

# ILO AND ATOMIC ENERGY

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Two months before the United Nations convened its International Conference on the Peaceful Uses of Atomic Energy in August 1955 - to which the ILO contributed a working paper - the International Labour Conference adopted by 168 votes to nil, with one abstention, a resolution emphasizing the need for ensuring that atomic energy is used for peaceful purposes and drawing attention to the concern of the ILO with the possible social implications of this new development.

The work of the International Labour Organisation in the field of atomic energy has been concerned primarily with the protection of the worker against radiation; in this respect it developed the work carried out before the war on the occupational pathology of roentgen ray operators, radium and radioactive substances and uranium. More than 20 years ago the ILO sought to ensure, by adopting an international instrument, "that persons sustaining occupational injuries caused by radiation would receive compensation". The workers' compensation (Occupational Diseases Convention - Revised - 1934), now ratified by 32 members, includes pathological manifestations due to X-rays, radium and other radioactive substances among the occupational diseases for which compensation may be claimed. In 1949, the ILO convened a meeting of experts on dangerous radiations and devoted to this subject a whole chapter on the Model Code of Safety Regulations for Industrial Establishments for the Guidance of Governments and Industry. This chapter, comprising over 200 provisions, was the first set of International Safety and Health Standards for the industrial use of X-rays and radioactive substances.

While this Model Code did not have the binding force of an international convention, several governments used it as a basis for the preparation of their national legislation. These provisions, outdated by the rapid growth of industrial use of ionizing radiations and the advances in protection techniques, were revised by another meeting of experts held at the end of 1957, in which IAEA took part. Two years later, it was felt that in view of the extremely serious consequences to society and the individual that would result from a neglect of the essential precautions, the time was ripe for the ILO to adopt international standards setting out the essential precautions that should be observed in a work which may entail a radiation hazard. The 44th International Labour Conference, meeting in the summer of 1960, adopted a convention and recommendation on this subject.

## International Convention

The Convention applies to all activities involving exposure of workers to ionizing radiations in the course of their work and provides that each Member of the ILO which ratifies it shall undertake to give effect to it by means of laws or regulations, codes of practice or other appropriate means. It further provides that the necessary steps taken at the national level to ensure effective protection should be progressively brought in line with the provisions of the Convention after its ratification.

The Convention establishes the basic principle that every effort should be made to restrict the exposure of workers to ionizing radiations to the lowest practicable level. It further states that maximum permissible doses of ionizing radiations and maximum permissible amounts of radioactive substances which can be taken into the body shall be fixed separately for workers who are directly engaged in radiation work and are aged 18 and over and for those under the age of 18, it being understood that no worker under the age of 16 shall be engaged in work involving ionizing radiations. Levels are also to be fixed for workers who are not directly engaged in radiation work but who remain or pass where they may be exposed to ionizing radiations.

The Convention then provides that appropriate warnings of the dangers should be used and that workers directly engaged in radiation work should receive adequate instruction in the precautions to be taken for their protection.

Work involving exposure of workers to ionizing radiations is to be notified and appropriate monitoring of workers and places of work must be carried out with a view to ascertaining that the applicable levels are respected.

The Conference decided that only workers directly engaged in radiation work should undergo an appropriate medical examination prior to or shortly after taking up such work and subsequently at suitable intervals. The Convention contains an Article to this effect and also makes it compulsory to respect qualified medical advice regarding the employment of workers or their continuation in work.

The Convention also states that circumstances shall be specified for the application of certain special measures, which it lists, and finally that adequate supervision of the application of its provisions shall be ensured.

The supplementary Recommendation develops and elaborates the principles stated in the Convention and provides for various measures not specifically mentioned in it. Thus, the Recommendation states that all precautions should be taken to ensure that women of child-bearing age should not be exposed to high radiation risks, that employers and workers should make every effort to ensure close co-operation for the application of measures for protection against ionizing radiations, that medical examinations should not involve the workers in any expense and that so far as practicable a complete record of all doses received in the course of work should be kept.

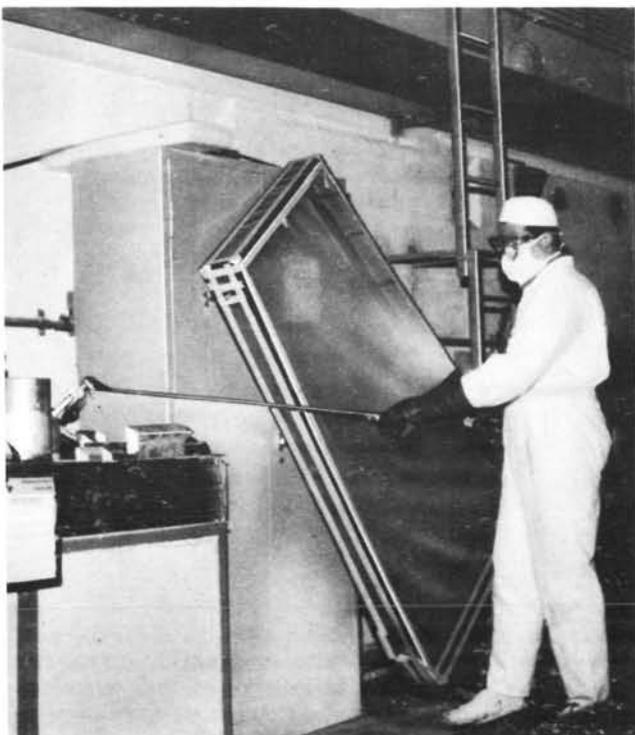
The Conference also adopted a resolution requesting the Governing Body of the ILO to ensure the continued study of the protection of female workers against ionizing radiations.

