided by the legislation of Argentina where the Secretariat of Public Health is obliged to establish and maintain the National Register of Health which should contain

---

[1] Argentina 2, Annex I, s. 28.

[2] In Belgium, for example, for three years after the employee has left the company.

[3] Japan 1, s. 67(1).

[4] Brazil 6.

[5] Japan 1, s. 67(2).

[6] Italy - Regional Law for Lombardy No. 67 of 25 October 1981, ss. 18-19 and 22.

pathological data of pre-employment and periodical examinations or examinations following occupational accidents or diseases, thus constituting a health history of each worker in his employment in different areas of the country and in changing occupations in the area of residence.[1]

(j) In many countries occupational health statistics and other related data are published annually by the competent authority.

556. All of the measures described here figure in the legislation of different countries, though no country has as yet adopted a system of medical records as extensive as this. This description may, however, serve as a model for national administrations setting out on the way toward creating a comprehensive system.

III. Situation of workers whose continued employment is medically inadvisable

557. It is evident that in some cases medical supervision of workers may reveal that continued employment involving exposure to a given occupational hazard would adversely affect worker's health and is therefore medically inadvisable. In such cases it is important to protect the worker against the negative effects, both on his income and on his career, that may result from measures taken in consequence of the medical examinations.

558. Article 11, paragraph 3, of Convention No. 148 and Paragraph 19 of Recommendation No. 156 thus include the following provision: "Where continued assignment to work involving exposure to air pollution, noise or vibration is found to be medically inadvisable, every effort shall be made, consistent with national practice and conditions, to provide the worker concerned with suitable alternative employment or to maintain his income through social security measures or otherwise."

559. Whereas certain earlier ILO Recommendations[2] dealing with exposure to specific risks already suggested helping the workers concerned by finding them alternative employment in such cases, Convention No. 148 was the first Convention in the field of occupational safety and health to include such a requirement. It also extended the scope of the positive measures that may be taken in such cases by including the possibility of maintaining the income of the worker concerned through social security measures or otherwise. Maintaining income through payment of social security benefits may sometimes be the only solution to protecting a worker whose exposure in the course of his work has made him physically unable to pursue any productive employment. It was agreed in the competent Conference Committee that the aim of this provision was to ensure that there should be no loss of income for the workers concerned. The expression "or otherwise" in this context, as appears from the discussions in the competent Conference Committee, was intended to make it possible to

[1] Argentina 2, Annex I, s. 25.

[2] Radiation Protection Recommendation (No. 114), Paragraph 27, and Occupational Cancer Recommendation (No. 147), Paragraph 14.

take into account the various administrative structures of the compensation systems adopted by different countries within social security or similar schemes.[1]

560. This provision is obviously of a "promotional" character, which is clearly reflected in its wording. It states that "every effort shall be made ...", and necessarily carries a wide measure of flexibility as to its application which should be "consistent with national practice and conditions". The Committee of Experts draws particular attention to this point, as this language is aimed at obviating the difficulties that countries might otherwise have in ratifying the Convention.

561. The first thing that appears in reviewing the legislation and practice of the reporting countries is that increasing attention and care is being provided for handicapped workers and workers who find themselves in a disadvantaged situation because of health troubles, reduced working capacity, age, etc. This tendency is reflected in the growing volume of specific regulations to that effect in different fields of labour law, occupational safety and health, social security, employment security legislation, as well as special legislation concerning rehabilitation and reintegration of handicapped workers. It may be recalled that on the international level the ILO adopted in 1983 the Vocational Rehabilitation and Employment (Disabled Persons) Convention (No. 159) and Recommendation (No. 168), which deals with this subject.

562. A great variety of national provisions and practical arrangements have been taken which give effect to these requirements of Convention No. 148 and Recommendation No. 156. Many governments have indicated in their reports that if medical examinations detect health problems, the social security services or the occupational health services ensure the worker's treatment or rehabilitation. As concerns the ratifying countries, the Committee of Experts has consistently inquired in such situations as to the specific measures taken to provide workers with suitable alternative employment after such treatment or rehabilitation, particularly if they are not entitled to social security benefits, as well as about other measures aimed at maintaining workers' income.[2] Some examples of the measures taken by reporting countries are given below.

563. In the socialist countries comprehensive regulations exist concerning workers who must seek different employment for medical reasons. In these countries the management of the undertaking is obliged in the first place to employ handicapped workers and provide them with more favourable working conditions in accordance with medical recommendations.[3] In hazardous undertakings, sheltered workposts for this purpose are created, as well as vocational

---

[1] ILO: Record of Proceedings, ILC, 63rd Session, 1977, pp. 372 and 368.

[2] For example, Brazil - Direct request 1986; Spain - Direct request 1983.

[3] For example, Mongolia 1, s. 147.

rehabilitation workshops.[1] The management is also obliged to transfer to easier jobs workers whose state of health makes this necessary, with the consent of the individual concerned.[2] In such cases the undertaking should offer to the worker concerned another reasonable job corresponding to his abilities and state of health, either in the same undertaking or, if this is not possible, in another one; the undertaking must also arrange for the worker to receive the necessary training for the new job and to reimburse any expenses connected with such training.[3]

564. Where the worker is transferred, on the advice of a medical practitioner, to other work not exposing him to the hazard, and such transfer results in a lower rate of remuneration, the worker is entitled to a compensatory allowance paid by his establishment for a maximum period of three months[4] or of six months[5] from the date of transfer. In certain cases the worker may continue to be paid his previous average remuneration for the entire duration of his transfer to the lower-paid job, or he may draw an allowance from the State social insurance.[6]

565. Similar provisions exist also in other countries. In Norway, if an employee has become handicapped in his occupation as the result of accident, disease, overstrain or the like, the employer shall, to the extent possible, effect the necessary measures so as to enable the employee to be given or to retain suitable work. Preferably the employee shall be afforded the opportunity to continue his normal work, possibly after special adaptation of the work, alteration of technical apparatus, rehabilitation or the like.[7]

566. In Japan, where, as a result of medical examinations, it is deemed necessary for preserving the health of workers, the employer shall take such steps as change of workplace, change of work, reduction of the hours of work, and in general establishment and improvement of facilities and arrangements, taking into consideration the actual situation of the workers concerned.[8]

567. In Sweden the 1974 Promotion of Employment Act includes rules aimed at improving the prospects of employees with reduced work capacity, among others, to obtaining and retaining employment. Special adjustment groups, according to the Government, operate under this Act to improve working conditions for such employees. It is also the duty of the safety committee and the safety delegates elected in the undertakings to consider matters concerning the disabled. In several companies personnel health services see to the transfer of employees to alternative duties. The Government indicates, moreover, that the 1982 Security of Employment Act does not include age, illness

---

[1] Poland - Report.
[2] Mongolia 1, s. 146; USSR 1, s. 66.
[3] German Democratic Republic 1, s. 209.
[4] Poland 1, s. 217.
[5] Mongolia 1, s. 84.
[6] USSR 1, s. 66.
[7] Norway 1, s. 13(2).
[8] Japan 1, s. 66(7).

or reduced work capacity among the objective grounds for dismissal. As to maintaining the income of the workers concerned, under the Social Insurance Act an employee can receive a sickness allowance for up to one year while undergoing vocational rehabilitation. The full allowance is, however, payable only if the work capacity of the employee is reduced by at least in half.[1]

568. In a number of countries there are no express provisions in the legislation for securing alternative employment for workers who cannot continue in their present job for medical reasons, but in many of them provisions exist for maintaining the income of such workers for a certain period of time. In the United Kingdom, for example, the Employment Protection (Consolidation) Act, 1978 provides that employees who are suspended from normal work under special health and safety regulations have the right to receive normal pay for every week of suspension up to a maximum of 26 weeks. This obligation is viewed as a sufficient guarantee that the employer will take measures to find alternative work for the worker concerned. The Act also provides for non-payment of the worker's salary in respect of any period for which the employer has offered to provide him with suitable alternative work and the employee has unreasonably refused to perform this work.[2]

569. Finally, some arrangements, mostly of a practical nature, may be found in a number of countries where no legal provisions exist requiring that a worker in this situation should be provided with suitable alternative employment or that his income should be maintained by other measures. This is the case, for example, in Austria where the law states that no worker shall be called upon to do any unhealthy work if his state of health does not permit such employment[3] but provides no guarantees as to the future employment of the worker concerned. However, as the Government pointed out in its report, in accordance with section 211 of the General Social Insurance Act, a transitional pension not exceeding the amount of the full pension may be granted for up to one year to persons for whom the pursuit of their previous occupation involves the risk of contracting an occupational disease or aggravating an existing disease. The purpose of this pension is to enable them to become adapted to another occupation that does not expose them to such risks and to compensate for any reduction in earnings or other financial loss resulting from such change.[4]

---

[1] Sweden - Article 22 Report, 1984.

[2] The United Kingdom - Employment Protection (Consolidation) Act, 1978, ss. 19-20.

[3] Austria 1, s. 8(1), and 2, s. 1.2(1).

[4] Austria - Report.

CHAPTER III

MEASURES IN COMMON

570. Certain basic principles have emerged from the ILO's experience in setting international standards which are invariably included, with suitable adaptations, in all instruments on a given subject. Three such subjects are dealt with here as concerns both guarding of machinery and the working environment: (1) the role of employers' and workers' organisations in implementing the instruments, (2) information and training of workers, and (3) measures of supervision and application.

A. Role of employers' and workers' organisations

I. Consultations with employers' and workers' organisations

571. It has long been recognised that tripartite consultations are an effective means of achieving the objectives of international labour standards, and provisions to ensure this constitute a common feature of all ILO Conventions and Recommendations adopted since the Second World War. There are some instruments which deal with subjects where the need for these consultations is particularly strongly felt, including the standards concerning occupational safety and health. The special provisions for consultations with employers' and workers' organisations which are included in these standards reflect the vital role they play in ensuring protection of working people against hazards in the working environment.

572. Article 16 of Convention No. 119 provides that "any national laws or regulations giving effect to the provisions of this Convention shall be made by the competent authority after consultation with the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations". The same provision is contained in Paragraph 19 of Recommendation No. 118.

573. Several other Articles of the Convention include specific requirements that measures to implement them be taken only after consultations with these organisations. These provisions are the following:

- Article 1(2): decisions to determine whether and how far manually driven machinery shall be covered; the initiative for consultation can be taken by employers' and workers' organisations themselves;
- Article 5(3): provision for temporary exemption from the prohibition of the sale, hire, transfer in any other manner or

exhibition of machinery without appropriate guards (also Paragraph 5(3) of the Recommendation);
- Article 9(3): provision for temporary exemption from the prohibition of use of machinery without appropriate guards (also Paragraph 10(3) of the Recommendation);
- Article 17(2)(a): determination of the undertakings or branches of economic activity where machinery is extensively used for the purpose of limiting the scope of application of the Convention by a declaration; the initiative for consultation can be taken by employers' and workers' organisations themselves.

574. Convention No. 148 refers to tripartite consultations as a general principle to be applied in implementing national measures, both of legal and practical character, for the prevention and control of, and protection against, occupational hazards in the working environment due to air pollution, noise and vibration. Such consultations are thus regarded as an essential element in constructing the statutory and operational framework of the national policy with regard to the safety of the working environment along the lines laid down in Article 4 of the Convention. Article 5 of Convention No. 148 provides in its first two paragraphs that in giving effect to the provisions of this Convention, the competent authority shall act in consultation with the most representative organisations of employers and workers concerned; and that representatives of employers and workers shall be associated with the elaboration of provisions concerning the practical implementation of the measures prescribed in pursuance of Article 4. The words "in consultation" were used in this Article instead of the more usual expression "after consultation" to point out that there may be several levels of consultation at various stages in the procedure established to give effect to the provisions of the Convention, and that these organisations should be actively involved in the processes of decision-making and implementation.

575. This principle of associating employers' and workers' organisations in the implementation of the measures required by the Convention is further reflected in a number of other provisions of Convention No. 148 expressly requiring their previous consultation or the use of other methods of taking account of their opinion. Previous consultations of employers' and workers' organisations concerned are required for ratifying States by Article 1, paragraph 2, and Article 2, paragraph 1, in respect of any exception that may be made under the Convention. Also, the opinion of technically competent persons designated by the most representative organisations of employers and workers concerned shall be taken into account by the competent authority in the elaboration of the criteria and the determination of exposure limits, in accordance with Article 8, paragraph 2, of the Convention.

576. Following the approach taken by the Convention, Recommendation No. 156 also provides in a general manner in Paragraph 27 that, in giving effect to its provisions, the competent authority should act in consultation with the most representative organisations of employers and workers concerned. The obligation of the competent authority to consult these organisations is specially emphasised when it takes measures, provided for in Paragraph 13 of the

Recommendation, with a view to the reduction of exposure through suitable systems or schedules of work organisation, including the reduction of working time without loss of pay. Finally, according to Paragraph 22(1) concerning promotion of research in the field of prevention and control of hazards in the working environment, the competent authority should act in this area "in close co-operation with employers' and workers' organisations".

577. As was pointed out in the Committee's recent survey on Tripartite Consultation (International Labour Standards), the obligation to consult employers and workers or their organisations before the enactment of legislation or regulations, or in regard to the application of certain of their provisions, or as to derogations or optional exceptions, is the most frequently used form of provisions to associate workers and employers in the implementation of Conventions, and is found in over 60 Conventions.[1]

578. In practical terms the Committee of Experts has not, of course, considered that these Conventions require that measures already taken by ratifying countries at the time of ratification should have been taken only after consultations. However, any new measures taken subsequent to ratification, and any review or modification of the provisions contained in national legislation or regulations to comply with the Convention's requirements, should be carried out only after the consultations to which the Convention refers.

579. In one case in which the Committee inquired from a ratifying country whether new legislation was adopted in consultation with the organisations concerned, the Government indicated that employers' and workers' organisations are consulted only when laws are being drafted, while the adoption of ministerial decisions is a prerogative of the competent Minister. The Committee pointed out "that the Convention provides for any national laws or regulations giving effect to the Convention to be taken by the competent authority after consultation with the most representative organisations of employers and workers concerned" and expressed the hope that in future such consultations would take place.[2]

580. Attention should also be called to the Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144), which requires ratifying States to hold consultations at appropriate intervals with organisations of employers and workers on among other things, the effect to be given to other ILO instruments and the accompanying Recommendation No. 152 calls for similar consultations.

---

[1] ILO: Report of the Committee of Experts on the Application of Conventions and Recommendations, Report III (Part 4B): Tripartite Consultation (International Labour Standards), ILC, 68th Session, Geneva, 1982, p. 3.]

[2] Kuwait - Direct request 1985, Convention No. 119.

(a) General measures for consultations on safety and hygiene

581. In most countries in which mechanisms for tripartite consultations have been established, there would appear to be a general arrangement for consultations with the organisations concerned, with regular meetings or other methods to ensure that their views be heard on any matters that concern them.[1] In some countries such mechanisms include tripartite bodies with special responsibility in occuptional safety and health.[2] Autonomous bodies also exist at the national level for safety and health in agriculture.[3]

582. There are examples where elaboration of new legislation is confined to special tripartite committees.[4]

583. In Congo the Government intends to reactivate the work of the Technical Consultative Committee on Hygiene and Safety which comprises equal number of employers' and workers' representatives.[5]

584. In some countries procedures for consulation and co-operation with occupational organisations are established within the organisational framework of national plans for occupational health.[6]

585. Consultations with employers' and workers' organisations in the elaboration and supervision of the safety and health legislation are a long-established practice in the Nordic countries, where their representatives are included in the national bodies having special responsibility for safety and health issues. In Sweden, for example, the Working Environment Act was elaborated by a special commission which included representatives of employers' and workers' organisations.

586. In the socialist countries the trade unions have the right to participate in the formulation and implementation of labour law. They can present proposals for new legislation to the competent authorities at all levels, and exercise supervision over the observance of the existing labour legislation particularly in the field of occupational safety and health.[7]

(b) Measures of consultation on guarding of machinery

587. A number of the reporting countries stated generally in their reports that organisations of employers and workers were

---

[1] For more details see General Survey on Tripartite Consultation, 1982, op. cit., paras. 65-88.

[2] For example, Côte d'Ivoire , France, Israel, Madagascar, United Kingdom.

[3] For example, France.

[4] Algeria.

[5] Congo 1, s. 131 and Article 22 Report of 1984 on Convention No. 119.

[6] Colombia 4, ss. 10 and 36.

[7] For example, German Democratic Republic 1, s. 8.

consulted in the elaboration of the legislation or regulations on the guarding of machinery and in their application, most often through standing tripartite consultative bodies.[1]

588. The report of the Government of Colombia, which refers to a draft Basic Standard on the Guarding of Machinery, indicates that it was submitted to full tripartite consultations before transmission for final drafting to the National Committee on Occupational Health, which includes employers' and workers' representatives. Similar measures apply in Costa Rica, where the functions of an analogous body include preparation of draft laws and regulations.[2] The Government's report indicates, however, that the procedures of consultations with occupational organisations which have been used on occasion are still to be adopted on a systematic basis.

589. In a number of cases the relevant legislation or government reports indicate specifically that employers' and workers' organisations must be consulted before taking measures connected with the prevention of occupational accidents due to machinery.[3] In the USSR the state system of standardisation provides that all standards that contain requirements on occupational safety and health adopted at any level of the economy (national, republican, in any particular branch of industry or individual undertaking) should be approved after consultation with the respective trade union committee.[4] Consultation with the trade unions concerned is required already at the stage of initiating the technical work on drafting, revising or completing a standard.[5]

590. The reports of some countries do not contain any indication of whether employers' and workers' organisations were consulted when the legislation or other measures were adopted. Some of them stress nevertheless that these organisations co-operate to a varying extent in the application of the regulations in force, for example, through the work of safety and health committees created in the undertakings.[6]

591. Some reports indicate simply that the labour inspection service operates in close co-operation with the employers' and workers' organisations[7] or that they may be called upon to co-operate in the application of the provisions of this Convention through seminars, radio programmes, pamphlets, etc.[8]

---

[1] For example, Bahrain, Madagascar.

[2] Costa Rica 1, ss. 274(f) and 281.

[3] France 1, s. L.233-5; Tunisia 1, s. 4.

[4] GOST 1.0-68: State system of standardisation. Basic concepts, ss. 3.1.10-3.1.12; GOST 1.4-68: State system of standardisation. Procedure for development and approval of enterprise standards, s. 15.

[5] GOST 1.26-77: State system of standardisation. Procedure for preparation and co-ordination of safety requirements for inclusion in standards and specifications, ss. 3.1 and 3.2.

[6] For example, Burundi.

[7] For example, Burma.

[8] For example, Belize.

