NUCLEAR LAW
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Contents

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Nuclear Energy Agency
Organisation for Economic Co-operation and Development

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960 and which came into force on 30th September 1961 the Organisation for Economic Co operation and Development (OECD) shall promote policies designed

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries while maintaining financial stability and thus to contribute to the development of the world economy
- to contribute to sound economic expansion in Member as well as non member countries in the process of economic development and
- to contribute to the expansion of world trade on a multilateral non-discriminatory basis in accordance with international obligations

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NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency It received its present designation on 20th April 1972 when Japan became its first non European full Member NEA membership today consists of all European Member countries of OECD as well as Australia Canada Japan Republic of Korea and the United States The Commission of the European Communities takes part in the work of the Agency

The primary objective of NEA is to promote co-operation among the governments of its participating countries in furthering the development of nuclear power as a safe environmentally acceptable and economic energy source

This is achieved by

- *encouraging harmonization of national regulatory policies and practices with particular reference to the safety of nuclear installations protection of man against ionising radiation and preservation of the environment radioactive waste management and nuclear third party liability and insurance*
- *assessing the contribution of nuclear power to the overall energy supply by keeping under review the technical and economic aspects of nuclear power growth and forecasting demand and supply for the different phases of the nuclear fuel cycle*
- *developing exchanges of scientific and technical information particularly through participation in common services*
- *setting up international research and development programmes and joint undertakings*

In these and related tasks NEA works in close collaboration with the International Atomic Energy Agency in Vienna with which it has concluded a Co operation Agreement as well as with other international organisations in the nuclear field

FOREWORD

This issue of the Bulletin focuses on Central and Eastern European countries - a topical question today A note on the potential liability of Western companies working on nuclear safety improvements is accompanied by an overview of the nuclear legislation in those countries A commentary on the progress of negotiations on several international agreements in the nuclear field follows articles which discuss respectively the problem of causation in case of nuclear damage and a decision of the Court of Justice of the European Union upholding Belgium's right to set more restricted radiation protection standards than those set by the Commission As usual the Bulletin reports on national and international activities regarding legislative and regulatory questions and also announces a new OECD/NEA Member country, Mexico

The Secretariat wishes to thank its readers for their many replies to the questionnaire attached to the previous issue of the Bulletin and is encouraged by this response We will endeavour to implement our readers' suggestions and as always, keep abreast of developments in the area of nuclear legislation

The NEA can now provide a new service to its readers through electronic networks Further details on this service are to be found overleaf

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HEALTH PROTECTION AGAINST IONIZING RADIATION AND THE COURT OF THE EUROPEAN COMMUNITIES

by R Lennartz *
Administrator - Directorate-General for Energy
European Commission

Abstract

Since 1958, the policy of the European Commission has been that the basic standards for the health protection of workers and the general public against the dangers of ionizing radiation - and in particular, the dose limits included therein - represent absolute standards and that, moreover, Member States are not permitted to establish stricter standards In its Judgment of 25 November 1992 in the Case C-376/90 CEC vs Belgium, the Court of Justice of the European Communities decided otherwise The following article describes the issues involved in this case and adds certain comments

I INTRODUCTION

Shortly after the discovery in 1895 of ionizing radiation by Henri Becquerel, the dangers which such radiation represented for health became clear However, there were of course also positive aspects to ionizing radiation, both for industry and for medecine, and the challenge was to learn how to gain the maximum benefit from such radiation while minimising the risks involved

It was in order to address these risks that the Second International Congress of Radiology set up, in 1928, a committee of scientific experts, the International Commission on Radiological Protection This Commission, hereinafter referred to as the ICRP, is considered to be the world body competent to indicate the appropriate procedures to follow in the increasingly widespread use of sources of radiation resulting from the rapid progress made in the field of nuclear energy

From the outset, the ICRP issued recommendations concerning protection against ionizing radiation These recommendations contain fundamental scientific principles on the basis of which the appropriate measures can be formulated Given national differences as regards the legal framework involved (administrative structures, existing practice and law), it was left to the various national authorities, better informed as to their own specific requirements, to draft the detailed rules implementing the recommendations, in the form of binding regulations or codes of practice

Thus, the legislation of all Member States was, from as early as 1928, based on the ICRP recommendations The main current recommendations are contained in Publication 60 of 1991

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* Responsibility for the ideas expressed and the facts given rests solely with the author and not with the European Commission

In the period following the Second World War the conviction that nuclear energy was vital for the development and strengthening of industry led to adoption of the Treaty setting up the European Atomic Energy Community (EAEC) which was to serve as a framework for this development Thus the Community's objective is to contribute to the raising of the standard of living in the Member States and to the development of relations with other countries by creating the conditions necessary for the speedy establishment and growth of nuclear industries (Article 1 of the Treaty)

To achieve this objective, the Euratom Treaty laid down several tasks for the Community to perform, the most important of which for the purposes of this article are

- to establish uniform safety standards to protect the health of workers and of the general public and to ensure that they are applied [Article 2(b)],

- ( ) the creation of a common market in specialised materials ( ) the free movement of capital for investment in the field of nuclear energy and ( ) freedom of employment for specialists within the Community [Article 2(g)]

This objective and these tasks show that the authors of the Treaty were aware of the dichotomy between the positive aspects of radioactivity and its dangers

II HEALTH PROTECTION AGAINST IONIZING RADIATION UNDER THE EURATOM TREATY

a) Basic standards

With the objective of the EAEC in mind, as set out in Article 2(b) of the Treaty Chapter III of Title Two of the Treaty gives the Community clearly defined responsibilities in the field of radiation protection Article 31 of the Euratom Treaty provides that the Commission shall work out basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiations

"Basic standards" are defined under the Treaty (Article 30) as

- maximum permissible doses compatible with adequate safety

- maximum permissible levels of exposure and contamination,

- the fundamental principles governing the health surveillance of workers

The Commission works out these basic standards after obtaining the opinion of a group of "independent" scientific experts in public health It then obtains the opinion of the Economic and Social Committee before forwarding the proposal to the Council which, after consulting the European Parliament, establishes the standards