### Training and Advice

Apart from this fundamental legislative activity the urgency of training personnel with qualifications in radiological protection was appreciated in the ILO. In 1958 and 1960 training courses were organized at Oxford, Harwell and Saclay in collaboration with the national administrations, for labor inspectors, safety engineers and industrial physicians. The International Atomic Energy Agency helped by providing two lecturers for the latter course.

In order to give practical advice to industry, furthermore, the ILO is preparing guides on radiation protection, one will be devoted to the fundamental

Protective clothing is worn by workers handling radioactive materials



Cement blocks stored outside a cyclotron building for use as shielding against radiation

principles of radiation protection, one specifically to protection in industrial X-ray and gamma radiography and fluoroscopy and another to the protection of workers against ionizing radiations in the use of luminous compounds.

Throughout this period, the International Labour Office has collected information on radiation protection, publishing numerous articles and abstracts on the subject in "Occupational Safety and Health". As from January 1960, the issue of this quarterly journal has been replaced by the service provided by the new International Occupational Safety and Health Information Centre. This service includes the regular supply of abstracts, supplemented upon request by photocopies and microfilms, dealing inter alia with the question of radiation protection in respect of workers in all occupations.

A new phase of ILO activity in the field of the protection of seamen was opened by the launching in the USSR and USA respectively of Lenin, a nuclear powered icebreaker, and Savannah, a nuclear powered cargo/passenger vessel. On 13 May 1958 the 41st (Maritime) Session of the International Labour Conference unanimously adopted a resolution calling upon the Governing Body of the ILO "to study . . . the problems created by the application of atomic power to shipping in so far as the protection of the crew is concerned". A detailed report summarizing developments in the field will be presented to a meeting of the ILO Joint Maritime Commission in the autumn of 1961.

### Economic Aspects

Apart from these various safety and protection aspects, the ILO is also following the economic consequences of the industrial uses of atomic energy. The manpower problems resulting from the location of certain industries close to raw material supplies rather than in places where the conventional fuels were available were examined in an article in the

"International Labour Review", July 1955, while the training aspects and the impact of atomic energy on the employment market were reviewed by the Director-General, Mr. Morse, in his report on Automation and Technological Developments, presented to the International Labour Conference in 1957.

It can be seen from this brief outline that the dangers to the worker which arise from the appearance of this new source of energy for mankind and the

large-scale uses of ionizing radiations in general have found an immediate new response in the ILO. As the untold wealth of this revolutionary discovery is tapped in a thousand new ways and used in smaller and less easily inspected plants, the attendant risks and dangers to the worker will multiply. The requirements of training and the organization of production are changing. All these factors afford great scope for ILO action in the years to come.

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## NUCLEAR POWER PROSPECTS IN FINLAND

Following a joint study by the Finnish Atomic Energy Commission and IAEA, a report on "Prospects of Nuclear Power in Finland" has been published. The report envisages in a preliminary way certain conditions under which it might be technically and economically feasible to introduce a large nuclear power station in Finland as early as 1970.

While the study is limited to the specific conditions in Finland, the hope is expressed that it will be useful to other countries as well because "the method followed, the factors discussed and some of the data supplied are sufficiently general to be useful to a number of countries, especially those where hydro power is predominant".

The study falls within the scope of a program which IAEA has initiated to further the development of nuclear power. Mr. Sterling Cole, the Director General of the Agency, writes in a Foreword to the report: "It became apparent to us through our early studies in this field that too often the economics of nuclear power were discussed in general terms and without reference to the multitude of conditions which govern each specific power situation... We have felt therefore that the realistic assessment of the prospects of nuclear power throughout the world could be based only upon a series of studies carried out against backgrounds of actual conditions and covering as wide a range of different situations as possible. The General Conference of the Agency at its fourth regular session has adopted a resolution calling for the continuation of nuclear power surveys in Member States at their request". A second national nuclear power survey was initiated last October with the dispatch of an IAEA mission to the Philippines.

### Background

The Government of Finland, on 3 December 1959, informed the Agency of its intention to carry out a

nuclear power study and of its desire both to benefit from the Agency's specialized experience and to contribute to the Agency's program for furthering the development of nuclear power. Approval of the Agency's participation was voted by its Board of Governors on 12 January 1960.

Work on the study began in March 1960. A joint study group was set up by the Finnish Atomic Energy Commission and the Agency's Secretariat, with co-operation by the State power company, Imatran Voima Osakeyhtio. The group was headed by the Chairman of the Finnish AEC, Professor Erkki Laurila. The Agency designated a member of its technical staff to serve as the Agency's representative and as special assistant to the head of the study group. An Agency consultant and other members of the technical divisions concerned took part in the work of the group once the preparatory stage was completed. The Agency has also consulted the Energy Division of the United Nations Economic Commission for Europe.

The basic circumstances which stimulated Finland's interest in nuclear power are summarized in the report as follows:

"In Finland the main power resource has been, and still is, water power. It is clear, however, that the hydro potential is insufficient to cover the increasing consumption over a long period of time. Already about one half of this potential has been exploited. Thus the country will necessarily have to consider the utilization of thermal power to an increasingly large extent. There is no indigenous coal or oil. For this reason it has become necessary to investigate realistically the possibilities offered by nuclear power."

### Scope of the Report

Because it was not considered possible at the present stage in the rapid development of nuclear power