592. The Government of New Zealand indicated in its report that organisations of employers and workers are not called upon to co-operate in the application of the legislation but that from time to time they are consulted in order to develop agreed means of compliance with the Machinery Act in respect of machinery in particular industries, and these organisations would be consulted as a normal practice should any laws or regulations be changed to give further effect to the instruments on the guarding of machinery.

593. A number of reports highlighted the role of employers' organisations. One government stated, for example, that in conditions where most of the equipment was imported from abroad the employers' organisations are called upon to play an important role in making employers buying foreign machines more aware of the need to consider the safety aspect.[1]

594. Furthermore, the responsibility for initiating the consultations is not the exclusive prerogative of governments; employers' and workers' organisations may also request such consultations, inasmuch as no specific reference to the subject appears in the instruments. Moreover, as was pointed out earlier, Convention No. 119 and Recommendation No. 118 specifically recognise their right to initiate consultations on certain particular questions.

595. The importance of tripartite consultations in the field of occupational safety and health should not be overlooked by governments, whether or not any Conventions requiring it have been ratified. The representatives of the employers and workers in each country can make a valuable contribution to the decisions the government makes. The Committee of Experts wishes to point out that employers and their organisations must take a leading role in preventing occupational accidents and diseases and in improving conditions of work, and that they should seek and rely on the active participation of the workers' organisations in doing so.

II. Consultations with manufacturers' organisations

596. Apart from employers' and workers' organisations, Convention No. 119 requires that, as appropriate, manufacturers' organisations should be also consulted by the competent authority before any national laws or regulations giving effect to the provisions of this Convention are made (Article 16), and in case of allowing temporary exemption from the prohibition of the sale, hire, transfer in any other manner and exhibition of machinery without appropriate guards (Article 5(3)). Analogous provisions are found in Paragraphs 5(3) and 19 of Recommendation No. 118.

597. Some members of the competent Conference Committee considered that the instruments "did not need to be so explicit, since these organisations would in practice be consulted through employers' organisations".[2] It appears from the little information provided on

[1] Tunisia.

[2] ILO: Record of Proceedings, ILC, 46th Session, Geneva, 1962, p. 783.

this subject in governments' reports, that manufacturers' organisations are in fact generally consulted through employers' organisations. In some cases such consultations are, however, expressly provided for in the legislation. In Switzerland, for instance, representatives of the manufacturers or importers of machinery should be consulted by the competent authority before adopting ordinances laying down safety requirements for such machinery.[1]

III. Employer-worker collaboration

598. The importance of collaboration between employers and workers in questions of occupational safety and health is specially brought out by Convention No. 148. According to its Article 5, paragraph 3, "provision shall be made for as close a collaboration as possible at all levels between employers and workers in the application of the measures prescribed in pursuance of this Convention".

599. More concrete measures to apply this general principle are specified in a number of provisions referring to rights and facilities which should be afforded to workers and their representatives in order to collaborate effectively in the application of the prescribed measures. Convention No. 148 provides in its Article 7, paragraph 2, that "workers or their representatives shall have the right to present proposals, to obtain information and training and to appeal to appropriate bodies so as to ensure protection against occupational hazards due to air pollution, noise and vibration in the working environment". These rights of workers and their representatives would enable them to play an active role in the face of risks and to take the initiative regarding health protection by, as appropriate, making suggestions on safety and health matters, pointing out instances of non-compliance with regulations to the employer or to the inspectorate, and exercising a right of appeal where necessary. The fact that this provision refers to workers "or" and not "and" their representatives was due mainly to the difficulty related to the provision giving them a right to training, since this could not be given to workers' representatives foreign to the undertaking.[2]

600. The rights and facilities that should be given to workers and their representatives are further detailed in Paragraphs 21(2) and 24 of Recommendation No. 156. In Paragraph 21(2) it is recommended that "representatives of the workers of the undertaking should be informed and consulted in advance by the employer on projects, measures and decisions which are liable to have harmful consequences on the health of workers, in connection with air pollution, noise and vibration in the working environment". In order to be able "to play an active role in respect of the prevention and control of, and the protection against" defined occupational hazards, as provided by the

---

[1] Switzerland 1, s. 4(1)(b), and 2, s. 2.

[2] See ILO: Record of Proceedings, ILC, 63rd Session, 1977, p. 364.

Recommendation, workers' representatives within undertakings "should have the facilities and necessary time", as laid down in Paragraph 24 of the Recommendation. For this purpose, they should also "have the right to seek assistance from recognised experts of their choice".

IV. Workers' participation in supervision

601. Closely related to the exercise of these rights is the question of establishing good working relations between representatives of employers and workers and labour inspectors. Convention No. 148 introduced for this purpose a provision affording the opportunity to employers' and workers' representatives in the undertaking to accompany inspectors on their rounds. According to Article 5(4) of the Convention, "representatives of the employers and representatives of the workers of the undertaking shall have the opportunity to accompany inspectors supervising the application of the measures prescribed in pursuance of this Convention, unless the inspectors consider, in the light of the general instructions of the competent authority, that this may be prejudicial to the performance of their duties".

602. In the discussion that preceded the adoption of this provision two concerns were noted.[1] One was the need to preserve the freedom of action of labour inspectors who should be able to carry out inspections without previous conditions being laid down, and should therefore be able to refuse to be accompanied by the representatives in question. This concern was reflected in the clause "unless the inspectors consider ... that this may be prejudicial to the performance of their duties". The representative of the Legal Adviser of the Conference indicated that the deletion of this clause would create difficulties for member States that had ratified Conventions Nos. 81 and 129 on labour inspection, which contain a related provision. On the other hand, some members of the competent Conference Committee pointed out that the possibility that representatives accompany the inspector on his rounds should not be subject to an arbitrary decision on the latter's part, but should be founded on instructions laid down by the competent authority. The Committee accordingly agreed to include in the above-mentioned clause the expression "in the light of the general instructions of the competent authority".

B. Information and training of workers

603. Education and training in safe working methods and an objective knowledge of the hazards are essential factors in the prevention of occupational accidents and diseases. Measures to this effect are provided for under both sets of instruments. Under Article 10, paragraph 1, of Convention No. 119 and Paragraph 11(1) of

[1] See ILO: Record of Proceedings, ILC, 63rd Session, 1977, p. 363.

Recommendation No. 118, "the employer shall take steps to bring national laws or regulations relating to the guarding of machinery to the notice of workers and shall instruct them, as and where appropriate, regarding the dangers arising and the precautions to be observed in the use of machinery". In proposing the inclusion of this provision, reference was made to various measures which may be taken by the employer, such as posting relevant texts at the workplace, while Workers' members of the Conference Committee stressed the need to set up training programmes for workers.

604. By the time that Convention No. 148 and Recommendation No. 156 were adopted, thinking on the subject of information and training had evolved considerably. Thus, Article 7, paragraph 2, of Convention No. 148 lays down the right of workers or their representatives "to obtain information and training". This is linked to their right to present proposals and to appeal to appropriate bodies so as to ensure protection against occupational hazards due to air pollution, noise and vibration in the working environment, which is examined elsewhere in this survey. The right to obtain information and training is further supported by the provisions of Article 13 of the Convention which requires that all persons concerned shall be adequately and suitably informed of potential occupational hazards in the working environment due to air pollution, noise and vibration and instructed in the measures available for the prevention and control of, and protection against, those hazards.

605. Recommendation No. 156 lays particular stress in Paragraph 21(3) on the importance of the pre-assignment information and instruction of workers. It provides that before being assigned to work liable to involve exposure, workers should be informed by the employer of the hazards, of safety and health measures, and of the possibilities of having recourse to medical services. Taking account of the wide use of dangerous substances, the Recommendation suggests taking special measures concerning information on their possible effects. In Paragraph 25 it is proposed that measures be taken to ensure that adequate information is available on the results of any relevant tests relating to the use at the workplace of a harmful substance, and on the conditions required to ensure that, when properly used, it is without danger to the health of workers.

606. Paragraph 21(1) of Recommendation No. 156 calls on the competent authority to take measures to promote the training and information of all persons concerned with respect to the prevention and control of, and protection against, existing and potential occupational hazards in the working environment due to air pollution, noise and vibration. In Paragraph 23 the Recommendation also invites employers' and workers' organisations to take positive action to carry out programmes of training and information for the same purpose.

607. A large number of countries have adopted measures to ensure in various ways and to various degrees that the necessary information and training are provided to workers. The legislation of a number of countries requires employers to inform workers of the hazards involved in their work and to provide instruction in precautionary

measures.[1] Such measures are often applicable specifically to work with machinery.[2] In a number of cases there are requirements that such training and instruction take place, in particular, before a worker's first employment and every time he is transferred to another job of a different nature.[3]

608. In a number of cases special measures are provided for in regard to young people, such as not allowing workers under 18 years of age to work on dangerous machinery unless they have received sufficient training in work at that machine and are under the constant direct supervision of a person who has a thorough knowledge of the machine.[4] In at least one country, such measures requiring training are provided for only in respect of young people.[5] (It may be noted that measures of this kind were also examined by the Committee in its General Survey of 1981 on Minimum Age; see especially Chapter IV.)

609. It may also be prohibited to employ workers under 18 years of age[6] and women workers[7] in maintenance work on machinery in motion or to employ on machinery any operator without testing whether he has the necessary technical knowledge, subject to this knowledge being tested by the labour inspector.[8]

610. Provision is sometimes made for special instructions to be prepared and special training and supervision to be provided for jobs that may involve a special danger to life or health.[9]

---

[1] Côte d'Ivoire 2, s. 4D315(3); Democratic Yemen 1, s. 78; Denmark 1, s. 17; Ethiopia 1, s. 10(5); Federal Republic of Germany 2, s. 81; Iraq 1, s. 305; Kuwait 2, s. 2; Mexico 2, s. 132(XV); Philippines 1, Rule 1030; Poland 1, s. 226; San Marino 1, s. 3(b); Saudi Arabia 1, s. 9; Singapore 1, s. 28; Tanzania 1, s. 22; United Arab Emirates 1, ss. 92 and 98.

[2] Bahrain 1, s. 90, and 2, s. 3(b); Belize 2, s. 6(1); Byelorussian SSR 1, s. 143; Colombia 1, s. 84(g); Cyprus 1, s. 32; Cuba 2, ss. 32(ch, d), 33(c) and 35(d); Finland 1, s. 34; France 1, s. R.233-13; German Democratic Republic 1, s. 215, and 2, s. 14; Hungary 1, s. 52(1), and 2, s. 78; Kenya 1, s. 29; Kuwait 1, s. 8; Mozambique 1, s. 137(2), and 2, s. 3(2); New Zealand 1, s. 19A, and 2, s. 20; Nigeria 1, s. 21(6); Norway 1, s. 14(h); Paraguay 1, s. 21; Singapore 1, s. 28; Sweden 1, Ch. 3, s. 3; Turkey 1, s. 73, and 2, s. 14; Ukrainian SSR 1, s. 157; Uruguay 1, s. 10; Zambia 1, s. 35.

[3] Colombia 2, s. 2(g); France 1, s. L.231-3-1; Kuwait 2, s. 2.

[4] For example, Bahrain 2, s. 7; Guyana 2, s. 9; United Kingdom 1, s. 21.

[5] Sierra Leone 2, s. 9.

[6] Chile 1, s. 225.

[7] Guyana 2, s. 8.

[8] Chile 1, s. 244.

[9] Norway 1, s. 12(4)(b).

611. Provisions in some countries provide generally for the training of workers in occupational safety and health[1] or in relation to particular risks inherent to the work performed.[2] The legislation sometimes goes so far as to specify the languages in which such training is to be provided.[3] In one country the law obliges the employer to explain to all illiterate persons employed on or near the machinery the safety provisions posted in the undertaking.[4]

612. In addition to training, information may be provided to workers in other ways. The legislation of a number of countries obliges employers to bring the relevant legislation and rules to the notice of workers,[5] often specifying that this shall be done by posting the relevant texts, or summaries of them, in the undertaking.[6] Requirements are also found for the establishment of internal rules on safety in the undertaking, and for making these available to workers.[7] The legislation of some countries requires employers actually to hand to workers written instructions for avoiding occupational accidents and diseases.[8]

613. In addition to employers being required to post notices, they may also be required to allow such notices to be posted by the authorities.[9]

614. It is not only employers who have responsibilities in this area of providing information and training. In some countries, workers are informed through their representatives or through joint committees on safety and health, which are established in the undertaking, with broad responsibilities in matters relating to training, instruction and information of workers.[10] In some

---

[1] Costa Rica 1, s. 284(b); Democratic Yemen 1, ss. 31(4) and Part VIII; Federal Republic of Germany 2, s. 96; Mexico 2, s. 132 (XV); Mozambique 1, s. 61(2)(f); Poland 1, ss. 223 to 226; United Kingdom 2, s. 2(2)(c); USSR 5.

[2] Argentina 1, s. 9(k), and Argentina 2, s. 208.

[3] Cyprus 1, s. 78.

[4] Sierra Leone 3, s. 4.

[5] Cuba 3, s. 56; Finland 1, s. 48; France 1, s. R.233-13; German Democratic Republic 1, s. 211(1); Kuwait 1, s. 8; Sweden 2, s. 5; Turkey 2, s. 14.

[6] Burma 1, s. 99; Côte d'Ivoire 2, s. 4D315; Cyprus 1, s. 78; Democratic Yemen 1, s. 78(c); Guyana 1, s. 35; Iraq 1, s. 105; Kenya 1, s. 61; Madagascar 2, s. 254; Malawi 1, s. 68; Mexico 2, s. 132(XVIII); Morocco 1, s. 41; Nepal 1, s. 61; San Marino 1, s. 3(b); Saudi Arabia 1, s. 9; Sierra Leone 3, s. 3; Sri Lanka 1, s. 90; Tanzania 1, s. 61; United Arab Emirates 1, ss. 92 and 98; United Kingdom 1, s. 238; Zambia 1, s. 85.

[7] Burundi 4, s. 28; Colombia 2, s. 2(a); Mozambique 1, s. 63; Zaire 1, s. 28.

[8] Argentina 2, s. 213; Chile 2, s. 67, and 3, ss. 14 and 17; United Kingdom 1, s. 139.

[9] Costa Rica 1, s. 284(a), and 2, s. 4(c).

[10] For example, Algeria 1, s. 267(4); Burundi 3, s. 2(4); Chile 2, s. 66; Mali 2, s. 7(f); Norway 1, s. 24(2)(b).

countries it is the workers' representatives who are responsible for ensuring that health and safety laws and regulations are applied.[1] Mention should, of course, be made in this connection of the highly developed system of trade union responsibility in this field in the socialist countries.

615. Workers themselves may also have responsibilities in this field. While employers have a duty to ensure that adequate training and instruction is provided, the legislation of a number of countries provides that it is the worker's duty to participate in training courses given during working hours, and to co-operate in the organisation of education programmes.[2] Legislation may also not permit a worker to continue working in his job if, after being duly warned, he does not attend a course of instruction in labour protection or fails to pass a labour protection test.[3]

616. The Committee cannot emphasise too strongly that it significantly improves the chances of avoiding occupational accidents and diseases if proper instruction and training is given to workers. Such measures are an essential adjunct of providing other safety measures and should be developed in many more countries.

C. Measures of supervision and application

617. The instruments on guarding of machinery and on the working environment all include provisions concerning the application and enforcement of their provisions. In view of the very detailed and complex nature of the provisions of these instruments, a certain amount of emphasis may be focused on their implementation in practice. Both sets of instruments provide for the imposition of penalties for violations of the measures implementing them and for the role of the inspection services. In other respects, however, each includes measures especially applicable to its own field.

I. Imposition of penalties

618. Both sets of instruments provide that all necessary measures, including the provision of "appropriate penalties", be taken to ensure their effective enforcement. Almost all countries have specified some sort of penalties for violation of the legal provisions concerning guarding of machinery and somewhat fewer - in view of the less developed character of this legislation - concerning the working environment. The variety and severity of the penalties adopted is extremely wide, normally including fines, imprisonment or both. In some cases, specific penalties are laid down for violations of each provision of national law, and in others, general penalties are laid down to be applied in detail by judicial or administrative authorities.

---

[1] Côte d'Ivoire 1, s. L-140; Tunisia 2, s. 164.

[2] Argentina 1, s. 10(d); Costa Rica 1, s. 285(b) and (c); Cuba 2, s. 34(f); Hungary 1, s. 53(2); Mozambique 3, s. 59(1).

[3] Hungary 1, s. 53(3); Mozambique 1, Ch. XI.

619. The measures taken by the reporting countries to provide for penalties are not examined in detail here in view of their variety and complexity. These instruments do not provide for any specific penalties, indicating only that they must be "appropriate" and must "ensure the effective enforcement" of the instrument. It is, of course, difficult to assess what would be appropriate and effective penalties in each case. The Committee of Experts has frequently observed that effective application of instruments depends largely on the existence of provisions imposing sufficiently deterrent sanctions for violations. The Committee would emphasise again on this occasion the need for governments to review the adequacy of the penalties laid down in the legislation; and particulary where progress in the implementation of the prohibitions imposed by the Convention continue to be slow, to consider increasing the penalties to a sufficiently high level to discourage offences.[1] In general, it may be said that fines should not be merely nominal, thus affording no effective deterrence to violations. Imprisonment is by its nature a much harsher penalty and it appears from the governments' reports that most often it is prescribed only for repeated offences. Whatever the severity of the penalties laid down, they will only be effective if they are in fact applied, which requires measures whereby they can be brought to the attention of the judicial and administrative authorities.

620. Special mention should perhaps be made of cases where non-compliance with the safety measures prescribed by insurance agencies may result in substantial increases in the insurance paid by the employer. In Costa Rica, for example, where employers are obliged to insure workers against occupational risks, the increase in question may amount to 50 per cent.[2]

II. Inspection services

(a) General measures

621. Both Conventions and both Recommendations contain the usual provisions that governments should provide appropriate inspection services for the purpose of supervising the application of the provisions of the instruments, or should satisfy itself that appropriate inspection is carried out. (Article 15(2) of Convention No. 119, Paragraph 17(2) of Recommendation No. 118, Article 16(b) of Convention No. 148 and Paragraph 26(b) of Recommendation No. 156.) Labour inspection services have been the subject of several Conventions and Recommendations, in particular the Labour Inspection Convention (No. 81) and Recommendation (No. 81), 1947 and the Labour inspection (Agriculture) Convention (No. 129) and Recommendation (No. 133), 1969. Both of these Conventions provide for the functions of the system of labour inspection to include the enforcement of legal

[1] See also ILO: Report of the Committee of Experts, Report III (Part 4A), 1986, para. 144.