Article 218 of the Treaty provides that the basic standards must be determined within one year of the entry into force of the Treaty On 2 February 1959, the standards were established for the first time in the form of a Directive[1]

b) The constant adaptation of the basic standards

Given the steady progress in scientific and technological knowledge and the diversification of the uses of radioactive substances, the basic radiation protection standards have to be adapted

in line with these developments That is why Article 32 of the Treaty provides expressly that the basic standards may be revised or supplemented This constitutes an important guarantee that legislation and practice in the field of radiation protection keep pace with scientific and technological changes

The basic standards laid down by Euratom are therefore modelled essentially on the ICRP recommendations Since the authority of the ICRP is acknowledged world-wide, this not only facilitates acceptance by the Member States of the European Community of the standards worked out by the Commission but also harmonisation of the Euratom basic standards and the radiation protection provisions of countries not belonging to the European Community This helps develop relations with other countries, as provided for in Article 1 of the Treaty[2]

c) Article 33 of the Euratom Treaty

The first two paragraphs of Article 33 provide that each Member State shall lay down the appropriate provisions, whether by legislation, regulation or administrative action, to ensure compliance with the basic standards which have been established and shall take the necessary measures with regard to teaching, education and vocational training Then, the Commission makes appropriate recommendations for harmonising national provisions

On the basis of this provision, the Commission can then make recommendations concerning national legislation already in force as well as any other recommendation it considers necessary, while paragraphs 3 and 4 of Article 33 provide for control over draft measures Thus, any *draft* Act or regulation of a Member State aimed at ensuring compliance with the basic standards must be communicated to the Commission before being definitively adopted The Commission has three months from such communication in which to issue any recommendations[3]

Although such recommendations are not legally binding, they do constitute an important incentive for Member States to bring their legislation into line with Community Directives in the field of radiation protection Thus, the Commission has been given powers which not only guarantee compliance with Community law but which also make it possible to harmonise national legislation, thus meeting the objective set out in Article 2 (b) of the Treaty (uniform safety standards)

III CASE C-376/90 COMMISSION AGAINST BELGIUM

a) The dispute

The basic radiation protection standards currently in force in the European Atomic Energy Community are contained in Council Directive No 80/836/Euratom of 15 July 1980 amending the Directives laying down the basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation (OJ No L 246 of 17 September 1980) This Directive was later amended by Directive No 84/467/Euratom of 3 September 1984 (OJ No L 265 of 5 October 1984)

The safety standards were implemented in Belgium by means of the Royal Order of 28 February 1963 regulating the protection of the general public and of workers against the dangers of ionizing radiation (Moniteur belge No 98 of 16 May 1963), as amended in 1987 to bring it into line with the above-mentioned Directives However, this Order, as amended, lays down dose limits for the exposure of apprentices and students aged between 16 and 18 who intend to work in a profession in which they will be exposed to radiation or who in the course of their studies are obliged to use radioactive sources, equal to *one-tenth* of the limits for persons subject to occupational exposure By comparison, the Directive sets the limits for this particular group at

three-tenths of the limits for workers Thus, Belgium has laid down stricter limits than those stipulated by Directive 80/836/Euratom Furthermore, according to the Commission, Belgian legislation does not transpose Articles 44 and 45 of the said Directive correctly

The Commission thus brought proceedings for failure to fulfil an obligation under Article 141 of the Euratom Treaty In the course of these proceedings before the Court, Belgium adopted the implementing measures required to transpose Articles 44 and 45, and the Commission withdrew its complaint in this respect

b) The Belgian Government

The Belgian Government argued that the Community dose limits constituted maximum permissible limits within which each operator was obliged to endeavour to ensure that exposure was kept as low as possible This however did not prevent the competent authorities from prohibiting or limiting types of exposure which they judged to be unwarranted Thus the Belgian Government considered that applying a stricter limit in respect of apprentices and students aged between 16 and 18 in no way amounted to a breach of Directive 80/836/Euratom

A second argument put forward was that fixing dose limits for students aged between 16 and 18 at *three-tenths* of those applying to workers was in breach of Article 7 1 of the Directive which provides that workers under 18 years of age may not be assigned to any work which would result in their becoming exposed workers, i e to a job in which they might receive doses higher than *one-tenth* of the limits fixed for workers

c) The Commission

The Commission was of the opinion that the Euratom Treaty system of radiation protection as explained in Chapter II of this article, does not for various reasons allow Member States to lay down stricter dose limits

1 First of all the Treaty lays down an obligation to establish uniform safety standards [Article 2(b)] Since the concept of uniformity is stricter than that of harmonisation the Commission argued that Member States were therefore not allowed to establish stricter limits than those laid down in Directive 80/836/Euratom If this were not so each Member State could establish different limits provided they were lower than the maximum dose laid down by the Directive and this would lead to a diversification of rules - and therefore of degrees - in respect of health protection

2 Under Article 30 of the Treaty maximum permissible doses compatible with adequate safety are to be established Article 31 of the Treaty thus provides that a group of scientific experts shall give its opinion on the margin of safety required when working out these limits This margin was also taken into account by the ICRP when it established the limits contained in Publication 26 which constituted the scientific basis for Directive 80/836/Euratom Member States therefore have no need to adopt stricter rules than those of the Directive

3 As regards the argument of the Belgian Government that national authorities are entitled to establish stricter limits for activities they consider to serve no purpose or to be unwarranted the Commission was of the opinion that this was not an accurate reflection of the relationship linking the three radiation protection principles as conceived by the ICRP and set out in Article 6 of Directive 80/836/Euratom If the Belgian Government wished to ensure greater protection for apprentices and students aged between 16 and 18 it should concentrate on optimising this protection in the workplace rather than incorporating a stricter limit in its legislation In its recommendations of 1991 (Publication 60 paragraph 124), the ICRP also drew attention to the fact

that these principles are autonomous and that governments often adopt an improper approach with regard to them