[2] Costa Rica 1, s. 215.

provisions relating to "conditions of work and the protection of workers while engaged in their work such as provisions relating to ... safety, health and welfare ... and other connected matters, in so far as such provisions are enforceable by labour inspectors."[1] They also lay down very wide powers of labour inspectors in respect of occupational safety and health matters, ranging from prevention of accidents to making remedial orders with immediate executory force. These instruments have been very widely ratified, so that more than 100 countries are bound by Conventions expressly requiring the labour inspection services to enforce the provisions referred to in this survey.

622. The ILO instruments on labour inspection were the subject of a recent survey of the Committee, in which the application of the above-mentioned provisions was studied in detail.[2] On that occasion the Committee drew special attention to the increasing importance of the preventive function of the labour inspectorate in view of the fact that the accident rate is still dramatically high in the industrial sector as well as in agriculture. To exercise this function effectively in respect of new or existing establishments, plant, machinery, substances and processes, the labour inspectorate should have prior knowledge and control. As was pointed out by the Committee:

> Several factors make this increasingly important. The speed of technical change continues to increase: new chemicals are brought into being and radioactive materials find wider use. Machinery and chemicals created in one country are used in another country, often with a lack of technical information accompanying their transfer. Workplaces are used for a variety of changing operations and the processes and materials used are rapidly changing. However vigilant the inspectors, they will need assistance from other agencies whose specialised functions (e.g. control of environmental planning) or knowledge (e.g. research and development institutes) are essential to supplement the inspectors' knowledge.[3]

(b) Special measures concerning machinery

623. The legislation of some countries contains special provisions concerning inspection of dangerous machinery. Indeed, the legislation on the guarding of machinery sometimes establishes separate inspection services and the powers of inspectors in respect of machinery.[4] In New Zealand, for instance, the legislation concerning mines, quarries and tunnels specifically provides for

---

[1] Article 3(1)(a) of Convention No. 81 and Article 6(1)(a) of Convention No. 129.

[2] ILO: Report of the Committee of Experts on the Application of Conventions and Recommendations, ILC, 71st Session, Geneva, 1985, Report III (Part 4B): Labour Inspection. See in particular paras. 60-71 and 82-97.

[3] ibid., para. 97.

[4] New Zealand 1; Sierra Leone 2, s. 11.

inspectors for these sectors to have all the powers of inspectors of machinery under the Machinery Act.[1]

624. Inspection of dangerous, or potentially dangerous, machinery at specified intervals or on specified occasions is provided for in a number of cases. In Finland, for instance, it is provided that, where no specific provision has been made for the technical inspection of equipment, an inspection shall be carried out before the equipment is put into service and later inspections shall be made at regular intervals.[2] In a number of other countries, machines a defect in which might cause an accident should be inspected at regular intervals, and the employer is required to keep a safety register where the record of inspections must be entered and which should be made available to labour inspectors.[3]

625. While it is normally the state labour inspectorate which is responsible for ensuring the safety of machinery in undertakings, their role may be supplemented or even replaced by others. In Chile, for instance, it is not the labour inspectorate but the National Health Service which exercises general responsibility for supervising accident prevention, hygiene and safety in all workplaces.[4]

626. Employers may also be given specific responsibilities in this area, for instance, being required to inspect machinery periodically and to appoint persons to be responsible for its maintenance and operation.[5] They may also be required to establish a separate service for inspection in addition to the state inspection services.[6] These services may be required to examine dangerous areas in the undertaking and propose adequate corrective measures.[7]

627. In many countries inspection services are assisted by workers' or safety delegates in the undertakings who are also required to supervise the application of safety and health regulations[8] and may carry out, together with the employers' representatives, their own inspections of the undertaking.[9]

628. In the socialist countries, where trade unions exercise to a large extent the functions of a labour inspectorate, they may make orders and prescribe regulations for the installation and use of certain safety devices in the undertakings.[10] In China, for example, a circular of the All-China Federation of Trade Unions adopted on 15 July 1986 required the labour protection inspectors of

---

[1] New Zealand - Report on Convention No. 119.

[2] Finland 1, s. 29, and 2, s. 23.

[3] Central African Republic 1, s. 22; Congo 2, s. 22; Côte d'Ivoire 2, s. 4D54; France 1, ss. R.233-5, R.233-73, R.233-77; Madagascar 1, s. 44; Mali 1, s. 212.

[4] Chile 2, s. 65.

[5] For example, Belize 2, s. 41; Costa Rica 2, ss. 46 and 49; Mali 2, s. 7; Sierra Leone 3, s. 6; Zaire 1, s. 8(1).

[6] Hungary 1, s. 51(2), and 2, s. 81.

[7] Argentina 2, s. 39.

[8] For example, Central African Republic 2, s. 168.

[9] Chile 4, s. 14; Sweden 1, Ch. 6, ss. 2-10, and 2, s. 7.

[10] For example, Hungary 2, ss. 74, 75(1), 85; Mozambique 1, ss. 138(2) and 164.

the trade union groups to make at least one inspection in each shift, and workshop trade union organisations are required to carry out two inspections every month while the trade union committee of the undertaking has to inspect once every month.[1]

629. For the purpose of supervising the application of these instruments, special mention may be made of the system of official certification of machinery and guards established in France and in other French-speaking countries. This system provides for renewed certificaton in case of any modification of a machine previously certified, and for the possibility of checking when necessary the conformity of machinery which is manufactured, imported, sold, etc. with the certified models.[2]

III. Appointment of a competent person or service

630. Article 15 of Convention No. 148 provides that: "On conditions and in circumstances determined by the competent authority, the employer shall be required to appoint a competent person, or use a competent outside service or service common to several undertakings, to deal with matters pertaining to the prevention and control of air pollution, noise and vibration in the working environment."

631. The basic concept behind this provision is that in all undertakings there should be someone responsible for overall general safety procedures and for co-ordinating efforts at the workplace. However, the size and resources of the undertaking may be an obstacle to the appointment of a competent person. To take care of the situation of small undertakings in particular, Article 15 includes the further possibility of using a competent outside service or service common to several undertakings. In discussing this provision, the competent Conference Committee laid particular emphasis on the need to make it sufficiently flexible to meet the variety of national practices. Moreover, the conditions and circumstances to be determined by the competent authority in pursuance of Article 15 come within the framework of Article 16 of the Convention, which is general in scope and gives wide freedom to governments to choose methods of giving effect to the Convention "consistent with national practice and conditions".

632. It should be pointed out that the fact that the employer appoints a person or outside service to deal with matters of prevention does not in any way relieve him of his responsibilities in this connection.

D. Co-operation between member States

633. One of the distinctive features of Recommendation No. 118 is that it suggests in its Paragraph 18 means of promoting co-operation

---

[1] ACFTU Bulletin, No. 5, Oct. 1986, pp. 7-8.

[2] For example, France 1, ss. R. 233-60, R. 233-61, R. 233-66, R. 233-67.

between countries involved in international transactions concerning machinery with a view to ensuring its guarding in accordance with the requirements of Convention No. 119. It suggests bilateral or multilateral arrangements, uniformity in occupational safety and hygiene standards relating to machinery; and that in making such arrangements, Members should have regard to the relevant model codes of safety regulations and codes of practice published by the International Labour Office, and to the appropriate standards of international organisations for standardisation.

634. With respect to the last suggestion, particular mention should be made of the Model Code of Safety Regulations for Industrial Establishments for the Guidance of Governments and Industry which was issued by the International Labour Office as far back as 1948, has had a number of editions and is currently being revised. At its 234th Session in November 1986, the Governing Body of the ILO decided to publish the Code of Practice on Safety, Health and Working Conditions in the Transfer of Technology to Developing Countries which provides guidance on the procedures to be followed by sending and receiving countries for ensuring proper safety and health standards for their co-operation in the transfer of technology involving processes, equipment or substances. The subject of guarding of machinery is also widely dealt with in different ILO codes of practice on safety and health in particular industries or occupations. Some of them even concern safe construction and use of special pieces of equipment, e.g. tractors, lifts or chain saws.

635. Only a few countries referred in their reports to measures of co-operation. Some Western European countries referred to the action by the European Community to remove barriers to trade, especially concerning the supply of goods. The report of the United Kingdom mentions that machinery guarding is likely to figure significantly in this activity through the use of standards aligned to directives containing essential safety requirements. Anticipating that these directives could conflict with Convention No. 119, the Government stated that it does not intend at present to adopt measures to give effect to those provisions of the Convention not yet covered. The Government of Finland stated that at the international level harmonisation of standards concerning guarding of machinery chiefly takes place within the scope of the different international standardisation organisations, such as ISO, CEN, CENELEC, and IEC.

636. One country indicated that progressive application of the provisions of these instruments would be carried out in conformity with the standards adopted by the Industrial Safety and Health Committee of the Standardisation and Metrology Organisation of the member States of the Gulf Co-operation Council.[1]

637. Other governments indicated that no relevant bilateral or multilateral arrangements have been entered into. Some governments did report measures at the national level. The Government of New Zealand stated in its report that the legislation places an obligation on importers to ensure that imported machinery complies with statutory

[1] Bahrain.

requirements but contains no restrictions on the export of machinery which does not comply with them.

638. The Government of Costa Rica has provided for special regulation to be adopted on the safety devices and general characteristics of machinery and equipment imported into the country and has established procedures, whereas safety devices and personal protection equipment may be imported without any taxes.[1]

639. Certain countries accept official certificates on the efficacy of guards used on machinery delivered in other countries as a proof that they have been certified.[2]

E. Situation in practice and difficulties

640. The Committee has taken note, wherever possible, of the situation in practice in the reporting countries, and of the difficulties pointed out in governments' reports in giving effect to these instruments or in ratifying the Conventions. While most of the reports do not contain information which would allow the Committee to come to any conclusions in this connection, others do permit it to have a good idea of the situation.

641. In certain cases national plans for the development of occupational safety and health contain a detailed analysis of the situation, highlighting the difficulties encountered in the country and the ways in which they are being overcome. The National Plan for Occupational Health (1985-90) of Costa Rica stipulates, for instance, that there is a serious need for the development of technical standards on such subjects as inspection, collective and personal protective equipment, unified criteria for signs and labels in workplaces and for taking samples of contaminants, etc. The Plan also designates branches of economic activity where safety measures should be promoted on a priority basis.[3]

642. One government indicated in its report that for the moment the country does not dispose of sufficient material and human resources to apply efficiently the provisions of Convention No. 119 and Recommendation No. 118, some of which are covered by the national legislation or practice. No provisions exist in the country to give effect to Convention No. 148 and Recommendation No. 156 on the working environment, but in practice special protective equipment against air pollution, noise and vibration is supplied to workers in the occupations concerned. The role of the joint committees in the undertakings on safety and hygiene is particularly highlighted in that respect. The government pointed out at the same time that the whole body of safety and health legislation is currently being brought up to date. The report particularly mentions that those provisions of Convention No. 119 which are not applied at present will be given effect after the termination of this process.[4]

---

[1] Costa Rica 1, ss. 274(g), 283(7) and 291.
[2] For example, Central African Republic, Congo, Côte d'Ivoire.
[3] Costa Rica 3, especially pp. 15, 58, 67 and 68.
[4] Burundi.

643. Another government indicated that though it was not found possible to ratify the Conventions under survey, they were brought to the attention of the competent authorities as well as central workers' and employers' organisations, which actively collaborate in practical implementation of their provisions. As concerns the instruments relating to the working environment, a wider consensus is sought by involving social and educational institutions and clinics to suggest measures of controlling pollution, which is still not a serious problem on account of limited industrial activity and other conditions prevailing in the country. Certain measures to this end, mainly by way of administrative regulations, have been taken in respect of traditional industries, e.g. carpet weaving. The government indicates that major legislative work is being undertaken with a view to the elaboration of a labour code which would legislate on all issues contained in these instruments and would eventually permit their ratification and acceptance.[1]

644. The reports of some countries indicate that no modifications have yet been made in the national legislation or practice with a view to giving full effect to the instruments, but that such measures are now under active consideration, including the more effective organisation of the inspection function and enforcement of the legal provisions concerning the guarding of machinery.[2]

645. Important changes are taking place in the legislation and practice of some ratifying countries which have a direct bearing on the application of the instruments on the guarding of machinery. The influence of ILO standards and technical assistance provided by the Organisation sometimes play a major role in stimulating this process. For example, in 1981 a multidisciplinary ILO mission visited Cyprus in the framework of PIACT, and submitted a report with a number of recommendations for the improvement of working conditions and the working environmment. One of the main recommendations refers to the introduction of a new "wide-scope" law on working conditions and environment and the protection of workers' health and safety, which would cover all workplaces throughout the nation's economy. In its last report on Convention No. 119, the Government of Cyprus stressed that it was taking the necessary action for the introduction of new occupational safety and health legislation covering all branches of economic activity, which would ensure full compliance with the Convention. The Government has decided, as an interim measure, to amend the existing Factories Act so as to comply in the near future with those provisions of the Convention which were not yet covered by this Act.

646. The Government of China indicated in its report that two national standards were promulgated in 1985, "Technical requirements for light-type safety device for presses" and "General rules for designing production facilities in accordance with safety and health requirements", and have achieved good results in the protection against industrial accidents. Rules for safety in the use of wood-working machinery and grinding machinery will be established in

[1] Afghanistan.
[2] For example, Bahrain.

the near future. The report further indicates that a safety regulation on guarding of machinery is being drafted and that the Government is now examining the Convention and considering the possibility of ratification.

647. The Government of New Zealand, highlighting the existing differences between the national legislation and the Convention as to the coverage of machinery and exceptions provided, stated in its report that, while no measures are proposed to give effect to those provisions of the Convention not yet covered, it would refer its report on the Convention and Recommendation to the recently established tripartite Advisory Council for Occupational Safety and Health which has the role, among others, of advising the Government on the implications for New Zealand of ILO Conventions and Recommendations concerning occupational safety, health and welfare. Other countries indicated that at present they had no intention of adopting measures to give effect to these instruments, as local conditions did not warrant it.[1]

[1] Belize, Guyana.

CHAPTER IV

CONCLUSIONS

A. Instruments on guarding of machinery

648. Convention No. 119 and Recommendation No. 118 deal with one of the most fundamental subjects of the machine age: protecting workers from the dangers caused by the machines with which they work. Since the beginning of the Industrial Revolution great progress has been made in this area, so that far more attention is now being paid to this subject. But it should not be imagined that the problem has disappeared, even in the most developed and industrialised countries.

649. The first and major conclusion which the Committee of Experts draws from its general survey of this subject, is that many governments have given too little attention to the subject. About one third of the reporting countries appear to have no legislation or other specific measures which would prohibit, or prevent by other equally effective measures, the sale, hire, transfer in any other manner and exhibition of unguarded machinery. More governments appear to have adopted measures prohibiting its use, the other basic provision of the Convention and Recommendation. It may be presumed that many of the governments which did not send reports, also do not have any legislation or other provisions on these subjects.

650. In very many other countries, the measures which have been taken in this field are fragmentary and do not form a coherent system of protection. There are only a few countries where serious attention has been given to developing measures for guarding machinery which include both legislation and the practical measures needed to make the protections effective. A great many countries have indicated that they have incorporated the basic principle in their legislation but have as yet taken no measures to make it effective, or that they have regulated only some of the aspects of this problem.

651. To review some of the particular areas dealt with by these instruments, the Committee has found that the majority of countries apply their legislation on this subject to all power-driven machinery, whether new or second hand, as provided by the Convention. However, the legislation is often imprecise, which may lead to uncertainty. As concerns manually driven machinery, the Committee has found that it is quite rare for national legislation to specify whether it applies to such machinery, again making the coverage of the legislation uncertain. There are also a certain number of cases where there are conflicting provisions on coverage in the national legislation. The Committee recalls that the application of the Convention to manually driven machinery is optional, but that a decision should be taken

after consultation with representative organisations of employers and workers.

652. The Committee has also found that very few countries have used the possibility allowed by the Convention of restricting the application of their legislation as regards road, rail and agricultural machinery, but a number of them have adopted special legislation or regulations in this connection.

653. The Convention and Recommendation are applicable to all branches of economic activity, subject to the possibility of exclusions by the ratifying State. The Committee found that in many countries the legislation does apply to all branches of activity, although in a significant number of other countries there were gaps. In some countries the basic legislation applies only to factories and in a number of others, labour legislation does not cover such branches as agriculture and shipping. Only some of these countries have adopted special legislation covering these branches. In this connection, the Committee notes that only one of the 35 countries which have ratified the Convention has availed itself of the possibility of specifying a more limited application upon ratification.

654. The specific measures laid down in the Convention and Recommendation are divided into two basic aspects. The first is measures concerning manufacture, sale, hire, transfer in any other manner and exhibition of machinery and the second is measures to ensure safety in the use of machinery. It may be convenient to think of these two aspects as concerning measures affecting the actual use of machinery, and those affecting all other stages in the machinery's life cycle.

655. The Convention requires the prohibition by national laws or regulations, or prevention by other equally effective measures, of the sale and hire of unprotected machinery. The same measures are required for the transfer in any other manner and exhibition of such machinery, to such extent as the competent authority may determine. The Recommendation adds to these requirements similar ones concerning the design and manufacture of machinery. All of these provisions are subject to some exceptions. These requirements are, of course, rather complex, but if they are undertaken in a thorough way at the national level it will be seen that they constitute a coherent system for preventing dangerous machinery from reaching users.

656. As has been pointed out in the body of the survey, increasing attention is being given to measures which will prevent inadequately guarded machinery from being made available to users, and the present Convention and Recommendation played a significant role in defining and promoting this principle. Its implementation has, however, been a major problem in the full application of the Convention in ratifying countries. The Committee must stress, as it has often done in its comments on the Convention's application, that it is not sufficient to prohibit only the use of unguarded machinery as some governments have suggested, but that it is necessary also to take the other measures laid down in the Convention to provide truly effective protection. The Committee welcomes the fact that, even though practical measures in this respect have not yet been implemented in many countries, the need for them has at least been acknowledged in an increasing number.

657. It is of course vital for the implementation of any national provisions on the guarding of machinery to specify the dangerous machines or parts of machines which require guarding. The Committee has noted with regret in carrying out the present survey that this basic principle is applied far too seldom. In a number of countries, no measures at all appear to have been taken, while in others there is only a general prohibition of the sale, hire, etc. of dangerous machinery without any measures having been taken to define the machinery to which this prohibition applies. Note has been taken with interest of cases in which governments have reported that measures are now being taken, or that there is a continuous review process, to define what machinery and parts are subject to guarding. In this respect, the Committee points out the utility of referring to the list of parts of machinery in Article 2 of Convention No. 119 in order to establish a minimum list for purposes of regulation, and also refers to the different codes of practice which the ILO has established in this respect.