4 The Commission did not accept the second argument of the Belgian Government that there was a contradiction between Article 7 1 and Article 10 2 of the Directive, arguing that the three-tenths dose limits for apprentices and students aged between 16 and 18 years constituted an exception to the rule in Article 7 1 that workers under 18 years of age may not be assigned to any work which would result in their being exposed workers This exception is justified by the need to train nuclear engineers A higher dose limit is needed to ensure that such students are not assigned to other work, in the event that the one-tenth limit is reached, which would mean their training would be interrupted

d) The conclusions of the Advocate-General

After quoting long extracts from ICRP Publication 60 containing the latest ICRP recommendations, the Advocate-General, Mr Jacob, concluded that the opinion of the Belgian Government was correct, thus committing the same scientific errors as it had done Mr Jacob interpreted Publication 60 as laying down dose limits designed to protect those for whom the principles of justification and optimisation may not be sufficient He thus misunderstood the function of limits in relation to optimisation, and failed to grasp the importance of the principle of optimisation, saying that reliance on this principle can *at times* be more appropriate According to the ICRP, optimisation is always the most appropriate approach and it is precisely this paragraph of Publication 60 that the Commission quoted in its reply

Mr Jacob also said that the ICRP did not consider its dose limits to be absolute standards and that it recognised that, in certain circumstances, it could be reasonable to impose stricter limits He concluded that the basic standards as defined in Article 30 of the Euratom Treaty represented minimum protection levels only, and that Member States were entitled to increase them

IV THE JUDGMENT OF THE COURT

This was the first time that the fundamental question of the legal nature of the dose limits in Council Directive 80/836/Euratom had been referred to the Court Justice of the European Communities This judgment was the third handed down by the Court in the field of health protection against ionizing radiation, normally a field about which lawyers interested by Community law know little

One of these other judgments is of some relevance to case C-376/90, namely the so-called post-Chernobyl case (C-70/88, European Parliament v the Council, Judgment of 4 October 1991) The Parliament had brought proceedings for annulment concerning Council Regulation No 3954/87 of 22 December 1987 laying down maximum permitted levels of radioactive contamination of foodstuffs and feedingstuffs following a nuclear accident or any other case of radiological emergency[4] This Regulation was adopted in pursuance of Article 31 of the Euratom Treaty which provides simply that the Council shall consult the European Parliament The Parliament was of the opinion that the legal basis for this Regulation should have been Article 100a of the EEC Treaty which requires co-operation with the Parliament, and brought an action for annulment The grounds for the alleged nullity were essentially that the Euratom Treaty applies only to ionizing radiation from sources within the nuclear industry properly so called (nuclear installations, nuclear fuels) and not to that found in foodstuffs, for example

In an interlocutory judgment of 22 May 1990[5], the Court held that the European Parliament was entitled to bring an action for annulment against an act of the Council or the Commission

provided that the action seeks only to safeguard its prerogatives and that it is founded only on submissions alleging breach of them This judgment constitutes a widening of the application of Article 146 of the Euratom Treaty, which corresponds to Article 173 of the EEC Treaty inasmuch as these provisions do not expressly mention the European Parliament as one of the bodies entitled to bring such an action

The Court did not accept the Parliament's substantive argument that there was no basis in the texts for a restrictive interpretation of the field of application of Chapter III of the Euratom Treaty It held, on the contrary, that Articles 30 et seq of the Treaty were intended to ensure an adequate and coherent health protection of the public against the dangers resulting from ionizing radiation from whatever source and whatever the category of persons exposed to such radiation

This judgment represents a strengthening of the Commission's radiation protection policy The legal basis for this policy was confirmed and the Court subscribed to the principle that Community radiation protection legislation is applicable no matter what the source of the ionizing radiation Thus, it could even be considered that radiation from military sources is covered by the basic standards and other Directives based on Article 31 of the Euratom Treaty since according to this interpretation, it is neither the source nor the category of persons exposed which matters but the simple fact of having come into contact with ionizing radiation[6]

Turning once again to the judgement of 25 November 1991 in case C-376/90 the Court followed the Advocate-General in deciding that Directive 80/836/Euratom of 15 July 1960 laying down basic radiological protection standards, imposed a minimum level of protection Having regard to their importance, the relevant paragraphs are quoted in full *

"18 The Commission contests the interpretation according to which the dose limits constitute the mimimum level of protection relying on Article 2(b) of the EAEC Treaty which entrusts to the Community the task of establishing uniform safety standards to protect the health of workers and of the general public"

19 That argument must be rejected The uniformity of safety rules does not mean that they may not allow more stringent protection

20 It must then be observed that certain elements of interpretation are conducive to the view that the term "dose limits" used in Article 10 2 of the Directive must be understood as imposing a minimum level of protection

21 It is apparent from the Communication from the Commission of 31 December 1985 concerning implementation of Council Directives 80/836 and 84/467/Euratom of 3 September 1984 amending Directive 80/836 (Official Journal C347 p 9), that the standards laid down in Directive 80/836 are based on the recommendations of the International Commission on Radiological Protection (hereinafter referred to as the "ICRP")

22 As the Advocate-General points out in paragraphs 21 to 28 of his Opinion, it is apparent in particular from ICRP Publication 60 that all ionizing radiation in excess of natural background radiation, involves dangers for human health and that whilst they are accepted for economic and social reasons that is only as a result of an assessment of the advantages which they bring as compared with the disadvantages stemming from them

* This is an unofficial translation by the Secretariat

23 In these circumstances, the general principles underlying the system of radiological protection recommended by the ICRP are a) the justification of any practice involving exposure to ionizing radiation by the benefits which it produces for society, b) the optimisation of protection by keeping the number of people exposed and the likelihood of incurring exposures, where these are not certain to be received, as low as reasonably achievable, economic and social factors being taken into account, and c) the fixing of dose limits

24 It is apparent from the same ICRP publication that the dose limits represent the value of those which gives rise to consequences for the health of people exposed to ionizing radiation which is just tolerable and that the choice of those limits necessarily involves judgments which may be different in different societies (see paragraphs 153 and 169-170 of Publication 60)