658. The Committee notes with interest that, when such measures have been taken, the dangerous parts listed usually correspond closely to those specified in the Convention. Many of these countries have established an impressive number of special regulations or standards for particular types of machines. A few have also made provision for safeguards against other risks caused by machinery, such as flying particles, electrical pressure, spilling of hot liquids, etc. The fact that the legislation of the majority of countries which have such measures follows the standards outlined in the Convention and Recommendation, indicates the influence which they have had on national legislation and shows that they remain fully valid.

659. The Committee notes that comprehensive legislation on the guarding of machinery covering the pre-use stages in its life cycle exists primarily in countries which manufacture machinery. This legislation most often regulates the sale and hire of machinery. Less common are provisions referring to other means of transfer of machinery and to its exhibition. Only a very small number of countries have provisions regulating the design and manufacture of machinery in respect of its safety.

660. A number of countries have adopted, in line with these instruments, "equally effective measures" other than legislative prohibitions to guarantee that dangerous machinery will not be manufactured or supplied to users. Such measures usually consist of imposing express duties on those concerned to ensure that machinery is safe before it is delivered, and make the breach of this duty a punishable offence. Another useful approach found in a number of countries is to provide for prohibition of the installation of unguarded machinery, along with a procedure for the certification of protective devices and a prohibition on installing devices which have not been certified.

661. The Committee emphasises in this connection that here again, the effectiveness of all such measures depends on a detailed definition of the kinds of machines, or parts of machines, which shall be subject to the measures adopted. There are very few cases in which the definitions and procedures cover all the kinds of dangerous machinery being used in the country, and until this is done the

legislation or other "equally effective measures" can have only a limited effect.

662. One common problem is that governments state that, since there is a comprehensive ban in the country on the use of unguarded machinery, there is no need to introduce any legislation concerning its sale, hire, etc. The Committee once again points out that such measures are not sufficient to apply these instruments since they would not prevent putting unguarded machinery into circulation.

663. Another point which should be stressed is that Paragraph 6 of the Recommendation provides for operating instructions for machinery to be based on safe methods of operation. Measures to this effect have been included principally in the legislation of manufacturing countries, but in some countries similar requirements have been adopted for imported machinery. However, while the experience of developed countries suggests that as the complexity of machinery increases, its safe operation will depend even more on the furnishing of safe operating instructions, the Committee must note with regret that in the majority of reporting countries no such requirements exist.

664. The Convention and Recommendation provide that responsibility for providing dangerous machinery with appropriate guards and for complying with the prohibitions imposed in respect of unguarded machinery, shall be shared equally by all those engaged in its production and delivery to the user, without diminishing the responsibility of the employer who uses the machinery. One problem in the reporting countries was that, even where the legislation provides for this responsibility, it relates only to some stages in the furnishing of machinery omitting, for example, the design stage.

665. The Committee notes that a number of countries have not adopted provisions which attribute responsibility clearly for all the acts covered by these instruments, but that there is a tendency to broaden the circle of persons made directly responsible for ensuring safety of machinery and equipment passing through their hands. It is important in this connection not to forget that agents of persons selling, hiring, etc. machinery, as well as of manufacturers, should also be included in the list of persons made responsible, though this is not done consistently.

666. The Committee has noted that transfer between countries can constitute a major problem. It has found with regret that very few measures have been adopted either in exporting or in importing countries in this regard. Yet the international transfer of technology is becoming increasingly important, and it is vital that the transfer of machinery does not also mean the transfer of injuries and occupational accidents. It therefore hopes that the measures observed on the national level will be strengthened, and that they will be applied also to international transfers of machinery, through trade or aid.

667. The second major aspect of the Convention and Recommendation relates to safety in the use of dangerous machinery. The Convention and the Recommendation provide for a prohibition on the use of any machinery if any dangerous part of this machinery, including the point of operation, is without the appropriate guards, unless this would prevent the use of the machinery. In the majority of cases,

governments have imposed a requirement that machinery should be appropriately guarded, but have not imposed a prohibition of the use of unguarded machinery. As the Committee has pointed out, it will normally not be sufficient to require guarding of machinery without also prohibiting its use if not properly guarded.

668. As is the case for prohibitions on the sale, hire etc. of unguarded machinery, a number of countries have included a general prohibition on the use of such machinery in their legislation, but have not defined the machinery to which it applies, or have defined only some categories of it. Where measures have been taken, the most common pattern is that a general requirement for the guarding of machinery is included in the legislation, supplemented either in the legislation itself or in regulations or technical standards by more detailed provisions.

669. A limitation often found is that the relevant legislation relates to defined premises, most often to factories. This is beginning to change in some of the countries concerned, as legislation is adopted which applies to any premises where machinery is used. The Committee hopes this trend will be continued in order to provide for the protections contemplated in the Convention and Recommendation.

670. The Committee has pointed out in several instances above that the instruments being examined here are applied in only a partial way. In one respect, however, there seems to be universal agreement: in every country for which information is available, the employer is made responsible for ensuring safety in the use of machinery, including provision of suitable guards. As indicated earlier, the instruments provide for this responsibility to be shared equally with those who design, manufacture and supply machinery, which is not always the case. It may thus be that in many countries employers who use this machinery are bearing a heavier share of the burden than they ought.

671. The workers involved share the employers' obligations in some respects, although of course they also should enjoy certain guarantees. The instruments provide that workers may not use unguarded machinery or make its guards inoperative, but also guarantee that workers should not be compelled to use the machinery where the guards are not in place or are inoperative. Both obligations and guarantees are reflected in full in the legislation of many countries. There are some countries, however, which provide only for the workers' obligations in this respect without incorporating the corresponding guarantees. In far too large a number of countries, however, the provisions of the Convention and Recommendation on workers' obligations and guarantees have still not been included in the legislation.

672. Both the Convention and the Recommendation provide that they shall apply to self-employed workers, if and in so far as the competent authority may determine. Coverage is variable in this respect, with self-employed workers sometimes specifically included and sometimes specifically excluded from legislation. More often still, there is no explicit mention of them. This is yet another aspect of these instruments which would merit attention on the part of governments, and which further shows the need for protective measures at the stages of design, manufacture and transfer of machinery.

673. These instruments provide for various exceptions. The first is for machinery made safe by means other than the provision of guards, for instance through design, construction or placement. A number of countries require explicitly that machinery be so designed, constructed and placed as to remove danger, while a number of others have followed the approach taken in the instruments and exempted such machinery from the coverage of the legislation. Another exception provided for is for maintenance operations and the like. In nearly all the reporting countries having legislation on machinery, there are provisions of more or less detailed character concerning safety measures during maintenance, lubrication, etc., such as that these operations be carried out only by trained personnel and only when the machinery is not in motion.

674. The Committee would call attention to the possibility for temporary exceptions after ratification, in order to allow the national legislation and practice to be brought into conformity with the Convention. Certain such exceptions have been found not always in conformity with these instruments, and attention should be paid that they are not used extensively except as a transitional measure.

675. In conclusion, the Committee recalls that this subject is a very complex one. While it is encouraging to note that there is a general realisation that measures are required to guard workers against the dangers presented by the machines they use, it is also a matter of concern to see how far many countries have yet to go and the difficulty of the task ahead of them. Machinery of one type or another is almost universal in the workplace, whether in a highly technological factory in a developed country or a small workshop far from large cities. Many thousands of workers lose their lives or their eyes or their limbs every year, in many cases because machinery has not been properly designed, guarded or installed.

676. As has been shown above, Convention No. 119 and Recommendation No. 118, although adopted some time ago, retain their full value as a guide for national action in this field. The Committee therefore calls on governments, as well as on employers' and workers' organisations, to examine the position in their own countries. It is not difficult to see where workers should be protected from the machinery they use. It is more difficult to design, adopt and implement a comprehensive system. But it is well worthwhile for the lives and health of the men and women who work with these machines.

B. Instruments on the working environment

677. Whereas the dangers under the instruments on guarding of machinery are mostly of a direct, easily discernible nature, the dangers covered by Convention No. 148 and Recommendation No. 156 are more insidious and harder to define. The same differences appear in the instruments themselves, with more flexibility and less strictly defined measures being required under Convention No. 148 and Recommendation No. 156. Part of this difference arises from the fact that these instruments were adopted a good deal later than those on the protection of machinery, during which time the increase in the

number of member States at very different stages of economic development made it necessary to take greater account of their situation in setting standards.

678. The first general conclusion at which the Committee can arrive in relation to these instruments is the same as for the instruments on guarding of machinery: that most governments have not yet paid sufficient attention to the subjects covered by them. Only a few governments have attempted to formulate a cohesive system of protection even against air pollution in the working environment, which is the easiest to regulate of the three risks covered by these instruments. Even fewer have adopted measures concerning noise, and very few indeed have done anything about vibration.

679. The analysis of the reports and other information available shows that, in spite of the considerable flexibility allowed by the Convention, this flexibility has been used very little by ratifying States. When this is added to the numerous exceptions and omissions in national laws, it indicates that, by a closer comparison of national law with the possibilities of flexibility offered, more countries might be able to ratify the Convention. In this connection, the Committee notes that a substantial number of countries are beginning a gradual replacement of their fragmentary laws on the subjects covered by these instruments, by legislation of more general application to the whole of the economy; or are providing for the implementation by stages of legislation which covers a larger segment of the national economy. The Committee welcomes this tendency, and hopes that governments will continue to expand the coverage of their legislation. An analysis of the uses of flexibility in the acceptance of different parts of the Convention has shown that arrangements for the progressive application of the Convention's requirements may prove valuable both for developed and for developing countries, particularly in a time when safety and health legislation is undergoing rapid development.

680. As concerns the practical measures which have been taken in member States concerning air pollution, noise and vibration, there is an extremely wide variation which is closely linked to the level of economic development. In some developed countries health and safety legislation has become a separate and highly developed branch of labour law. On the other hand, there is a considerable number of developing countries with virtually no legislation on the protection of the working environment of the kind provided for by these instruments. In the majority of the developing countries which have adopted some legislation, the existing provisions are limited to laying down basic protective measures against air pollution, such as adequate ventilation of workplaces, but which go no further on this subject and do not deal at all with noise and vibration. Even in some of these countries, however, there is a tendency toward adopting more specific legislation for branches of economic activity which are particularly hazardous, such as mining.

681. The Committee has noted the development in an increasing number of countries of "umbrella" legislation on health and safety in the working environment. This kind of general legislation takes the same fundamental approach as do Convention No. 148 and Recommendation No. 156, and typically has a general scope with a comprehensive

approach to all factors in the working environment from the point of view of ensuring workers' safety. It also tends to define employers' responsibility as including the establishment and maintenance of the quality of life in the working environment, requires instituting procedures for employer-worker collaboration on safety and health at different levels, and rationalises administrative arrangements and responsibilities for the enforcement of the legislation.

682. The Committee welcomes this approach to regulation in this area. While it is still a feature of the legislation in only a limited number of countries, the tendency in this direction is encouraging. The Committee therefore urges the majority of Members which have not yet done so to undertake this kind of global approach to the problem.

683. Even where such general legislation has been adopted, it is normally necessary to supplement, regulate and update it at various stages. In many cases, however, this process does not take place on a sufficiently regular or continuous basis to meet the needs of the situation.

684. In the majority of countries, employers have a positive duty to assure the safety and health of employees at work. Wherever this duty has not already been enshrined in the law, this should be done in a way which is sufficiently specific that employers have proper guidance in taking the necessary measures. This will also, of course, assist workers in defining and protecting their own rights.

685. One gap which has been noted in the legislation of many countries concerns the obligation to ensure the collaboration of two or more employers at the same workplace, in respect of safety and health. Convention No. 148 was the first ILO instrument which dealt with this question. Although procedures and responsibilities may be difficult to define, close attention should be paid to this, both because of an increasing tendency for employers to share workplaces, and because when they do so it is often in industries which involve a particularly high level of occupational risk.

686. Mention must be made also of the responsibility of employers towards the protection of the general environment. There have been a number of incidents in recent years where industrial accidents have had disastrous consequences for the general public as well as for the workers directly concerned. The growth of industrial power is making such incidents more frequent, and their potential consequences more serious.

687. It should not be forgotten that risks to the general public in these situations have arisen primarily in cases where exceptionally high occupational risks have escaped from the working environment into the general environment. It is therefore in the working environment that the primary control must be exercised. Since the question of this relationship was first raised in Recommendation No. 156, the importance of the subject has been brought, tragically and repeatedly, to the attention of everyone. It is a dramatic reminder that this branch of labour law does not concern employers and workers alone.

688. Workers also have their responsibilities in the field of safety and health. As the Committee has found, the majority of countries have laid down a basic obligation for them to respect safety and health measures, and the definition of these responsibilities is

developing. This should be a subject in the future of intensive re-examination by workers' and employers' organisations as well as by governments, in order to achieve a more comprehensive and more balanced sharing of responsibilities among all the parties concerned.

689. Perhaps the most fundamental requirement of Convention No. 148 is that criteria and exposure limits be set at the national level for exposure to hazards in the working environment due to air pollution, noise and vibration. National measures in this connection are examined at length in the survey, and the explanations given there should be of assistance to governments in assessing how to set such limits when they have not yet done so. Without reviewing this in great detail in these conclusions, the Committee notes that a large number of governments have taken measures, of greater or lesser scope, to set these criteria for air pollution. Far fewer have done so for noise, and a very limited number for vibration. More attention has been paid to air pollution at the international level as well, and both national and international standards now exist for most air pollutants and most working situations. There is thus very little reason why any government should not be able to adopt criteria based on one or more of these models, whether or not these can yet be implemented in detail.

690. In this connection, the Committee would stress the value of a gradual approach to these matters when a government is unable to take immediate comprehensive measures. It is often valuable, for instance, to adopt criteria or exposure limits to be adhered to on a voluntary basis, as an interim or experimental measure. This can lead to the gradual imposition of binding standards when experience shows whether the measures first taken were appropriate. Measures can also be taken concerning a few pollutants at first, which can gradually be expanded to others as regulatory experience and administrative capacity grows.

691. This gradual and progressive approach can be closely based on the various national and international standards which exist concerning air pollution, and to a lesser degree concerning noise and vibration. As shown in the survey, for air pollution there are some basic approaches taken by leading countries in this field, which can serve as a basic source for any country which wishes to take measures. These are often based on, or are supplemented by, various guide-lines and codes of practice adopted at the international level by the ILO or by other international organisations and regional groupings.

692. While the criteria to be applied for air pollution are by far the best developed at both the national and international levels, there is also substantial guidance available concerning both noise and vibration. The relative lack of attention given to these problems at the national level is something which should be corrected at the earliest possible time, adopting in this case as well the gradual and progressive approach to which reference has been made above.

693. Once the basic criteria have been established against which dangers from air pollution, noise and vibration are to be measured, it is of course necessary to apply them by the various measures laid down in these instruments. The development of procedures to prevent, to monitor and to report these dangers are thus of even greater

importance than in most other areas of protection of the safety and health of workers, and indeed were the first subjects ever regulated by an international Convention on labour matters, even before the existence of the ILO. As pointed out above, such measures are required already in a number of ILO Conventions, and measures taken under them for the prohibition or regulation of the use of substances or processes are of the same kind as those provided for in these instruments. These administrative measures can thus be linked together to form a coherent system of protection against dangers posed by air pollution, noise and vibration in the working environment. Here too, of course, such procedures are better developed for air pollution than for the other two dangers, but in many cases such measures are lacking even for air pollution.

694. Administrative measures must of course be used only to supplement technical measures which eliminate exposure to these hazards or reduce it as far as possible. These technical measures are indispensable to any attempt to protect workers from these dangers. The Committee recalls that the kinds of measures laid down in the guarding of machinery instruments are relevant also to the instruments on the working environment, in that they invoke the responsibility not only of the employers and workers directly involved at the workplace but also of the designers, manufacturers and distributors of machinery and equipment which may be dangerous in ways which include air pollution, noise and vibration.

695. The Committee has noted in surveying the information available that there is not a single country in which some kinds of technical measures are not laid down in the safety and health legislation to keep the working environment free from occupational hazards. As for other areas covered by this survey, however, the extent to which such measures have been adopted is so varied that only the most general conclusions can be drawn. The same applies to organisational measures, such as limiting exposure times and limiting access to potentially hazardous premises, as well as to the provision of personal protective equipment. In general, the requirements laid down in national legislation do not meet the requirements of the instruments in a way which might be said to provide a comprehensive system of protection for workers.

696. It should be easier to provide for some measures of protection through supervision of the health of workers through medical examinations and the establishment of a system of medical records. The Committee calls attention in this respect to the Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985, which provide even more comprehensively than do the present instruments for protection in this regard. Medical supervision can be either very sophisticated and of general application, as in some countries, or more specific and limited as in others. It should not, however, prove impossible for most countries to provide for at least minimal supervision in cases of the highest risk operations, pending the time when regular and more comprehensive supervision can be introduced. Similar measures can be taken at various levels for the keeping of medical records, as laid down in these instruments.

C. Measures in common

697. The role of employers' and workers' organisations is always important in implementing the provisions of international labour Conventions and Recommendations, but rarely does it have as much day-to-day impact as in questions relating to safety and health. Employers and workers are uniquely situated to be able to give concrete advice on the measures which should be taken to provide protection in the workplace. A substantial number of countries have established general tripartite bodies with either general or special responsibility for safety and health, or which otherwise provide for these consultations. In the socialist countries, workers' organisations have a particularly important role in this field, including the right to initiate and supervise the application of legislation and other measures, and such arrangements are also provided for in other countries.

698. The information and instruction of workers in safe working methods, and an objective knowledge of the hazards with which they are faced, are essential factors in the prevention of occupational accidents and diseases. Responsibilities in this area fall both on employers and on workers, and a large number of governments have taken various kinds of measures to provide for this instruction. The kinds of measures provided for are often inconsistent between different countries and even within countries, however, and this clearly merits further attention at the national level.

699. As concerns measures of supervision and application, the Committee emphasises once again the need for governments to review the adequacy of the penalties laid down in the legislation; and particularly where progress in the implementation of effective enforcement is slow, to consider increasing the penalties to a sufficiently high level to discourage offences. As the Committee has stated on more than one occasion, fines should not be merely nominal, and imprisonment should be provided for more serious offences. It also should be remembered that what is being enforced relates to the life and health of workers.

700. Finally, the Committee cannot leave this subject without mentioning the question of labour inspection. Inspection is necessary to the enforcement of all labour legislation, but in the safety and health field particularly it is necessary to provide for regular supervision, adequate to cover the number of undertakings concerned at appropriate intervals, and above all by properly trained inspectors with adequate powers. The Committee has stressed this many times in the past, and no doubt will do so many times in the future.