25 It follows from this that the dose limits laid down by the ICRP are not absolute standards but are issued solely as a guide and that the principle governing them is the optimisation of protection

26 There is nothing in the Directive to indicate that the Community legislature departed from the position adopted by the ICRP as regards dose limits, or that it left Member States no freedom to provide a higher degree of protection than that required by the Directive

27 Having regard to the purpose of the Directive and the principle of the optimisation of protection, it must therefore be considered that had the Community legislature intended to prohibit Member States from introducing a higher degree of protection than that provided for by the Directive, it would have said so expressly in the Directive's provisions

28 This interpretation of Article 10 2 according to which the concept of "dose limit" constitutes a minimum level of protection, is corroborated by the fact that the Directive itself provides for higher levels of protection Thus, the combined effect of Article 7 1 and Article 1(c) of the Directive is that workers aged under 18 years must not be subjected to doses higher than one-tenth of the annual dose limits established for workers in general

29 While it is true that Article 10 2 provides for a lower level of protection for apprentices and students aged between 16 and 18 years, and that this may be justified if there are valid reasons, the fact remains that in the absence of any express provision to the contrary, the Directive cannot be considered as preventing a Member State, having regard to all relevant economic and social factors, from deciding not to make use of this possibility and to provide such apprentices and students with a higher degree of protection than the Directive guarantees for workers of the same age "

V COMMENTS

With this judgment, the Court has clearly rejected the interpretation of the concept of uniform basic standards adopted previously by the Commission Let us look at the implications of this Decision

1 Uniformity

The Court did not give any reasons for rejecting the argument of the Commission based on the concept of uniformity referred to in Article 2(b) of the Treaty, other than to state that uniformity did not mean that the basic standards prohibited a higher level of protection

Nevertheless, it is clear that uniformity goes further than harmonisation, which latter concept normally means that Member States may not adopt less strict standards than those fixed by the Community but they are allowed to adopt stricter ones

From this viewpoint, Community standards constitute the lowest common denominator below which it is prohibited to establish the level of protection (assuming that protective standards are involved) Member States may, on the other hand, introduce a higher level of protection by means of stricter standards thus enjoying a certain amount of room for manoeuvre

In the case of uniform standards, such standards must be given a single form, i e they must be identical[7] It is prohibited to establish stricter or less strict standards

2 Misreading of the Euratom Treaty

The Court correctly points out that the basic standards of the Community owe their origin to the ICRP recommendations[8] As explained above, these recommendations constitute the scientific basis for the Community Directives They serve as a yardstick to ensure that Community standards are in line with up-to-date scientific knowledge about the impact of ionizing radiation on human health

However, since the ICRP has no legislative competence it can only issue recommendations, and these are not legally binding Member States must therefore promulgate national legislation if they wish to incorporate these recommendations into their national legal system In so doing States must take account of the social and economic context in which the standards are to be applied

However, what the Court failed to recognise is that as far as the European Atomic Energy Community is concerned this context was established by the Treaty setting up the EAEC It is to the economic and social circumstances prevailing at Community level that the ICRP recommendations have to be adapted, and these circumstances have been established by the provisions of the Euratom Treaty explained above It is not therefore a question of transposing the ICRP recommendations directly into the legal systems of the EAEC Member States but of transposing them into Community law It is then from this Community legal system that the Member States must transpose the basic standards into their national legislation Consequently, it is a mistake to interpret the legal character of Community basic standards in the light of the recommendations of an international body - which moreover are not legally binding - ignoring the system established by the Euratom Treaty which constitutes the basis for these standards

3 Health protection and the Single Market

There has always been a degree of friction between the setting up and functioning of the Single Market with its resulting freedoms, on the one hand, and the protection of public health, on the other In the EEC Treaty priority was given, within certain limits (the principle of proportionality), to protecting health, since Article 36 of the Treaty authorises Member States to impose prohibitions or restrictions on imports, exports or goods in transit justified on grounds of the protection of health, provided such prohibitions or restrictions do not constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States

The Euratom Treaty also sets out to establish a common market in the nuclear field (see Article 2(g) and Article 92 et seq of the Treaty) According to the Court of Justice, the provisions regulating this market are simply the application, in a highly specialised field, of the legal concepts forming the basis of the general common market structure[9]

Given this parallelism between the two Treaties — reflected also in their institutional provisions — it would be logical for there to be an identical or similar provision in the Euratom Treaty to Article 36 of the EEC Treaty, but this is not in fact the case

Having regard to the special nature of the health risks presented by ionizing radiation, the authors of the Euratom Treaty devoted a whole Chapter to health protection, thus laying down special rules

In the first place, these rules apply to the goods and products covered by the Euratom Treaty, in the context of a nuclear common market, by virtue of Article 92 and Annex IV of the Treaty Such goods and products are essentially raw materials and technical products in the field of nuclear industry

However, in Judgment C-70/88 (see Section IV of the present article), the Court held that Chapter III applied to all situations involving ionizing radiation from whatever source and whatever the categories of persons exposed Consequently, the Euratom health protection rules apply to all products containing or emitting ionizing radiation, other than those mentioned in Annex IV to the Treaty, including products covered by the EEC Treaty

By virtue of Article 232(2) of the EEC Treaty, which establishes the special nature of the Euratom Treaty by providing that "The provisions of this Treaty shall not derogate from those of the Treaty establishing the European Atomic Energy Community", the health protection regime set up under the Euratom Treaty prevails over Article 36 of the EEC Treaty

The Euratom Treaty seems to want to prohibit restrictions on the free movement of products for health reasons as provided for in Article 36 of the EEC Treaty, by introducing special rules on health protection

This would also be in agreement with the previous decisions of the Court of Justice concerning Article 36 The Court has always held that it is only in the absence of Community regulations or harmonisation that Member States are entitled to decide on the level of protection of health and life of humans that they wish to ensure[10]