D. General

701. In addition to these conclusions which focus on specific provisions of the Conventions and Recommendations being examined here, the Committee would put forward some general remarks. As indicated above, this is the first time it has carried out a general survey in the field of safety and health for many years, and thus some of its conclusions may seem of a rather general nature in relation to the

coverage of the instruments being dealt with here. These instruments are, however, themselves of a wide scope and touch upon some of the most fundamental concerns in this field.

702. The first of the Committee's concerns is, as is often the case, the lack of information available from many countries on the measures which they have, or have not, taken to give effect to the instruments on the guarding of machinery and on the working environment. It is very difficult for the Committee to perform the task assigned to it in the absence of adequate information, and this diminishes the value of the surveys it carries out. Nor should there be any reluctance by governments to submit information on their national situations in connection with these surveys, as their purpose is merely to assess where problems lie.

703. The problems which the Committee has found in relation to these instruments, whether on the guarding of machinery or on the protection of the working environment, are almost entirely due to a lack of consistent and coherent measures having been taken. It is extremely rare to find anything which has been done which is contrary to the spirit of protection which is at the basis of these instruments; it is at least as rare, however, to find that a government has paid the necessary attention to regulating these questions.

704. This lack of action is due to a lack of technical knowledge in many countries, as the subjects covered by these instruments are sometimes complex. This can, however, be overcome with the assistance which is available from the ILO itself or from other countries.

705. The lack of will to do something about these problems is often a more serious obstacle to action than a lack of expertise, as even where the technical knowledge is available the enactment of comprehensive measures will necessarily occupy a good deal of the time of national legislatures and other policy-making bodies. It is nevertheless vital that national governments consecrate the time and resources necessary, as soon as possible if they have not already done so, to adopting a comprehensive and progressive plan of national action on the protection of the safety and health of workers. This is one of those areas which is rarely in the headlines, and which will excite little attention until there is a major disaster. Indeed, most of the disasters in this field are small human ones, rather than the more dramatic situations which capture the imagination of the public. The loss of an eye or a limb to an unguarded machine, the contracting of silicosis from working in polluted air, a loss of hearing from working close to a source of great noise - all these happen to individuals, gradually or suddenly, outside the public eye.

706. If purely practical justifications are needed in addition to the human costs of inadequate occupational safety, literally incalculable amounts are spent in lost training provided to workers who are injured or fall ill, in medical and disability payments, and in lost working time. Any measures which can be taken to reduce the enormous number of occupational accidents and illnesses will reduce this burden on the countries in which they take place.

707. The Committee therefore urges every Member to examine its own position in relation to the instruments on the guarding of machinery and on the protection of the working environment. Where it

is not possible to adopt immediately the full range of measures which would give effect to these instruments, it is certainly possible to begin to adopt some of them. Their implementation can be gradual, and it can begin with voluntary standards and move to standards which are legally enforceable. Tripartite committees can be convened on these questions, to make recommendations as to how to proceed. For countries which have adopted a number of measures in different fields, this may be the time to begin to unify them into a system covering all measures of safety and health and their supervision. Finally, for those countries which have taken comprehensive measures, the Committee hopes that they will make their experience available to others in order to improve the situation of such workers all around the world.

APPENDIX I

LIST OF LEGISLATION BY COUNTRY

Explanatory note: This Appendix lists all the legislation cited for each reporting country, and assigns a number to each item. In the footnotes in the survey these are indicated thus: Algeria 1, section 67. This diminishes the volume of the citations and simplifies reading the text.

ALGERIA

1. Ordinance No. 75-31 of 29 April 1975 respecting general conditions of work in the private sector. (LS 1975 - Alg. 2.)

2. Ordinance No. 75-33 of 29 April 1975 respecting the powers and duties of the Inspectorate of Labour and Social Affairs. (LS 1975 - Alg. 4.)

3. Act No. 85-05 of 16 February 1985, respecting health protection and promotion.

4. Act No. 83-03 of 5 February 1983, respecting the protection of the environment.

ARGENTINA

1. Act No. 19587, respecting occupational safety and health, 1972. (LS 1972 - Arg. 1.)

2. Decree No. 351/79, respecting occupational safety and health to apply Act No. 19587.

3. National Constitution.

4. Act No. 20744 to approve the rules governing contracts of employment, 1974. (LS 1976 - Arg. 1.)

5. Act No. 11544, respecting hours of work, 1929. (LS 1929 - Arg. 1A.)

AUSTRALIA

Australian Capital Territory

1. Machinery Ordinance 1949 (Act) and Regulations made under it.

New South Wales

1. The Occupational Health and Safety Act, 1983.

2. Factories, Shops and Industries Act, 1962.

Victoria

1. The Occupational Health and Safety Act, 1985.

2. Occupational Health and Safety (Machinery) Regulations, 1985.

Western Australia

1. Machinery Safety Act, 1974-82.

South Australia

1. Industrial Safety, Health and Welfare Act, 1972.

2. Power Driven Machinery (Safety) Regulations, 1975.

Tasmania

1. Industrial Safety, Health and Welfare Act, 1977.

Northern Territory

1. Inspection of Machinery Act, 1981.

AUSTRIA

1. The Workers' Protection Act, DGBl. No. 234/1972 (LS 1972 - Aus. 1) as amended by the Federal Acts BGBl. No. 144/1974 and BGBl. No. 544/1982.

2. Ordinance respecting workers' health aptitude for specific types of work, BGBl. No. 39/1974.

3. Hours of Work Act, BGBl. No. 461/1969 (LS 1969 - Aus. 4A.)

4. Ordinance respecting general provisions for the protection of workers' lives, health and morality, BGBl. No. 218/1983.

BAHRAIN

1. Amiri Decree-Law No. 23 of 1976, to promulgate the Labour Act for the private sector. Assented to 16 June 1976. (LS 1976 - Bah. 1.)

2. Ministerial Order No. 15/1977 with respect to the determination and organisation of the services and precautionary measures necessary for the protection of workers during work from dangerous machinery.

3. Ministerial Order No. 13/1977 with respect to the determination and organisation of the safety precautionary measures vital for protecting the workers from the hazards of grinding wheel operations.

4. Ministerial Order No. 27/1977 with respect to the determination and organisation of services and precautionary measures vital to the protection of workers from the hazards of the machines used in woodworking.

5. Ministerial Order No. 25/1977 with respect to the determination and organisation of services and precautionary measures vital to the protection of workers in places of work.

BARBADOS

1. The Factories Act, 1982, 1983-17.

BELGIUM

1. General Regulations for the Protection of Labour.

2. Labour Act of 16 March 1971. (LS 1971 - Bel. 2.)

BELIZE

1. The Factories Ordinance, Ch. 140 of the Laws of Belize.

2. The Factories Regulations No. 24 of 1943.

BOLIVIA

1. General Labour Act, Legislative Decree of 24 May 1939. (LS 1939 - Bol. 1.)

2. General Act respecting occupational safety and health and welfare, promulgated by Legislative Decree No. 16998 of 2 August 1979.

3. Legislative Decree No. 244 of 23 August 1943, containing Regulations of the General Labour Act.

BRAZIL

1. Order No. 3214 of 8.6.1978, NR 12 - Machinery and equipment.

2. Legislative Decree No. 5452, to approve the consolidation of labour laws. Dated 1 May 1943. (LS 1985 - Bra. 1.)

3. NR 1 - General provisions.

4. NR 9 - Environmental hazards.

5. NR 15 - Unhealthy activities and operations.

6. NR 7 - Medical examination.

7. NR 6 - Personal protective equipment.

BULGARIA

1. Constitution of 16 May 1971.

2. Labour Code (1986 edition).

3. Health Standards No. 0-64 for maximum permissible noise levels in residential and public buildings and residential areas of 1982.

4. Decree No. 48 of 1980 respecting standards for permissible levels of vibration in residential buildings.

5. Decree No. 2 of 1984 respecting maximum permissible concentrations of harmful substances in the atmosphere of inhabited settlements.

6. Bulgarian State Standards (BDS):

   - BDS 8998-80: Noise. Protection of building premises. Technical requirements;

   - BDS 9170-71: Noise measurement devices;

   - BDS 14478-78: Permissible levels of production noise;

   - BDS 012-80: Labour Protection. Vibration. General occupational safety requirements;

   - BDS 13176-75: Labour protection. Vibration. Dynamic characteristics of the human organism under the effects of vibration.

BURMA

1. The Factories Act, 1951.

BURUNDI

1. Labour Code (AL No. 001/31 of 2 June 1966), section 144.

2. Decree of 8.1.52 respecting occupational safety and health.

3. Ordinance No. 22/122 of 6.4.54 to establish safety and health committees in undertakings. (LS 1954 - Bel. C 1.)

4. Ordinance No. 222/67, to issue general provisions as to safety at workplaces. Dated 20 March 1958.

BYELORUSSIAN SSR

1. Labour Code.

2. Constitution.

CANADA

Federal

1. Canada Labour Code.

2. Canada Machine Guarding Regulations C.R.C. c. 1003.

Alberta

1. Occupational Health and Safety Act, R.S.A. 1980, c. O-2.

British Columbia

1. The Industrial Health and Safety Regulations (under the Workers' Compensation Act R.S.B.C. 1979, c. 473).

Manitoba

1. Workplace Safety and Health Act, C.C.S.M. c. W210, S.M. 1976, c. 63, as amended.

New Brunswick

1. Occupational Health and Safety Act, S.N.B. 1983, c. O-2.

Newfoundland

1. Occupational Health and Safety Act, S. Nfld. 1978, c. 23.

Northwest Territories

1. Safety Act, 1974 (Safety Ordinance. Revised Ordinance) N.W.T. 1974, Ch. S-1.

Ontario

1. Occupational Health and Safety Act, R.S.O. 1980, Ch. 321, as amended.

Prince Edward Island

1. Occupational Health and Safety Act, S.P.E.I. 1985, Ch. 36.

Québec

1. Act on Occupational Health and Safety, Ch. 63, of 21 December 1979. (LS 1979 - Can. 1.)

Saskatchewan

1. Occupational Health and Safety Act, R.S.S. 1978, c. O-1, as amended.

CENTRAL AFRICAN REPUBLIC

1. General Order No. 3758/IGT/LS of 25 November 1954, respecting general measures of hygiene and safety to be applied in agricultural, forestry, industrial and commercial undertakings and in similar administrative establishments.

2. Act No. 61/221 of 2 June 1961, to establish a Labour Code for the Central African Republic.

CHILE

1. Decree No. 655 of 1941, to approve Regulations on industrial safety and health.

2. Act No. 16744, to make provision for employment injuries. Dated 23 January 1968. (LS 1968 - Chile 1.)

3. Decree No. 40 of 11 February 1969, to approve Regulations on the prevention of occupational risks.

4. Decree No. 72 of 21 October 1985, to approve Regulations on the safety in mines.

5. Decree No. 78 of 9 February 1983, to approve Regulations on the minimum environmental and sanitary conditions in places of work.

6. Decree No. 286 of 30 August 1984, to approve Regulations on the maximum allowable levels of dangerous noise from fixed sources.

COLOMBIA

1. Act No. 9a of 1979 on occupational health in Colombia.

2. Resolution No. 02400 of 1979, to promulgate the Statute of industrial safety.

3. Draft basic standard on the guarding of machinery.

4. Decree No. 614 of 14 March 1984, to determine the foundations of the organisation and administration of occupational health in the country.

5. Constitution.

6. Basic standard on industrial noise, 1984.

7. Resolution No. 02413 of 1979 respecting safety and health in the construction industry.

8. Resolution No. 92406 of 1979 respecting safety in mines.

CONGO

1. Act No. 45-75 of 15 March 1975, to establish a Labour Code for the People's Republic of Congo.

2. Order No. 3758 of 25 November 1954, respecting general measures of hygiene and safety to be applied in agricultural, forestry, industrial and commercial undertakings and in similar administrative establishments.

3. Constitution of 1961 (with amendments).

COSTA RICA

1. Act No. 6727 of 9 March 1982, respecting occupational risks. (LS 1982 - CR 1.)

2. General Regulations on occupational safety and health, 1967. (LS 1967 - CR 1.)

3. National Plan of Occupational Health. 1985-90. Ministry of Labour and Social Security. Council on Occupational Health. March 1985.

4. Constitution of 1949. (LS 1949 - CR 3.)

5. Regulations concerning control of noise and vibrations, 1979.

COTE D'IVOIRE

1. Labour Code, Act No. 64-290 of 1 August 1964. (LS 1964 - I.C. 1.)

2. Decree No. 67-321 of 21 July 1967, to consolidate the Regulations made under Part VI (Health and Safety; Medical Service) of the Labour Code.

CUBA

1. Labour Code, Act No. 49 of 1985.

2. Act No. 13 of 1977, on the protection and hygiene at work.

3. Decree No. 101 of 1982 containing General Regulations of the Act on protection and hygiene at work, No. 13.

4. Resolution No. 359 of 21 September 1979 concerning safety measures applicable to agricultural machinery.

5. Resolution No. 377 of 19 November 1979, concerning safety measures applicable to grinding machinery.

6. Cuban Standard NC 19-01-01 of 1979: Dangerous and Harmful Production Effects. Classification.

7. Cuban Standard NC 19-02-16 of 1983: Working Hygiene and Safety Standards System. Abrasive Tools. General Safety Requirements.

8. Constitution of 27 February 1976.

9. Cuban Standard NC 19-01-04 of 1980: Noise. General Hygienic-Sanitary Requirements.

10. Cuban Standard NC 19-01-05 of 1980: General Vibration. General Hygienic-Sanitary Requirements.

11. Cuban Standard NC 19-01-03 of 1980: Working Area Ventilation. General Hygienic-Sanitary Requirements.

12. Cuban Standard NC 19-03-01 of 1980: Production Processes. General Safety Requirements.

13. Cuban Standard NC 19-04-01 of 1979: Means of Protection. Classification.

14. Cuban Standard NC 19-02-01 of 1980: Means of work. General safety requirements.

CYPRUS

1. The Factories Law, Ch. 134 (1956) as amended by Laws No. 43 of 1964 and No. 32 of 1972.

2. The Factories (Amended) Law No. 22 of 1982.

3. The Woodworking Machinery Regulations, 1973.

4. The Building and Works of Engineering Construction (Safety, Health and Welfare) Regulations, 1973.

5. The Control of Factory Atmosphere and Dangerous Substances Regulations of 1973 and Amendments of 1981 and 1986.

CZECHOSLOVAKIA

1. Constitution of 11 July 1960. (LS 1960 - Cz. 2.)

2. Directions of the Ministry of Public Health (MPH) of the Czech Socialist Republic (CSR) (No. 46/1978) and Directions of the MPH of the Slovak Socialist Republic (SSR) (No. Z-1629/1978-B/3-06), respecting hygiene requirements in the working environment.

3. Notification No. 13/1977 of the MPH of the CSR and Notification No. 14/1977 of the MPH of the SSR and annexes prescribing maximum allowable limit values for noise and vibrations.

4. Directions of the MPH of the CSR (No. 42/1977) and Directions of the MPH of the SSR (No. Z-1375/1977-B/3-06), respecting the determination of the methods of measurement and estimation of noise and ultrasound in the working environment.

5. Directions of the MPH of the CSR (No. 53/1980) and Directions of the MPH of the SSR (No. Z-6544/1980-B/3-06), respecting the determination of the methods of measurement and estimation of vibrations.

6. Directions of the MPH of the CSR (No. 58/1981) and Directions of the MPH of the SSR (No. Z-4546/1980-B/3-04), respecting basic hygiene requirements, levels of the maximum allowable concentration of the most important noxious pollutants in the open air and evaluation of the levels of pollution.

7. Notification of the MPH No. 45/1966 respecting the creation and maintenance of healthy living conditions.

8. Methodological Instructions No. 9/1986 (MPH Bulletin) respecting preventive medical examinations of workers engaged in works exposing them to increased risks of occupational disease or intoxication, or to other eventual health risks.

DEMOCRATIC YEMEN

1. Labour Code, Act No. 14 of 1978.

DENMARK

1. The Working Environment Act, 1975.

DJIBOUTI

1. Order No. 63/91/SPCG of 29 July 1963, to make provision under s.134 of the Overseas Labour Code for the general health and safety measures to be taken in French Somaliland in connection with persons employed in establishments of all kinds.

DOMINICAN REPUBLIC

1. Regulations on Industrial Hygiene and Safety, 1966.

ECUADOR

1. Occupational Safety and Health Regulations of the Ecuadorian Social Security Institute.

EGYPT

1. Order No. 55 of 1983 respecting conditions and protective measures necessary to ensure occupational safety and hygiene at workplaces.

2. Decision No. 470 of 1971 of the Ministry of Health concerning the criteria of air pollution in the industrial establishments and related works.

3. Act No. 137 of 6 August 1981, to promulgate a Labour Code. (LS 1981 - Egypt 2.)

4. Decision No. 218 of 1977 of the Ministry of Insurance concerning the conditions of periodical medical examinations of workers exposed to risks of occupational diseases.

ETHIOPIA

1. Labour Standards Proclamation No. 232 of 1966. (LS 1966 - Eth. 1.)

FEDERAL REPUBLIC OF GERMANY

1. The Industrial Code of 1969. Latest version 1 January 1978.

2. Works Constitution Act. Dated 15 January 1972. (LS 1972 - Ger.F.R. 1.)

3. Ordinance on Occupational Safety and Health in Workplaces of 20 March 1975. (LS 1975 - Ger.F.R. 2.)

4. Act on Plant Physicians and Occupational Safety Specialists of 12 December 1973. (LS 1973 - Ger.F.R. 2.)

5. The Order on Dangerous Substances in the Workplace, 1980.

6. The Chemicals Act, 1980.

FINLAND

1. Act No. 299 respecting the protection of labour. Dated 28 June 1958. (LS 1958 - Fin. 1)

2. Act No. 131 to provide for the supervision of labour protection. Dated 16 February 1973. (LS 1973 - Fin. 1.)

3. The Resolution of the Council of State on the prevention of noise at workplaces (730/74).

4. Decision of the National Board of Labour Protection on the prevention of hearing impairment caused by the noise in the working environment (191/28 January 1982).

FRANCE

1. Labour Code, Dalloz, 1986.

2. Law of 11 July 1978 fixing the cost of works requiring special medical surveillance.

3. Circular No. 10 of 29 April 1980 concerning the application of the Law of 11 July 1977.

GABON

1. Labour Code, Act No. 5/78 of 1 June 1978. (LS 1978 - Gab. 1.)

2. General Order No. 3758 of 25 November 1954, respecting general measures of hygiene and safety to be applied in agricultural, forestry, industrial and commercial undertakings and in similar administrative establishments.

3. Decree No. 00017/PR of 12 January 1967, respecting the compensation payable for occupational diseases.

4. Decree No. 274 of 5 December 1962, to make Regulations respecting the use of white lead where its use is permitted.

GERMAN DEMOCRATIC REPUBLIC

1. Labour Code of the German Democratic Republic. Dated 16 June 1977. (LS 1977 - Ger.D.R. 1.)

2. Workers' Protection Ordinance of 1 December 1977.

3. Third Regulation to implement the Workers' Protection Ordinance - quality of protection, of 27 January 1980.

4. TGL 30 101: Protection of health, workers' protection, precautions against fire: Working equipment. General technical requirements to ensure safety. Issued August 1979.

5. TGL 30 104: Protection of health, workers' protection, precautions against fire: Conduct to ensure protection of workers and safeguards against fire hazards. General directives. Issued October 1978.

6. Constitution.

7. TGL 32 610/01: Occupational Hygiene: Maximum permissible concentrations of substances injurious to health in the air of workplaces. Definitions, general requirements. Issued April 1981.

8. TGL 32, 620/01: Occupational Hygiene: Maximum permissible concentrations of non-toxic dust in the air of workplaces. Definitions, abbreviations, general requirements. Issued April 1983.

9. TGL 32 624: Occupational Hygiene: Noise in the workplace. Marginal values. Issued February 1983.

10. TGL 32 627: Occupational Hygiene: Impact of mechanical vibrations on the human being. Definitions. Issued May 1983.

11. TGL 32 628/01: idem. Marginal values for whole-body vibrations in the workplace; TGL 32 628/02: idem. Marginal values for part-body vibrations; TGL 32 629: idem. Measurement and evaluation.

12. TGL 37 345: Noise measuring procedure. General requirements. Issued April 1979.

GHANA

1. Factories, Offices and Shops Act, 1970.

GREECE

1. Act No. 1568/85 respecting Occupational Safety and Health.

2. Decision of the Minister of Energy and Natural Resources No. 11-5n/c. 17/12.12.84 approving the Regulations on Works in Mines and Quarries.

3. Constitution of 1975.

GUATEMALA

1. Regulations to apply international labour Convention No. 119 concerning the guarding of machinery. Dated 17 September 1981.

2. General Regulations on occupational safety and health. Dated 28 December 1957. (LS 1957 - Gua. 2.)

3. Constitution of 1985.

GUINEA

1. Labour Code, Act No. 1 AN/60 of 30 June 1960. (LS 1960 - Gui. 1.)

2. Decree No. 253 PRG of 16 July 1974, to institute a National Occupational Medicine Service under the Ministry of Health.

GUYANA

1. Factories Act, Ch. 95:02 of the Laws of Guyana.

2. Factories (Safety) Regulations.

3. Factories (Woodworking Machinery) (Safety) Regulations.

HAITI

1. Constitution of 1983.

HONDURAS

1. Constitution of 11 January 1982.

HUNGARY

1. Act No. II of 1967, to promulgate a Labour Code (LS 1967 - Hun. 2A), modified by Legislative Decree No. 29 of 1 December 1979. (LS 1979 - Hun. 1.)

2. Decree No. 34 of the Hungarian Revolutionary Workers' and Peasants' Government for the application of Act No. II of 1967. (LS 1967 - Hun. 2B.)

3. Decree No. 2/1981 (II. 7) of the Minister of Health on the General Health Requirements at Workplaces, as amended by Decrees No. 2/1983 (II.14) and No. 4/1983 (III.16).

4. Decree No. 1/1973 (I.9) of the Council of Ministers on Protection against Air Pollution, as amended by Decision No. 1003/1979 (II.6) and Decree No. 49/1980 (XI.25) of the Council of Ministers.

5. Decree No. 12/1983 (V.12) of the Council of Ministers on Protection against Noise and Vibration.

6. Decree No. 4/1984 (I.23) of the Minister of Health on the Determination of Noise and Vibration Levels.

7. Decree No. 3/1979 (V.29) of the Minister of Health on Individual Protective Appliances, as amended by Decree No. 4/1983 (III.16).

8. Decree No. 4/1981 (III.31) of the Minister of Health on Medical aptitude tests and opinions regarding employment in certain types of work, as amended by Decree No. 4/1983 (III.16).

9. Decree No. 9/1985 (VII.20) ME on Labour Safety Instruction and Examination.

10. Hungarian State Standards (MSZ):

- MSZ 21461-78 relative to air purity requirements at workplaces;

- MSZ 18151/1-82 relative to emission levels of noise; A-sound equivalent pressure levels permitted in rooms of dwelling houses and public buildings;

- MSZ 18151/2-83 relative to emission levels of noise; A-sound equivalent pressure levels permitted at workplaces;

- MSZ 18162-82 relative to permitted levels of workplace vibrations affecting the entire human body.

INDIA

1. Factories Act, 1948. (LS 1948 - Ind. 4.)

2. Dangerous Machines (Regulation) Act 34 of 1983.

3. Constitution (as amended) (LS 1949 - Ind. 1.)

4. Air (Prevention and Control of Pollution) Act, No. 14 of 1981.

IRAQ

1. Labour Code. Law No. 151 of 1970. (LS 1970 - Iraq 1.)

IRELAND

1. Factories Act, 1955.

2. The Safety in Industry Act, 1980.

3. Factories (Carcinogenic Substances) (Processes) Regulations, No. 242 of 1972.

ITALY

1. Presidental Decree (D.P.R.) 547 of 27 April 1955 establishing requirements for the prevention of accidents at work.

2. Constitution.

3. Law No. 833 of 23 December 1978 on the National Health Services.

4. Law No. 51 of 12 February 1985 giving powers to introduce health and safety Regulations.

5. Presidential Decree (D.P.R.) No. 303 of 19 March 1956 providing general rules for hygiene at work.

6. Presidential Decree (D.P.R.) No. 302 of 19 March 1956 providing further Regulations for the prevention of accidents at work.

7. Law No. 706 of 19 July 1961 concerning use of white lead in paint.

8. Law No. 245 of 5 March 1963 concerning use of benzol and its homologues in work processes.

JAPAN

1. Industrial Safety and Health Act. No. 57 of 1972.

2. Enforcement Order of Industrial Safety and Health Act - Cabinet Order No. 318 of 1972.

3. Ordinance on Industrial Safety and Health - Ministry of Labour Ordinance No. 32 of 1972.

KENYA

1. The Factories Act, Ch. 514.

KUWAIT

1. Ministerial Order No. 56 of 1982, respecting the guarding of machinery.

2. Ministerial Order No. 43 of 1979, respecting the conditions to be observed on worksites and in workplaces to ensure the protection of workers, machines, plant and substances against occupational hazards, health risks and occupational diseases.

3. Labour Code for the private sector, Act No. 38 of 1964.

4. Ministerial Order No. 17 of 25.8.1973, respecting occupational diseases and occupations causing such diseases.

5. Order No. 45 of 1979, to publish scales, standards and measures for safety at workplaces.

LUXEMBOURG

1. Constitution of 21 May 1948.

2. Law of 28 August 1924 concerning the health and safety of persons employed in workshops, industrial or commercial enterprises or in construction, fitting, repair or earthworks. (LS 1924 - Lux. 2A.)

MADAGASCAR

1. Order No. 889 of 20 May 1960, to prescribe the general measures to be taken in the matter of occupational health and safety.

2. Decree No. 63-134 of 22 February 1963, to institute a Family Allowances and Employment Accidents Code.

3. Labour Code, Ordinance No. 75-013/DM of 17 May 1975. (LS 1975 - Mad. 1.)

MALAWI

1. The Factories Act, Ch. 55:07.

MALAYSIA

1. Factories and Machinery Act, 1967 No. 139 (Revised-1974).

2. Factories and Machinery (Fencing of Machinery and Safety) Regulations, 1970.

MALI

1. Labour Code, Act No. 62-67 A.N.-R.M. of 19 August 1962. (LS 1962 - Mali 1.)

2. Decree No. 2993/MR/CAB of 23.12.1975, to prescribe the composition, attributions and functioning procedures of the safety and health committees.

3. Circular No. 524/DNTLS of 15.12.1975 - Safety and health.

MAURITANIA

1. Order No. 5253 of 19 July 1954, modified by Order No. 10300 of 2 June 1965, to prescribe the general hygiene and safety measures applicable to workers in establishments of any kind. (LS 1954 - F.W.A. 1.)

MAURITIUS

1. The Health, Safety and Welfare Regulations, 1980.

MEXICO

1. Political Constitution of the United States of Mexico, 1917. (LS 1960 - Mex. 1; 1962 - Mex. 1.)

2. Federal Labour Act. Dated 2 December 1969. (LS 1969 - Mex. 1. See also 1973 - Mex. 2; 1979 - Mex. 1A, 1B, 1C, 1D.)

3. General Regulations on occupational safety and health, 1978.

4. Instructions issued under the General Regulations on occupational safety and health, between 1981 and 1985:

   No. 11: concerning safety and health conditions in the centres of employment which produce noise.

   No. 17: concerning requirements and characteristics in respect of personal protective equipment for workers.

   No. 9: concerning safety and health conditions in storage, transport and handling of corrosive, irritants and toxic substances in the centres of employment.

   No. 13: concerning safety and health conditions in the centres of employment where there is exposure to non-ionising electromagnetic radiations.

MONGOLIA

1. Labour Code, approved by Act of 3 July 1973. (LS 1985 - Mong. 1.)

MOROCCO

1. Decree of 2 July 1947 respecting labour Regulations. (LS 1947 - Mor. 1.)

2. Order of 4 November 1952 prescribing general safety and health measures for all establishments in commerce, industry and the liberal professions.

3. Order of 11 June 1949 to establish the list of machines or parts of machines which are dangerous to workers and for which there are protective devices of recognised efficacity.

MOZAMBIQUE

1. Legislative Decree No. 57/73 of 23.11.1973.

2. Legislative Decree No. 48/73 of 5 July 1973, to approve General Regulations on occupational safety and health in industrial establishments.

3. Labour Act No. 8/85 of 14.12.85.

NEPAL

1. Nepal Factories and Factory Workers' Act, 1959 (as amended in 1978).

NETHERLANDS

1. Working Environment Act, 1980. (LS 1980 - Neth. 4.)

NEW ZEALAND

1. Machinery Act, 1950.

2. Factories and Commercial Premises Act, 1981. (LS 1981 - NZ. 2.)

NICARAGUA

1. Statute of the Rights and Guarantees of the Nicaraguan People.

NIGER

1. Act No. 62-12 of 13 July 1962, to promulgate the Labour Code of the Republic of Niger.

2. General Order No. 5253/IGTLS/AOF of 19 July 1954, to prescribe the general hygiene and safety measures applicable to workers of any kind. (LS 1954 - F.W.A. 1.)

NORWAY

1. Act respecting workers' protection and the working environment, etc. No. 4, dated 4 February 1977. (LS 1977 - Nor. 1.)

2. Act of 19 December 1958 respecting the conditions of employment of agricultural workers.

3. General Regulations concerning technical appliances. Established by Royal Decree of 10 September 1982.

PAKISTAN

1. The Factories Act, 1934, (9th edition, 1982). (LS 1946 - Ind. 1.)

2. Pakistan Environment Protection Ordinances, 1983.

PANAMA

1. Labour Code. Edition of August 1981. (LS 1971 - Pan. 1; 1981 - Pan. 1A, 1B.)

2. Decree No. 27 of 30 November 1981, to establish provisions for the application of the Guarding of Machinery Convention, 1963 (No. 119).

3. Political Constitution of the Republic of Panama, as amended in 1983.

4. Decree No. 150 of 19 February 1971, to establish Regulations concerning dangerous noise produced in factories, industries, workshops and commercial premises or in any other establishment.

5. Decree No. 345 of 21 May 1971, to modify articles 3, 4, 5 and 7 of Decree No. 150 of 19 February 1971.

PARAGUAY

1. Resolution No. 649, to regulate technical aspects of the safety and health matters in respect of the machinery in general, in all places of work in the capital and interior regions of the country.

2. Labour Code, Act No. 729 of 31 August 1961. (LS 1961 - Par. 1.)

PERU

1. Constitution of Peru. Promulgated on 12 July 1979. (LS 1984 - Peru 1.)

2. General Act on Industries, No. 23407 of 28 May 1982.

PHILIPPINES

1. Occcupational Safety and Health Standards, 1978.

POLAND

1. Labour Code. Dated 26 June 1974. (LS 1974 - Pol. 1A; 1B.)

2. Order of the Minister of Labour, Wages and Social Affairs of 22 December 1982 respecting the maximum allowable concentrations and intensity of harmful agents in the working environment.

3. Order of the Minister of Labour, Wages and Social Affairs of 27 November 1985 respecting the maximum allowable instantaneous and threshold concentration of harmful agents in the working environment.

4. Polish Norms PN-83/N-01353 and PN-83/N-01354 respecting determination of the level of permissible vibration.

PORTUGAL

1. General Regulations on safety and health in the industrial establishments. (Order No. 53/71 of 3 February modified by Order No. 702/80 of 22 September.)

2. NP-1733 (estimation of exposure to noise in the occupational activities for the protection of hearing). Order No. 321/81 of 2 April.

3. NP-1673 (evaluation of the reaction to the whole-body vibration). Order No. 839/80 of 28 October.

4. Decree No. 12/80 of 8 March revising the list of occupational diseases.

5. Resolution of the Council of Ministers No. 204/82 of 16 November establishing the National Council on the Occupational Safety and Health.

SAN MARINO

1. Act No. 40 of 2 July 1969 on the prevention of occupational risks and on occupational hygiene.

SAUDI ARABIA

1. Royal Decree No. M/21: Labour Code. Dated 15 November 1969. (LS 1969 - Sau.Ar. 1.)

SEYCHELLES

1. The Occupational Safety and Health Decree, 1978.

SIERRA LEONE

1. Factories Act No. 3 of 1971.

2. Machinery (Safe Working and Inspection) Act.

3. Machinery (Safe Working and Inspection) Rules.

SINGAPORE

1. The Factories Act No. 6 of 1973.

2. The Factories (Medical Examinations) Regulations, 1985.

SOLOMON ISLANDS

1. Safety at Work Act 1982.

SPAIN

1. Royal Decree No. 1495/1986 of 26 March, to approve Machines Safety Regulations.

2. General Order on Occupational Safety and Health, 1971. (LS 1971 - Sp. 2A.)

3. Order of 9 April 1986, to approve the Regulations governing risk prevention and the protection of workers' health in respect of the presence of metallic lead and its ionic components in the working environment.

4. Order of 9 April 1986, to approve the Regulations governing risk prevention and health protection in the event of the presence of monomeric vinyl chloride in the working environment.

5. Regulatory Technical Standard MT-2 on hearing protectors.

6. Order of 21 November 1959, to approve the Regulations of the medical services of the undertaking.

7. Royal Decree No. 577 of 17 March 1982, to provide for the structure, powers and duties of the National Occupational Safety and Health Institute.

8. Ministerial Order of 31 October 1984, to approve Regulations on work involving asbestos hazards.

SRI LANKA

1. Factories Ordinance No. 45 of 1942, Ch. 128 of the Legislative Enactments of Sri Lanka.

2. National Environmental Act No. 47 of 1980.

SUDAN

1. Act of 1976 respecting occupational safety.

2. Factories Regulations (Occupational Hygiene), 1978.

SWEDEN

1. The Work Environment Act (1977:1160), of 19 December 1977 (as amended until January 1983). (LS 1977 - Swe. 4.)

2. The Work Environment Ordinance (1978:1166), of 19 December 1977 (as amended until January 1983).

3. Direction No. 110: Noise at Work, 1976.

4. Direction No. 110:1 Infra and Ultra Sound at Work, 1978.

5. Direction No. 100: Hygienic Limit Values, 1978.

SWITZERLAND

1. Federal Law on the Safety of Installations and Technical Equipment of 19 March 1976.

2. Order concerning the Safety of Installations and Technical Equipment of 21 December 1977.

SYRIAN ARAB REPUBLIC

1. Ministerial Order No. 269 of 1.3.1977.

2. Ministerial Order No. 234 of 18.2.1978, to amend Ministerial Order No. 269 of 1.3.1978.

3. Order No. 107 of 1973.

TANZANIA

1. Factories Ordinance, 1950.

TOGO

1. Labour Code, Ordinance No. 16 of 8 May 1974.

2. Decree No. 70-164 of 2.10.1970, to prescribe the general safety and health measures applying to workers in establishments of all kinds.

3. Decree No. 57-128 of 4.10.1957, to prohibit the use of white lead, sulphate of lead and of all products containing these pigments in painting work of any kind.

TUNISIA

1. Decree No. 67-391 of 6 November 1967, respecting health and safety and the employment of women and children in establishments engaged in commerce, industry and the liberal professions. (LS 1967 - Tun. 1.)

2. Labour Code, Act No. 66-27 of 30 April 1966. (LS 1966 - Tun. 1.)

3. Decree No. 68-83 of 23 March 1968, to prescribe the types of work requiring special medical supervision.

4. Decree No. 68-328 of 22 October 1968, to prescribe the general health rules applicable in undertakings covered by the Labour Code.

TURKEY

1. The Labour Code Act No. 1475 of 25 August 1971 (LS 1983 - Tur. 3.)

2. Regulations concerning guarding of machinery of 17 May 1983.

3. General safety rules against occupational accidents in machinery.

4. Guarding and safe use of woodworking machinery.

5. Regulations concerning safety and health of workers, No. 7/7583 of 4 December 1973, taken under section 74 of the Labour Act No. 1475.

6. Constitution of 1982.

UKRAINIAN SSR

1. Labour Code.

2. Constitution.

USSR

1. Act No. 2-VIII of the Supreme Soviet of the USSR, to approve the fundamental principles governing the labour legislation of the USSR and the Union Republic. Dated 15 July 1970. (LS 1970 - USSR. 1.)