It is clear that - even if the interpretation of the concept of uniformity defended in paragraph V 1 of the present article is not accepted - the Euratom Treaty at least aims to introduce harmonised rules for health protection (see Article 33) It follows that as from 1959, Member States are no longer competent to fix their own levels of protection

The judgment referred to in Note 10 provides another interesting consideration in this context The Court held "that a Member State is not entitled to prevent the marketing of a product originating in another Member State if in that Member State the level of protection provided to users of that product is equivalent to that which the national rules are intended to ensure or establish" However, if Member States are allowed to establish different dose limits on the basis of assessments which can vary depending on prevailing social conditions, the levels of protection ensured are different This means that Member States which have established lower limits can prevent the marketing of products from Member States which have fixed higher dose limits This is one practical consequence, which the Court seems to have forgotten about, of the fact that it is the legal order established by the Euratom Treaty into which the ICRP recommendations have to be transposed, and not the legal systems of the Member States

The inevitable conclusion is that the Euratom Treaty is more successful than the EEC Treaty in reconciling the interests of the Single Market with those of health protection

However, if Member States establish stricter dose limits, this constitutes an obstacle to the free movement of products and persons

As far as products containing radioactive substances are concerned, the dose limits, for the workers who manufacture them or the general public which uses them constitute a technical standard which has to be observed when the product is being designed and manufactured Products must be designed in such a way as not to give rise to doses exceeding the limits Different limits in different Member States would doubtless cause obstacles to the free movement of products inasmuch as a product complying for example with a dose limit of 5 mSv/year (millisievert) could not be imported into a Member State where the limit is 1 mSv/year

The same is true for workers, for whom the dose limit should according to Directive 80/836 be 50 mSv/year If a Member State wanted to impose a stricter limit, for example 10 mSv/year, a worker having already received an equivalent dose could not work in this second Member State but could continue to be exposed in a Member State in which the limit is 50 mSv/year

4 Article 7 1 and Article 10 2 of Directive 80/836/Euratom

To explain the relationship between these two provisions, the Commission used an argument based precisely on the purpose of the Euratom Treaty as described in its Article 1, namely to create the conditions necessary for the establishment of nuclear industries in order to help raise the standard of living in the Member States

The Commission was of the opinion that Article 10 2 which allows a maximum dose of 15 mSv/year for apprentices aged between 16 and 18 years constitutes an exception to the general rule of Article 7 1 which, taken together with the definition of an exposed worker'' provides that workers under 18 years of age may not be exposed to a dose exceeding 5 mSv/year

Adopting the opinion of the Group of Experts referred to in Article 31 of the Treaty, the Commission argued that this derogation was necessary in order to ensure the uninterrupted training of engineers and technicians in the nuclear field

This argument seems altogether valid Once a student reaches the dose limit he or she is no longer allowed to handle radioactive sources The lower the limit the sooner this consequence arises, leading to an interruption in training in the handling of actual radioactive sources

If different dose limits were to be fixed in different Member States, this could mean that students were unable to train in those Member States with a lower limit than the others The Belgian Government argued that training may be continued by using simulated sources but this does not change the fact that training involving the handling of actual sources is preferable to that using simulated ones

Thus, the balance between protecting the health of this group of persons, on the one hand, and the development of the nuclear industry on the other, has been struck at Community level and Member States may no longer substitute their own rules

However, the Court drew the opposite conclusion, holding that the fact that, for workers under 18 years of age in general Article 7 1 establishes a lower dose limit than that in Article 10 2, shows that the Directive itself allows more stringent dose limits This reasoning is somewhat

artificial and seems to turn the Commission's argument on its head so as to support the conclusion already drawn, i e that Member States must be permitted to establish stricter limits

VI CONCLUSIONS

It follows that the grounds on which the Court of Justice based Judgment C-376/90 are not only succinct as far as the uniform nature of the basic standards is concerned but also incomplete inasmuch as the Court does not seem to have taken account of the system introduced by the Euratom Treaty

Neither does the Court seem to have taken proper account of the consequences for the Single Market of its far-reaching decision that Member States may establish a more stringent level of protection than that laid down by the Treaty

There are several possible solutions to this problem

1 The first was indicated by the Court itself If the Commission maintains its position that Member States are not allowed to impose stricter limits, it could introduce an express provision to this effect in its draft Directive revising the basic radiation protection standards However, an outright ban of this type would not prevent Member States from wishing to be allowed to establish stricter dose limits now that the ICRP has recommended such an approach It would be difficult to obtain majority support for such a ban within the Council of Ministers

2 Another solution, on quite a different scale, would be to incorporate the basic standards into a Regulation instead of a Directive At present, since they are contained in a Directive, these standards have to be transposed by the Member States into their national legal systems It is in the context of this process that considerations of increased protection can arise If the Community were to fix its basic standards in a Regulation there would be no need to transpose them into national law since Regulations are directly applicable in the legal systems of Member States The dose limits laid down in the Regulation would then apply as they stood It should be noted that the Treaty makes no provision as to the form in which the basic standards should be laid down Article 33 does not prevent the use of a Regulation for this purpose[12] Community Regulations governing radiation protection have evolved during the thirty years of its existence and the standards are now more detailed and complete than before They do not always allow Member States the freedom to choose the method to be used in achieving the result required by the basic standards (see Article 181 of the Euratom Treaty) The very nature of dose limits, expressed as a fixed numerical value, lends itself to their being prescribed in a Regulation

3 However that may be, in its amended proposal for a Directive establishing the basic standards, adopted on 20 July 1993[13] and submitted to the Council of Ministers, the Commission chose another approach If exceptional circumstances so require, dose limits other than those laid down in the proposal may be authorised in accordance with an accelerated procedure Under this procedure, the Commission, after consulting the Group of Experts referred to in Article 31 of the Treaty, submits a suitable proposal to the Council The Member States may ask the Commission to submit such a proposal The Council then takes a decision within three months

Situations warranting stricter limits are thus sure to be identified and suitable limits adopted at Community level This approach is in line with the task of harmonization, and indeed standardization imposed on the European Atomic Energy Community under the Treaty Although

the draft Directive does not contain any prohibition of the type referred to in paragraph 1 above it should follow that Member States are no longer entitled unilaterally to lay down stricter dose limits, since otherwise the Community procedure would be meaningless

NOTES AND REFERENCES

1 Directives of the Council of 2 February 1959 laying down the basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiations Official Journal of the European Communities (OJEC) No 11 of 20 February 1959

2 The following amendments have been effected to date

Council Directive of 5 March 1962 amending Annexes 1 and 3 to the Directives laying down the basic standards for health protection OJEC No 57 of 9 July 1962

Council Directive of 27 October 1966 amending the Directives laying down the basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiations OJEC No 216 of 26 November 1966

- Council Directive No 76/579/Euratom of 1 June 1976 laying down the revised basic standards OJEC L187 of 12 July 1976

- Council Directive No 343/79/Euratom of OJEC L83 of 3 April 1979

Council Directive of 15 July 1980 amending the Directives laying down the basic standards OJEC L246 of 17 September 1980,

- Council Directive 84/467/Euratom of 3 September 1984 amending some Articles and Annexes I and III of the 1980 Directive OJEC L265 of 5 October 1984

3 Commission Recommendation of 26 July 1991 on the application of the third and fourth paragraphs of Article 33 of the Euratom Treaty OJEC L238 of 27 August 1991

4 OJEC L371 of 30 December 1987

5 Rec I p 2041

6 For the other judgment in the field of radiation protection see Case 187/87 "Cattenom" judgment of 22 September 1988 p 5013 et seq This judgment could be applied by analogy to Article 33 of the Treaty

7 The multilingual terminology data bank (EURODICAUTOM) created by the Commission defines uniformity as "propriété d une matière dont toutes les particules ont des valeurs identiques pour un certain caractère"

8 See the Commission Communication concerning application of the Directives 80/836/Euratom and 84/467/Euratom OJEC of 31 December 1985

9 Deliberation of the Court of 14 November 1978 No 1/78 Rec 1978 p 2151

10 Case 188/84 — Commission vs France Rec 1986 p 419 441

11 Article 1 of Directive 80/836/Euratom defines exposed workers as "persons subjected as a result of their work to an exposure liable to result in annual doses exceeding one tenth of the annual dose limits laid down for workers"

12 On this question, see

"Tchernobyl et les Communautés Européennes Aspects juridiques", J Grunwald, Revue du Marché Commun No 308, July 1987

"EG Strahlenschutzrecht durch unmittelbar verbindliche Verordnung" W Bischof, Umwelt - und Planungsrecht 1988/3

13 COM(93)349 final

CAUSATION AND THE PROBLEM OF EVIDENCE IN CASES OF NUCLEAR DAMAGE

Pauli Ståhlberg*
Department of Private Law
University of Helsinki, Finland

Abstract

This article deals with the problem of causation in tort law, namely the establishment of the causal link when nuclear damage occurs Causation problems in fallout accidents are discussed, as is the problem of evidence with the Paris Convention and nuclear legislation in Nordic and several other countries

1 INTRODUCTION

The problem of causation in tort law can be divided into two parts The first question to be examined is whether the damage is the result of an individual act or the activity as a whole Next it has to be decided if the causal link between the damage and the act or activity is adequate for the purpose of establishing the claim Recognition of the cause of the damage is based on natural science, whereas the limits of the liability are based on legal grounds However the law of cause and effect is also relevant to juridical consideration if the causal link is indistinct The questions of sufficient evidence and the burden of proof are decided on legal grounds[1] The causal link in natural science is not the same as the legally relevant causal link Our knowledge of the law of cause and effect and our ability to draw conclusions can be defective The different factors involved in the incident are not necessarily known It can be impossible or extremely difficult to give absolutely certain evidence In spite of that the causal link can be legally significant[2]

In tort law the basic question is how to divide the injurious consequences of the damage between the injured party and the party causing the damage Especially in relation to personal damage evidentiary requirements can have a decisive influence on this division and at the same time on the scope of liability and protection that the compensation system provides

The standard of proof which must be satisfied by the plaintiff's evidence on causation can result in a situation where the protection that the compensation system offers is more limited than the legislator intended In certain cases it can mean that the injured party has in practice no protection at all against damage When the standard of proof is high and the evidence is defective, tort law does not offer any means of dividing the injurious consequences of the damage between the injured party and the one causing the damage At least in the laws of the Scandinavian countries the requirement relating to causation is unconditional A proved causal link between the activity and the damage must exist There is, for example, no possibility of adjudging partial compensation in cases where the causal link is demonstrated with some, but insufficient, probability[3] On the other hand if the evidentiary requirements diminish and less extensive evidence of causation is sufficient there are means of affecting the scope of liability e g the possible adjustment of the compensation

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* Responsibility for the ideas expressed and the facts given rests solely with the author

By imposing a high standard of proof the possibility of decisions which are not based on the actual progress of events is minimized However, stringent evidentiary requirements also increase the risk of a "wrong" decision from the point of view of the party with the burden of proof At the same time, from the point of view of the other party, the risk is decreased The questions of who should bear the burden of proof and how high the evidentiary requirements should be can also be viewed as the question of which of the parties should be protected, the plaintiff or the defendant

In considering this matter, it is first of all appropriate to take into account the grounds on which the liability is based If we consider cases of gross negligence or cases of damage caused intentionally, it may be well founded to protect the injured party more than the liable party And perhaps in cases of strict liability some weight can be given to the size of the risk that the activity causes[4] The greater the risk caused, the less can be demanded of the plaintiff's evidence However, the grounds on which the liability is based are not the only matter that influences consideration of this question