2. Labour Code of the RSFSR, 1971 (LS 1971 - USSR. 1.)

3. Labour Code of the Latvian SSR.

4. Labour Code of the Uzbeck SSR.

5. GOST 12.0.004-79: Organisation of staff training for labour safety. General.

6. GOST 12.2.003-74: Industrial equipment. General safety requirements.

7. GOST 1.22-76: Standardisation of export products. Basic concepts.

8. Constitution of the USSR.

9. GOST 12.1.001-83: Ultrasound. General safety requirements.

10. GOST 12.1.003-83: Noise. General safety requirements.

11. GOST 12.1.005-76: Working zone area. General sanitary requirements.

12. GOST 12.1.006-78: Electromagnetic fields of radiofrequency. General safety requirements.

13. GOST 12.1.016-79: Working zone area. Requirements for measurement techniques of hazardous matter concentrations.

14. GOST 12.1.034-81: Vibration. General requirements to the measurements.

15. GOST 12.1.012-78: Vibration. General safety requirements.

16. GOST 12.1.029-80: Means and methods for defence from noise. Classification.

17. GOST 12.4.011-75: Means of protection of workers. Classification.

UNITED ARAB EMIRATES

1. Federal Law No. 8 to regulate employment relationships. Dated 20 April 1980. (LS 1980 - UAE. 1.)

2. Ministerial Order No. 32 of 1982 determining measures to ensure protection of workers against occupational hazards.

UNITED KINGDOM

1. Factories Act, 1961. (LS 1961 - UK. 1.)

2. Health and Safety at Work etc., Act, 1974. (LS 1974 - UK. 2.)

3. Offices, Shops and Railway Premises Act, 1963.

4. Woodworking Machines Regulations.

UNITED STATES

1. Occupational Safety and Health Act, 1970. (LS 1970 - USA 1.)

2. Code of Federal Regulations. Title 29. Parts 1900 to 1910.

URUGUAY

1. Resolution of 24 February 1938, containing Regulations on the hygiene in factories and workshops.

2. Resolution of the Ministry of Labour and Social Security of 13.9.1979.

3. Decree No. 199/981 of 6 May 1981, containing Regulations to apply international labour Convention No. 119 in respect of the protection of operators and personnel working in the area with risks due to industrial, commercial or agricultural machinery.

VENEZUELA

1. Organic Act on the prevention, conditions and the working environment, 1986.

2. Labour Act, 1983. (LS 1983 - Ven. 1.)

3. Constitution of Venezuela of 23.1.1961. (LS 1961 - Ven. 1.)

4. Regulations concerning safety and health conditions at work.

5. Resolution G.O. 187 of 6.2.1985 of the Ministry of Health and Social Assistance.

6. Partial Regulations of the Ministry of Environment on the control of unhealthy or noxious noise.

7. Venezuelan Standard COVENIN 2252-85: Dusts. Determination of the concentration in the working environment. (Provisional.)

8. Venezuelan Standard COVENIN 2253-85: Maximum permissible concentrations at the place of work. (Provisional.)

9. Venezuelan Standard COVENIN 2250-85: Ventilation at the place of work. (Provisional.)

10. Venezuelan Standard COVENIN 2237-85: Protective clothing, equipment and devices in relation to occupational risks. (Provisional.)

11. Venezuelan Standard COVENIN 1565: Occupational noise. (Provisional.)

12. Venezuelan Standard COVENIN 2277-85: Lead and its compounds. Occupational safety and health measures. (Provisional.)

YUGOSLAVIA

1. Constitution of the SFRY, 1974. (LS 1974 - Yug. 1.)

2. Associated Labour Act (Official Gazette of SFRY, No. 53/76).

3. Regulations on general measures and standards for safety at work against noise in working premises (Official Gazette of SFRY, No. 29/71).

4. Regulations on periodic examination of tools and devices, chemical and biological hazards and microchemicals (Official Gazette of SFRY, No. 26/67).

5. Regulations on personal safety at work kits and personal protective equipment (Official Gazette of SFRY, No. 35/69).

6. Regulations on general measures and standards for safety at work on tools and devices (Official Gazette of SFRY, No. 18/67).

7. Regulations on pre-assignment medical examination and periodic examinations of workers.

8. Labour Protection Act of the Socialist Republic of Croatia, 1974.

9. Labour Protection Act of the Socialist Republic of Macedonia, 1973.

10. Labour Protection Act of the Socialist Republic of Montenegro, 1975.

11. Labour Protection Act of the Socialist Republic of Serboa, 1975.

12. Labour Protection Act of the Socialist Republic of Slovenia, 1974.

13. Labour Protection Act of the Socialist Autonomous Province of Kosovo.

14. Labour Protection Act of the Socialist Autonomous Province of Voivodina.

ZAIRE

1. Ministerial Order No. 0057-71 of 20 December 1971, to issue Regulations respecting safety in workplaces.

2. Draft Decree respecting the guarding of machinery.

ZAMBIA

1. The Factories Act, Ch. 514 of the Laws of Zambia.

APPENDIX II

REPORTS RECEIVED ON CONVENTIONS NOS. 119 AND 148 AND RECOMMENDATIONS NOS. 118 AND 156

Member States	Convention No. 119	Recommendation No. 118	Convention No. 148	Recommendation No. 156
Afghanistan	X	X	X	X
Algeria	R	X	X	X
Angola	-	-	-	-
Antigua and Barbuda	X	X	X	X
Argentina	X	X	X	X
Australia	X	X	X	X
Austria	X	X	X	X
Bahamas	X	X	X	X
Bahrain	X	X	X	X
Bangladesh	-	-	-	-
Barbados	X	X	X	X
Belgium	X	X	X	X
Belize	X	X	X	X
Benin	X	X	-	-
Bolivia	X	X	X	X
Botswana	-	-	-	-
Brazil	X	X	R	X
Bulgaria	X	X	X	X
Burkina Faso	-	-	-	-
Burma	X	X	X	X
Burundi	X	X	X	X
Byelorussian SSR	R	X	-	-
Cameroon	-	-	-	-
Canada	X	X	X	X
Cape Verde	X	X	X	X
Central African Republic	R	-	-	-
Chad	-	-	-	X
Chile	X	X	X	X
China	X	X	X	X
Colombia	X	X	X	X
Comoros	-	X	-	X
Congo	R	X	X	X
Costa Rica	X	X	R	X
Côte d'Ivoire	X	X	X	X
Cuba	X	X	R	X
Cyprus	R	X	X	X
Czechoslovakia	X	X	X	X
Democratic Yemen	X	X	X	X
Denmark	-	-	-	-
Djibouti	X	X	X	X

Member States	Convention No. 119	Recommendation No. 118	Convention No. 148	Recommendation No. 156
Dominica	-	-	-	-
Dominican Republic	R	-	-	-
Ecuador	R	X	R	X
Egypt	X	X	X	X
El Salvador	-	-	-	-
Equatorial Guinea	-	-	-	-
Ethiopia	X	X	X	X
Fiji	-	-	-	-
Finland	R	X	R	X
France	X	X	R	X
Gabon	X	X	-	-
German Democratic Republic	X	X	X	X
Germany, Federal Republic of	X	X	X	X
Ghana	R	X	X	X
Greece	X	X	X	X
Grenada	-	-	-	-
Guatemala	R	X	X	X
Guinea	R	X	R	X
Guinea-Bissau	-	-	-	-
Guyana	X	-	-	X
Haiti	-	-	-	-
Honduras	X	X	X	X
Hungary	X	X	X	X
Iceland	-	-	-	-
India	X	X	X	X
Indonesia	X	X	X	X
Iran, Islamic Republic of	-	-	-	-
Iraq	X	X	R	-
Ireland	X	X	X	X
Israel	-	-	-	-
Italy	R	-	R	-
Jamaica	-	-	-	-
Japan	R	X	X	X
Jordan	R	X	X	X
Democratic Kampuchea	-	-	-	-
Kenya	X	X	X	X
Kuwait	R	-	X	X
Lao People's Democratic Republic	X	X	X	X

Member States	Convention No. 119	Recommendation No. 118	Convention No. 148	Recommendation No. 156
Lebanon	–	–	–	–
Lesotho	–	–	–	–
Liberia	–	–	–	–
Libyan Arab Jamahiriya	–	–	–	–
Luxembourg	X	X	X	X
Madagascar	R	–	X	X
Malawi	–	X	X	X
Malaysia	R	–	X	X
Mali	X	X	X	X
Malta	–	–	–	–
Mauritania	X	X	X	X
Mauritius	X	X	X	X
Mexico	X	X	X	X
Mongolia	X	X	X	X
Morocco	R	X	X	X
Mozambique	X	X	X	X
Nepal	X	X	X	X
Netherlands	–	–	–	–
New Zealand	X	X	X	X
Nicaragua	R	–	–	–
Niger	R	X	X	X
Nigeria	X	X	X	X
Norway	R	X	R	X
Pakistan	X	X	X	X
Panama	R	X	X	X
Papua New Guinea	–	–	–	–
Paraguay	R	–	–	–
Peru	X	X	X	X
Philippines	X	X	X	X
Poland	R	X	X	X
Portugal	X	X	R	X
Qatar	–	–	–	–
Romania	X	X	X	X
Rwanda	X	X	X	X
Saint Lucia	–	–	–	–
San Marino	X	X	X	X
Sao Tome and Principe	–	–	–	–
Saudi Arabia	X	X	X	X
Senegal	–	–	–	–
Seychelles	X	–	X	–
Sierra Leone	R	–	–	–
Singapore	X	X	X	X
Solomon Islands	X	X	X	X
Somalia	X	X	X	X
Spain	R	X	R	X

Member States	Convention No. 119	Recommendation No. 118	Convention No. 148	Recommendation No. 156
Sri Lanka	X	X	X	X
Sudan	X	X	X	X
Suriname	X	X	X	X
Swaziland	X	X	X	X
Sweden	R	X	R	X
Switzerland	X	X	X	X
Syrian Arab Republic	R	-	-	-
Tanzania, United Republic of	-	-	R	-
Thailand	-	-	-	-
Togo	X	X	X	X
Trinidad and Tobago	-	-	-	-
Tunisia	R	X	X	X
Turkey	R	X	X	X
Uganda	-	-	-	-
Ukrainian SSR	R	X	X	X
USSR	R	X	-	-
United Arab Emirates	X	X	X	X
United Kingdom	X	X	R	X
United States	X	X	X	X
Uruguay	R	-	X	-
Venezuela	X	X	X	X
Yemen	-	-	-	-
Yugoslavia	R	X	R	X
Zaire	R	-	-	-
Zambia	X	X	R	-
Zimbabwe	-	-	-	-

Note: A total of 20 reports has also been received in respect of the following non-metropolitan territories: United Kingdom: Bermuda, British Virgin Islands, Falkland Islands (Malvinas), Gibraltar, Guernsey, Hong Kong, Isle of Man and Montserrat.

R = Ratified Convention X = Report received - = Report not received

APPENDIX III

TEXT OF THE SUBSTANTIVE PROVISIONS OF THE GUARDING OF MACHINERY CONVENTION (NO. 119) AND RECOMMENDATION (NO. 118), 1963, AND OF THE WORKING ENVIRONMENT (AIR POLLUTION, NOISE AND VIBRATION) CONVENTION (NO. 148) AND RECOMMENDATION (NO. 156), 1977

Convention No. 119

.....

PART I. GENERAL PROVISIONS

Article 1

1. All power-driven machinery, new or second-hand, shall be considered as machinery for the purpose of the application of this Convention.

2. The competent authority in each country shall determine whether and how far machinery, new or second-hand, operated by manual power presents a risk of injury to the worker and shall be considered as machinery for the purpose of the application of this Convention. Such decisions shall be taken after consultation with the most representative organisations of employers and workers concerned. The initiative for such consultation can be taken by any such organisation.

3. The provisions of this Convention—

(a) apply to road and rail vehicles during locomotion only in relation to the safety of the operator or operators ;

(b) apply to mobile agricultural machinery only in relation to the safety of workers employed in connection with such machinery.

PART II. SALE, HIRE, TRANSFER IN ANY OTHER MANNER AND EXHIBITION

Article 2

1. The sale and hire of machinery of which the dangerous parts specified in paragraphs 3 and 4 of this Article are without appropriate guards shall be prohibited by national laws or regulations or prevented by other equally effective measures.

2. The transfer in any other manner and exhibition of machinery of which the dangerous parts specified in paragraphs 3 and 4 of this Article are without appropriate guards shall, to such extent as the competent authority may determine, be prohibited by national laws or regulations or prevented by other equally effective measures : Provided that during the exhibition of machinery the temporary removal of the guards in order to demonstrate the machinery shall not be deemed to be an infringement of this provision as long as appropriate precautions to prevent danger to persons are taken.

3. All set-screws, bolts and keys, and, to the extent prescribed by the competent authority, other projecting parts of any moving part of machinery also liable to present danger to any person coming into contact with them when they are in motion, shall be so designed, sunk or protected as to prevent such danger.

4. All flywheels, gearing, cone and cylinder friction drives, cams, pulleys, belts, chains, pinions, worm gears, crank arms and slide blocks,

and, to the extent prescribed by the competent authority, shafting (including the journal ends) and other transmission machinery also liable to present danger to any person coming into contact with them when they are in motion, shall be so designed or protected as to prevent such danger. Controls also shall be so designed or protected as to prevent danger.

Article 3

1. The provisions of Article 2 do not apply to machinery or dangerous parts thereof specified in that Article which—

(a) are, by virtue of their construction, as safe as if they were guarded by appropriate safety devices ; or

(b) are intended to be so installed or placed that, by virtue of their installation or position, they are as safe as if they were guarded by appropriate safety devices.

2. The prohibition of the sale, hire, transfer in any other manner or exhibition of machinery provided for in paragraphs 1 and 2 of Article 2 does not apply to machinery by reason only of the machinery being so designed that the requirements of paragraphs 3 and 4 of that Article are not fully complied with during maintenance, lubrication, setting-up and adjustment, if such operations can be carried out in conformity with accepted standards of safety.

3. The provisions of Article 2 do not prohibit the sale or transfer in any other manner of machinery for storage, scrapping or reconditioning, but such machinery shall not be sold, hired, transferred in any other manner or exhibited after storage or reconditioning unless protected in conformity with the said provisions.

Article 4

The obligation to ensure compliance with the provisions of Article 2 shall rest on the vendor, the person letting out on hire or transferring the machinery in any other manner, or the exhibitor and, where appropriate under national laws or regulations, on their respective agents. This obligation shall rest on the manufacturer when he sells machinery, lets it out on hire, transfers it in any other manner or exhibits it.

Article 5

1. Any Member may provide for a temporary exemption from the provisions of Article 2.

2. The duration of such temporary exemption, which shall in no case exceed three years from the coming into force of the Convention for the Member concerned, and any other conditions relating thereto, shall be prescribed by national laws or regulations or determined by other equally effective measures.

3. In the application of this Article the competent authority shall consult the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations.

PART III. USE

Article 6

1. The use of machinery any dangerous part of which, including the point of operation, is without appropriate guards shall be prohibited by national laws or regulations or prevented by other equally effective measures : Provided that where this prohibition cannot fully apply without

preventing the use of the machinery it shall apply to the extent that the use of the machinery permits.

2. Machinery shall be so guarded as to ensure that national regulations and standards of occupational safety and hygiene are not infringed.

Article 7

The obligation to ensure compliance with the provisions of Article 6 shall rest on the employer.

Article 8

1. The provisions of Article 6 do not apply to machinery or parts thereof which, by virtue of their construction, installation or position, are as safe as if they were guarded by appropriate safety devices.

2. The provisions of Article 6 and Article 11 do not prevent the maintenance, lubrication, setting-up or adjustment of machinery or parts thereof carried out in conformity with accepted standards of safety.

Article 9

1. Any Member may provide for a temporary exemption from the provisions of Article 6.

2. The duration of such temporary exemption, which shall in no case exceed three years from the coming into force of the Convention for the Member concerned, and any other conditions relating thereto, shall be prescribed by national laws or regulations or determined by other equally effective measures.

3. In the application of this Article the competent authority shall consult the most representative organisations of employers and workers concerned.

Article 10

1. The employer shall take steps to bring national laws or regulations relating to the guarding of machinery to the notice of workers and shall instruct them, as and where appropriate, regarding the dangers arising and the precautions to be observed in the use of machinery.

2. The employer shall establish and maintain such environmental conditions as not to endanger workers employed on machinery covered by this Convention.

Article 11

1. No worker shall use any machinery without the guards provided being in position, nor shall any worker be required to use any machinery without the guards provided being in position.

2. No worker using machinery shall make inoperative the guards provided, nor shall such guards be made inoperative on any machinery to be used by any worker.

Article 12

The ratification of this Convention shall not affect the rights of workers under national social security or social insurance legislation.

Article 13

The provisions of this Part of this Convention relating to the obligations of employers and workers shall, if and in so far as the competent authority so determines, apply to self-employed workers.

Article 14

The term " employer " for the purpose of this Part of this Convention includes, where appropriate under national laws or regulations, a prescribed agent of the employer.

Part IV. Measures of Application

Article 15

1. All necessary measures, including the provision of appropriate penalties, shall be taken to ensure the effective enforcement of the provisions of this Convention.

2. Each Member which ratifies this Convention undertakes to provide appropriate inspection services for the purpose of supervising the application of the provisions of the Convention, or to satisfy itself that appropriate inspection is carried out.

Article 16

Any national laws or regulations giving effect to the provisions of this Convention shall be made by the competent authority after consultation with the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations.

Part V. Scope

Article 17

1. The provisions of this Convention apply to all branches of economic activity unless the Member ratifying the Convention specifies a more limited application by a declaration appended to its ratification.

2. In cases where a declaration specifying a more limited application is made—

(a) the provisions of the Convention shall be applicable as a minimum to undertakings or branches of economic activity in respect of which the competent authority, after consultation with the labour inspection services and with the most representative organisations of employers and workers concerned, determines that machinery is extensively used ; the initiative for such consultation can be taken by any such organisation ;

(b) the Member shall indicate in its reports under article 22 of the Constitution of the International Labour Organisation any progress which may have been made with a view towards wider application of the provisions of this Convention.

3. Any Member which has made a declaration in pursuance of paragraph 1 of this Article may at any time cancel that declaration in whole or in part by a subsequent declaration.

. . . . . .

Recommendation No. 118

. . . . . .

I. Manufacture, Sale, Hire, Transfer in Any Other Manner and Exhibition

1. (1) The manufacture, sale, hire, and, to such extent as the competent authority may determine, the transfer in any other manner and exhibition of specified types of machinery should be prohibited by national laws or regulations or prevented by other equally effective measures when this machinery, as defined in Article 1 of the Guarding of Machinery Convention, 1963, comprises, in addition to the parts specified in Article 2 thereof, dangerous working parts (at the point of operation) which are without appropriate guards.

(2) The provisions of subparagraph (1) of this Paragraph and of Paragraph 2 should be considered in the design of the machinery in question.

(3) The types of machinery referred to in subparagraph (1) should be specified by national laws or regulations or other equally effective measures.

2. In specifying the types of machinery covered by Paragraph 1 account should also be taken of the following provisions :

(a) all working parts of machinery which, while in operation, may produce flying particles should be adequately guarded in such a manner as to ensure the safety of the operators ;

(b) all parts of machinery which are under dangerous electrical pressure should be protected in such a manner as to give complete protection to the workers ;

(c) wherever possible, automatic safeguards should protect persons when machinery is being started, is in operation or is being stopped ;

(d) machinery should be so constructed as to exclude as far as possible any dangers other than those specified in this Paragraph to which a person working on the machines may be exposed, taking account of the nature of the materials or the type of danger.

3. (1) The provisions of Paragraph 1 do not apply to machinery or working parts thereof specified in that Paragraph which—

(a) are, by virtue of their construction, as safe as if they were guarded by appropriate safety devices ; or

(b) are intended to be so installed or placed that, by virtue of their installation or position, they are as safe as if they were guarded by appropriate safety devices.

(2) The prohibition of the manufacture, sale, hire, transfer in any other manner, or exhibition of machinery provided for in Paragraph 1 does not apply to machinery by reason only of the machinery being so designed that the requirements of that Paragraph concerning guarding are not fully complied with during maintenance, lubrication, setting-up and adjustment, if such operations can be carried out in conformity with accepted standards of safety.

(3) The provisions of Paragraph 1 do not prohibit the sale or transfer in any other manner of machinery for storage, scrapping or reconditioning, but such machinery should not be sold, hired, transferred in any other manner or exhibited after storage or reconditioning unless protected in conformity with the said provisions.

4. The obligation to ensure compliance with the provisions of Paragraph 1 should rest on the manufacturer, the vendor, the person letting

out on hire or transferring the machinery in any other manner, or the exhibitor, and, where appropriate under national laws or regulations, their respective agents.

5. (1) Any Member may provide for a temporary exemption from the provisions of Paragraph 1.

(2) The duration of such temporary exemption, which should in no case exceed three years, and any other conditions relating thereto, should be prescribed by national laws or regulations or determined by other equally effective measures.

(3) In the application of this Paragraph the competent authority should consult the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations.

6. Any operating instructions for machinery should be based on safe methods of operation.

II. Use

7. (1) The use of machinery any dangerous part of which, including the point of operation, is without appropriate guards should be prohibited by national laws or regulations or prevented by other equally effective measures : Provided that where this prohibition cannot fully apply without preventing the use of the machinery it should apply to the extent that the use of the machinery permits.

(2) Machinery should be so guarded as to ensure that national regulations and standards of occupational safety and hygiene are not infringed.

8. The obligation to ensure compliance with the provisions of Paragraph 7 should rest on the employer.

9. (1) The provisions of Paragraph 7 do not apply to machinery or parts thereof which, by virtue of their construction, installation or position, are as safe as if they were guarded by appropriate safety devices.

(2) The provisions of Paragraph 7 and Paragraph 12 do not prevent the maintenance, lubrication, setting-up or adjustment of machinery or parts thereof carried out in conformity with accepted standards of safety.

10. (1) Any Member may provide for a temporary exemption from the provisions of Paragraph 7.

(2) The duration of such temporary exemption, which should in no case exceed three years, and any other conditions relating thereto, should be prescribed by national laws or regulations or determined by other equally effective measures.

(3) In the application of this Paragraph the competent authority should consult the most representative organisations of employers and workers concerned.

11. (1) The employer should take steps to bring national laws or regulations relating to the guarding of machinery to the notice of workers and should instruct them, as and where appropriate, regarding the dangers arising and the precautions to be observed in the use of machinery.

(2) The employer should establish and maintain such environmental conditions as not to endanger workers employed on machinery covered by this Recommendation.

12. (1) No worker should use any machinery without the guards provided being in position, nor should any worker be required to use any machinery without the guards provided being in position.

(2) No worker using machinery should make inoperative the guards provided, nor should such guards be made inoperative on any machinery to be used by any worker.

13. The rights of workers under national social security or social insurance legislation should not be affected by the application of this Recommendation.

14. The provisions of this part of this Recommendation relating to the obligations of employers and workers should, if and in so far as the competent authority so determines, be applied to self-employed workers.

15. The term " employer " for the purpose of this part of this Recommendation includes, where appropriate under national laws and regulations, a prescribed agent of the employer.

III. Scope

16. This Recommendation applies to all branches of conomic activity.

IV. Miscellaneous Provisions

17. (1) All necessary measures should be taken to ensure the effective enforcement of the provisions of this Recommendation. Such measures should include the fullest possible detailed specification of the means by which machinery or certain types thercof may be regarded as appropriately guarded, provision for effective inspection and provision for appropriate penalties.

(2) Each Member should provide appropriate inspection services for the purpose of supervising the application of this Recommendation, or satisfy itself that appropriate inspection is carried out.

18. (1) Members exporting or importing machinery should enter into bilateral or multilateral arrangements providing for mutual consultation and co-operation concerning the application of the Guarding of Machinery Convention, 1963, and this Recommendation in respect of transactions having an international character for the sale or hire of machinery.

(2) Such arrangements should provide, in particular, for uniformity in occupational safety and hygiene standards relating to machinery.

(3) In making such arrangements, Members should have regard to the relevant Model Codes of Safety Regulations and Codes of Practice published from time to time by the International Labour Office, and to the appropriate standards of international organisations for standardisation.

19. National laws or regulations giving effect to the provisions of this Recommendation should be made by the competent authority after consultation with the most representative organisations of employers and workers concerned and, as appropriate, manufacturers' organisations.

Convention No. 148

.....

PART I. SCOPE AND DEFINITIONS

Article 1

1. This Convention applies to all branches of economic activity.

2. A Member ratifying this Convention may, after consultation with the representative organisations of employers and workers concerned, where such exist, exclude from the application of the Convention particular branches of economic activity in respect of which special problems of a substantial nature arise.

3. Each Member which ratifies this Convention shall list in the first report on the application of the Convention submitted under article 22 of the Constitution of the International Labour Organisation any branches which may have been excluded in pursuance of paragraph 2 of this Article, giving the reasons for such exclusion, and shall state in subsequent reports the position of its law and practice in respect of the branches excluded, and the extent to which effect has been given or is proposed to be given to the Convention in respect of such branches.

Article 2

1. Each Member, after consultation with the representative organisations of employers and workers, where such exist, may accept the obligations of this Convention separately in respect of—

(a) air pollution;

(b) noise; and

(c) vibration.

2. A Member which does not accept the obligations of the Convention in respect of one or more of the categories of hazards shall specify this in its ratification and shall give reasons in the first report on the application of the Convention submitted under article 22 of the Constitution of the International Labour Organisation; it shall state in subsequent reports the position of its law and practice in respect of the category or categories of hazards excluded and the extent to which effect has been given or is proposed to be given to the Convention in respect of each such category of hazards.

3. Each Member which has not on ratification accepted the obligations of this Convention in respect of all the categories of hazards shall subsequently, when it is satisfied that conditions permit this, notify the Director-General of the International Labour Office that it accepts the obligations of the Convention in respect of a category or categories previously excluded.

Article 3

For the purpose of this Convention—

(a) the term " air pollution " covers all air contaminated by substances, whatever their physical state, which are harmful to health or otherwise dangerous;

(b) the term " noise " covers all sound which can result in hearing impairment or be harmful to health or otherwise dangerous;

(c) the term " vibration " covers any vibration which is transmitted to the human body through solid structures and is harmful to health or otherwise dangerous.

PART II. GENERAL PROVISIONS

Article 4

1. National laws or regulations shall prescribe that measures be taken for the prevention and control of, and protection against, occupational hazards in the working environment due to air pollution, noise and vibration.

2. Provisions concerning the practical implementation of the measures so prescribed may be adopted through technical standards, codes of practice and other appropriate methods.

Article 5

1. In giving effect to the provisions of this Convention, the competent authority shall act in consultation with the most representative organisations of employers and workers concerned.

2. Representatives of employers and workers shall be associated with the elaboration of provisions concerning the praetical implementation of the measures prescribed in pursuance of Article 4.

3. Provision shall be made for as close a collaboration as possible at all levels between employers and workers in the application of the measures prescribed in pursuance of this Convention.

4. Representatives of the employer and representatives of the workers of the undertaking shall have the opportunity to accompany inspectors supervising the application of the measures prescribed in pursuance of this Convention, unless the inspectors consider, in the light of the general instructions of the competent authority, that this may be prejudicial to the performance of their duties.

Article 6

1. Employers shall be made responsible for compliance with the prescribed measures.

2. Whenever two or more employers undertake activities simultaneously at one workplace, they shall have the duty to collaborate in order to comply with the prescribed measures, without prejudice to the responsibility of each employer for the health and safety of his employees. In appropriate circumstances, the competent authority shall prescribe general procedures for this collaboration.

Article 7

1. Workers shall be required to comply with safety procedures relating to the prevention and control of, and protection against, occupational hazards due to air pollution, noise and vibration in the working environment.

2. Workers or their representatives shall have the right to present proposals, to obtain information and training and to appeal to appropriate bodies so as to ensure protection against occupational hazards due to air pollution, noise and vibration in the working environment.

PART III. PREVENTIVE AND PROTECTIVE MEASURES

Article 8

1. The competent authority shall establish criteria for determining the hazards of exposure to air pollution, noise and vibration in the working environment and, where appropriate, shall specify exposure limits on the basis of these criteria.

2. In the elaboration of the criteria and the determination of the exposure limits the competent authority shall take into account the opinion of technically competent persons designated by the most representative organisations of employers and workers concerned.

3. The criteria and exposure limits shall be established, supplemented and revised regularly in the light of current national and international knowledge and data, taking into account as far as possible any increase in occupational hazards resulting from simultaneous exposure to several harmful factors at the workplace.

Article 9

As far as possible, the working environment shall be kept free from any hazard due to air pollution, noise or vibration—

(a) by technical measures applied to new plant or processes in design or installation, or added to existing plant or processes; or, where this is not possible,

(b) by supplementary organisational measures.

Article 10

Where the measures taken in pursuance of Article 9 do not bring air pollution, noise and vibration in the working environment within the limits specified in pursuance of Article 8, the employer shall provide and maintain suitable personal protective equipment. The employer shall not require a worker to work without the personal protective equipment provided in pursuance of this Article.

Article 11

1. There shall be supervision at suitable intervals, on conditions and in circumstances determined by the competent authority, of the health of workers exposed or liable to be exposed to occupational hazards due to air pollution, noise or vibration in the working environment. Such supervision shall include a pre-assignment medical examination and periodical examinations, as determined by the competent authority.

2. The supervision provided for in paragraph 1 of this Article shall be free of cost to the worker concerned.

3. Where continued assignment to work involving exposure to air pollution, noise or vibration is found to be medically inadvisable, every effort shall be made, consistent with national practice and conditions, to provide the worker concerned with suitable alternative employment or to maintain his income through social security measures or otherwise.

4. In implementing this Convention, the rights of workers under social security or social insurance legislation shall not be adversely affected.

Article 12

The use of processes, substances, machinery and equipment, to be specified by the competent authority, which involve exposure of workers to occupational hazards in the working environment due to air pollution, noise or vibration, shall be notified to the competent authority and the competent authority, as appropriate, may authorise the use on prescribed conditions or prohibit it.

Article 13

All persons concerned shall be adequately and suitably—

(a) informed of potential occupational hazards in the working environment due to air pollution, noise and vibration; and

(b) instructed in the measures available for the prevention and control of, and protection against, those hazards.

Article 14

Measures taking account of national conditions and resources shall be taken to promote research in the field of prevention and control of hazards in the working environment due to air pollution, noise and vibration.

PART IV. MEASURES OF APPLICATION

Article 15

On conditions and in circumstances determined by the competent authority, the employer shall be required to appoint a competent person, or use a competent outside service or service common to several undertakings, to deal with matters pertaining to the prevention and control of air pollution, noise and vibration in the working environment.

Article 16

Each Member shall—

(a) by laws or regulations or any other method consistent with national practice and conditions take such steps, including the provision of appropriate penalties, as may be necessary to give effect to the provisions of this Convention;

(b) provide appropriate inspection services for the purpose of supervising the application of the provisions of this Convention, or satisfy itself that appropriate inspection is carried out.

. . . . . .

Recommendation No. 156

. . . . . .

I. SCOPE

1. (1) To the greatest extent possible, the provisions of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, and of this Recommendation should be applied to all branches of economic activity.

(2) Measures should be taken to give self-employed persons protection in the working environment analogous to that provided for in the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, and in this Recommendation.

II. PREVENTIVE AND PROTECTIVE MEASURES

2. (1) The competent authority should prescribe the nature, frequency and other conditions of monitoring of air pollution, noise and vibration in the working environment to be carried out on the employer's responsibility.

(2) Special monitoring in relation to the exposure limits referred to in Article 8 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, should be undertaken in the working environment when machinery or installations are first put into use or significantly modified, or when new processes are introduced.

3. It should be the duty of the employer to arrange for equipment used to monitor air pollution, noise and vibration in the working environment to be regularly inspected, maintained and calibrated.

4. The workers and/or their representatives and the inspection services should be afforded access to the records of the monitoring of the working environment and to the records of inspection, maintenance and calibration of apparatus and equipment used therefor.

5. Substances which are harmful to health or otherwise dangerous and which are liable to be airborne in the working environment should, as far as possible, be replaced by less harmful or harmless substances.

6. Processes involving air pollution, noise or vibration in the working environment as defined in Article 3 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, should be replaced as far as possible by processes involving less or no air pollution, noise or vibration.

7. The competent authority should determine the substances of which the manufacture, supply or use in the working environment should be prohibited or made subject to its specific authorisation, requiring compliance with particular measures of prevention or protection.

8. (1) In appropriate cases the competent authority should approve standards for the emission levels of machinery and installations as regards air pollution, noise and vibration.

(2) Those standards should be attained as appropriate by—

(a) design; or

(b) built-in devices; or

(c) technical measures during installation.

(3) An obligation to ensure compliance with these standards should be placed on the manufacturer or the supplier of the machinery or installations.

9. Where necessary, the manufacture, supply or use of machinery and installations which cannot, in the light of the most recent technical knowledge, meet the requirements of Paragraph 8 of this Recommendation should be made subject to authorisation by the competent authority requiring compliance with other appropriate technical or administrative protective measures.

10. The provisions of Paragraphs 8 and 9 of this Recommendation should not relieve the employer of his obligations in pursuance of Article 6 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977.

11. The employer should ensure the regular inspection and maintenance of machines and installations, with respect to the emission of harmful substances, dust, noise and vibration.

12. The competent authority should, when necessary for the protection of the workers' health, establish a procedure for the approval of personal protective equipment.

13. In pursuance of Article 9, subparagraph *(b)*, of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, the competent authority should, as appropriate, provide for or promote, in consultation with employers' and workers' organisations, the reduction of exposure through suitable systems or schedules of work organisation, including the reduction of working time without loss of pay.

14. In prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take into consideration the most recent codes of practice or guides established by the International Labour Office and the conclusions of meetings of experts which may be convened by the International Labour Office, as well as information from other competent bodies.

15. In prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take account of the relationship between the protection of the working environment and the protection of the general environment.

III. Supervision of the Health of Workers

16. (1) The supervision of the health of workers provided for in Article 11 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, should include, as determined by the competent authority—

(a) a pre-assignment medical examination;

(b) periodic medical examinations at suitable intervals;

(c) biological or other tests or investigations which may be necessary to control the degree of exposure and supervise the state of health of the worker concerned;

(d) medical examinations or biological or other tests or investigations after cessation of the assignment which, when medically indicated, should be made available as of right on a regular basis and over a prolonged period.

(2) The competent authority should require that the results of any such examinations or tests be made available to the worker, and at his request to his personal physician.

17. The supervision provided for in Paragraph 16 of this Recommendation should normally be carried out in working hours and should be free of cost to the worker.

18. (1) The competent authority should develop a system of records of the medical information obtained in pursuance of Paragraph 16 of this Recommendation and should determine the manner in which it is to operate. Provision should be made for the maintenance of such records for an appropriate period of time to assure their availability, in terms which will permit personal identification by the competent authority only, for epidemiological and other research.

(2) To the extent determined by the competent authority, the records should include information on occupational exposure to air pollution, noise and vibration in the working environment.

19. Where continued assignment to work involving exposure to air pollution, noise or vibration is found to be medically inadvisable, every effort should be made, consistent with national practice and conditions, to provide the worker concerned with suitable alternative employment and to maintain his previous income through social security measures or otherwise.

20. In implementing this Recommendation, the rights of workers under social security or social insurance legislation should not be adversely affected.

IV. Training, Information and Research

21. (1) The competent authority should take measures to promote the training and information of all persons concerned with respect to the prevention and control of, and protection against, existing and potential occupational hazards in the working environment due to air pollution, noise and vibration.

(2) Representatives of the workers of the undertaking should be informed and consulted in advance by the employer on projects, measures and decisions which are liable to have harmful consequences on the health of workers, in connection with air pollution, noise and vibration in the working environment.

(3) Before being assigned to work liable to involve exposure to hazards of air pollution, noise or vibration, workers should be informed by the employer of the hazards, of safety and health measures, and of possibilities of having recourse to medical services.

22. (1) The competent authority, in close co-operation with employers' and workers' organisations, should promote, assist and stimulate research in the field of prevention and control of hazards in the working environment due to air pollution, noise and vibration, with the assistance, as appropriate, of international and national organisations.

(2) All concerned should be informed of the objectives and results of such research.

23. Employers' and workers' organisations should take positive action to carry out programmes of training and information with respect to the prevention and control of, and protection against, existing and potential occupational hazards in the working environment due to air pollution, noise and vibration.

24. Workers' representatives within undertakings should have the facilities and necessary time, without loss of pay, to play an active role in respect of the prevention and control of, and the protection against, occupational hazards in the working environment due to air pollution, noise and vibration. For this purpose, they should have the right to seek assistance from recognised experts of their choice.

25. Such measures as are necessary should be taken to secure that, in connection with the use at a workplace of a substance liable to be harmful to health or otherwise dangerous, adequate information is available on—

(a) the results of any relevant tests relating to the substance; and

(b) the conditions required to ensure that, when properly used, it is without danger to the health of workers.

V. Measures of Application

26. Each Member should—

(a) by laws or regulations or any other method consistent with national practice and conditions take such steps, including the provision of appropriate penalties, as may be necessary to give effect to the provisions of this Recommendation;

(b) provide appropriate inspection services for the purpose of supervising the application of the provisions of this Recommendation, or satisfy itself that appropriate inspection is carried out;

(c) endeavour to do so as speedily as national conditions permit.

27. In giving effect to the provisions of this Recommendation the competent authority should act in consultation with the most representative organisations of employers and workers concerned, and, as appropriate, manufacturers', suppliers' and importers' organisations.

28. (1) The provisions of this Recommendation which relate to the design, manufacture and supply of machinery and equipment to an approved standard should apply forthwith to newly manufactured machinery and equipment.

(2) The competent authority should, as soon as possible, specify time limits appropriate to their nature for the modification of existing machinery and equipment.