2 CAUSATION PROBLEMS IN FALLOUT ACCIDENTS

In the case of personal damage caused by a nuclear power plant accident, it may be difficult to establish whether the person in question has been exposed to radiation Even more difficult is to estimate how great the dose has been The problems are not usually due to difficulties in locating the source of radiation Instead they may be caused by the fact that persons have moved within the fall-out area or have left it or because the amount of radioactivity in the food consumed cannot be calculated etc On the other hand if the time between the accident and the damage becoming evident is very long, the source of the radiation can also be difficult to identify from many other possible sources

The most difficult problem is clarifying the effects of the dose Radiation can injure living tissue Knowledge of the effects that radiation may have is not always sufficient to clarify whether particular personal damage was caused by radiation The problems are connected especially to cases of delayed damage The exact mechanism of how cancer develops or the individual effects of radiation etc are not known On the other hand, in cases of early damage from radiation, causation problems hardly differ from those in other cases of personal damage[5]

Personal damage can appear a very long time after the accident It may possibly not appear until the next generation Delayed damage can appear in many different forms of disease, and they do not have any specific features that could be connected to radiation Causation cannot be proved by any nexus between the moment of exposure and the date of the appearance of the disease The probability of causation is not directly proportional to the amount of the dose Even small doses can cause delayed damage People are constantly exposed to background radiation and to other carcinogenic sources Delayed damage such as leukaemia can be caused by several factors other than radioactivity, or jointly by radioactivity and other factors The different shares of the effects of nuclear radiation and other sources are extremely difficult to separate, particularly when the doses have been small[6]

In the case of property damage the question of causation is not usually as problematic as in that of personal damage If we consider damage to inanimate objects, it normally appears shortly after the accident The increase in radioactivity is usually easy to connect to the incident In the case of damage to objects the main problems do not relate to the causal link, but to the difficulty of estimating what degree of increase in radioactivity constitutes contamination of the object concerned In the case of property damage not connected to persons or objects (pure property damage) difficulties might arise in determining the link between the accident and the damage However, they are not due to the difficulties in proving the causal link but to the difficulties in judging whether the causal link is adequate

3 THE PARIS CONVENTION AND THE PROBLEM OF EVIDENCE

The Paris Convention does not include an article that would fully cover the questions of evidence Both the question of the burden of proof and the question of requirements of sufficient evidence have been left without an answer[7] However, they are partially regulated in some special cases, but this is not the case where for example, delayed damage is concerned[8] Nevertheless we *can see in the few articles concerning special cases some inclination to lessen the requirements of* the plaintiff's evidence in situations where it is extremely difficult to give full proof[9]

The starting point in unregulated cases is that the burden of proof rests with the plaintiff and that the proof must be complete[10] In practice this would mean that almost all delayed damage would remain outside the scope of the system because of difficulties in proving the existence of the causal link While leaving the questions of proof for the most part open, the system does not ensure that it achieves its main aims in the best possible way and in the way that was obviously intended[11] On the other hand an attempt can be made to answer the question of the nature of sufficient proof of the causal link between delayed damage and the nuclear incident with the help of rules followed in other analogous situations where the question of delayed damage must be decided Although this approach may possibly remedy the absence of such regulation in the Convention, a specific stipulation in the Convention would provide more certainty

The direct influence of the Convention on the questions of the burden of proof and the evidentiary requirements seems to be limited - except in regulated cases - to the general purpose of the Convention which guides the interpretation of the national laws Indirectly the Convention has impact through the national laws of the participating countries The national decisions and interpretations adopted by the different parties to the Convention must be considered because of the harmonizing aim of the Convention

4 LEGISLATION IN THE NORDIC COUNTRIES IN PARTICULAR IN FINLAND

Because of the deficiency in the Paris Convention, national nuclear liability Acts do not usually include provisions concerning the problem of evidence This is the case also in Finland Sweden and Norway[12] The systems of tort law and evidence are very much the same in the different Nordic countries

Because the law on nuclear liability is silent on the questions of causation and how to prove its existence, it is necessary to rely primarily on the rules and practice developed in general tort law in order to find the answers However, this alone cannot be decisive in relation to nuclear damage *which differs considerably from "normal" damage Special laws and the legal practice in other areas* which are analogous to delayed damage might reveal means to solve the problem of evidence which could also be applicable to nuclear damage The developing environmental law is especially significant in this respect[13]

If we examine the legal practice based on general tort law in Finland, it is not possible to give a definite answer as to whether the plaintiff's standard of proof would be reduced in delayed damage cases, nor does the literature provide any significant guidance in this respect The *requirement of complete evidence and the plaintiff's burden of proof are the main rules However* in some cases the courts make exceptions to these rules, but it is impossible to say in the light of the legal rules and practice and the literature on general tort law, whether delayed damage is among those cases On the other hand there is nothing to prevent such a conclusion

In Finland there has so far been no specific law in force concerning environmental damage The law applied to, for example, pollution damage has normally been the general Civil Liability Act To remedy this situation the Parliament will debate an Act on Environmental Damage in the course

of this year The purpose of this law is to improve the position of the injured party For this reason the legislator has found it necessary to lessen the requirements of the evidence on causation According to the Act, it will be enough for the plaintiff to provide evidence that indicates that the probability of the existence of the causal link is greater than 50 per cent (Section 3) This level is in principle lower than in cases where complete proof is required

In the explanatory note of the Act it is stated that the general tort law does not protect the injured parties well enough As an example of the disadvantages, mention is made of the fact that general tort law requires full evidence of causation In the part of the explanatory note concerning the paragraph that lessens the evidentiary requirements it is stated that "it is very often difficult to give complete evidence of the cause of an environmental damage For an ordinary citizen it can be almost impossible to prove the causal link between the activity and the damage resulting from it, because it is often associated with complicated and difficult scientific and technical questions In this respect environmental damage differs from many other types of damage"[14] The motives given would apply to delayed damage as such

If the Act on Environmental Damage becomes valid in the proposed form, it will be a particularly significant argument in Finland to lessen the evidentiary requirements also in nuclear damage cases Nuclear damage is also environmental damage It is obvious that if the Nuclear Liability Act did not exist, the Act on Environmental Damage would be applied to nuclear damage The problems of evidence are analogous to those of environmental damage in general Like the Nuclear Liability Act, the purpose of the Act on Environmental Damage is to remedy the position of the injured parties in those cases where the general tort law does not secure their interests well enough The Act on Environmental Damage represents modern tort law, in which the requirements of technological and social development have been better taken into account than in general tort law However, it can be asked if the analogous application of the principle expressed in the Environmental Act would be a sufficient improvement for those suffering from delayed damage

There are several Acts in the field of social security law in the Nordic countries - as in other OECD countries - where the principle of full proof has been renounced In some of these Acts there are particular provisions which lessen the requirements of the plaintiff's evidence of causation Besides, some of the Acts that do not include this kind of stipulation are interpreted in such a way that in fact the result is the same These special Acts show that the requirement of complete evidence of causation in cases of personal damage analogous to those of delayed damage has been relinquished[15] The lack of a specific provision has not prevented the reduction of the standard of proof

The common reason in all these cases where the evidentiary requirements have been lessened, is the particular difficulty of providing such evidence The aim has been to provide the injured party with protection in situations where the difficulties of providing evidence would otherwise lead to a complete loss of compensation Another feature in these cases is that the liable party is in a stronger position than the victim and is protected by obligatory insurance The economic burden resulting from the lowering of the requirements is directed not only to the defendant but also to a larger group of parties A third feature is that liability is incurred without fault The underlying concepts of tort law, which is historically based on criminal law and whose purpose is to protect the defendant (in dubio pro reo), has not restricted the enlargement of liability All these reasons also apply to delayed damage Also in the nuclear liability system a social aspect can be found, due to the question of State liability

In Sweden and Norway modern Acts on environmental damage corresponding to the one proposed in Finland have been passed Also, several precedents exist in tort law in which the Supreme Courts have not demanded complete evidence of causation

A trend to lower the standard of proof in cases where the evidence is particularly difficult to furnish can be noted in case law in Sweden and Norway However, neither in case law nor in the literature is there any precise statement of the circumstances in which the evidentiary requirements should be reduced In spite of this, some general conclusions can be drawn 1) The evidentiary requirements should not be so high that the aim of the statutes can not be achieved 2) There is more need to lower the standard of proof in personal damage than in property damage cases 3) Possible negligence on the part of the liable party can be a reason to lower the standard of proof 4) The positions of the liable party and the injured party must be considered e g if the liable party is a business enterprise and the injured party is an ordinary citizen The economical and practical possibilities of furnishing evidence can have an influence on the question who should bear the burden of proof and how high the evidentiary requirements should be 5) Insurance cover can have the effect of lowering the standard of proof If we consider delayed damage it is obvious that at least in Sweden and Norway and later, in Finland, the courts would renounce the requirement of complete proof[16] However, it is difficult to say what kind of evidence would be sufficient and who in fact would bear the burden of proof, and to what extent

5 OTHER COUNTRIES IN PARTICULAR THE UNITED STATES

There are conspicuously few provisions in the nuclear liability acts of the different Paris Convention countries that generally concern the problem of evidence[17] However precisely in cases of nuclear damage it is especially difficult to provide evidence Because of the fact that there is no general article in the Paris Convention concerning the problem of evidence such provision is also absent from national laws Moreover, the scant court practice in cases where the radiological dose is claimed to cause the injury has not allowed a consistent case law to become established in the Paris Convention countries

However, in the United States there have been hundreds of court actions concerning delayed damage[18] Because of the numerous cases there has been in theory an opportunity to develop permanent norms of how to judge the evidence of causation However a consistent case law to determine what kind of evidence is sufficient in delayed damage cases has not been successfully developed Court practice demonstrates only that compensation can be awarded even in cases where the evidence shows very low probability, which can be clearly under 50 per cent The doses the injured parties have been exposed to have varied The exposure may have occurred internally or externally In many cases the dose has been below the safety limits of radiation The inconsistent court practice is possibly due to irrational sentimental reasons connected to radiation and especially due to the fact that it has not been possible to arrive at reliable and commonly approved estimates of risk in relation to different doses of radiation The courts have been faced with the problem of which of the experts they should rely on It has been difficult to separate the prevailing scientific view from other opinions

However, in some cases the courts have adjudged compensation to the plaintiffs Obviously the aim of the courts has been to ensure that difficulties in providing evidence should not always and unconditionally lead to the loss of the right to compensation The aim has also been to partly burden the possible liable party with the losses, although the risk of wrong decisions has been great The deviation from the requirement of complete proof has been noticeable However the departure from the usual evidentiary requirements has not led to general and widely accepted criteria with which the problem of evidence could be satisfactorily solved

6 HOW TO LESSEN THE EVIDENTIARY REQUIREMENTS

The evidentiary requirements faced by the plaintiff could be lessened in theory by reducing the standard of proof to a lower level of probability, by transferring the burden of proof to the defendant or by both of these means

In delayed damage cases the main problems occur between the exposure and the appearance of disease The plaintiff can normally give trustworthy evidence on those matters, which involve the causation being considered possible He can usually give complete evidence on the exposure and the events before it, as well as on the disease and the events after its appearance On the other hand, he can give only statistical evidence on the causal link between the exposure and the disease The statistical probability in relation delayed damage is usually very low and therefore has very limited probatory weight If it is desired to improve the position of the injured party by requiring a lower degree of probability from the evidence, the decrease must be significant Judging by the experience gained from the United States case law , the probability required should clearly be below 50 % to ensure a large part of delayed damage caused by fall-out accidents being compensated This would also lead to a great deal of damage of this nature being compensated, even though it was not in fact caused by radiation

However, this would not necessarily be unreasonable for the operator Even if the probability to be established was very low, a lot of delayed damage caused wholly or partly by radiation would remain outside the operator's liability, because it could not be connected to the accident If the total amount of damage compensated does not reach the amount of damage which in fact is caused by a fall-out accident, the lessening of the evidential requirements would not extend the operator's liability unreasonably[19] On the other hand, the compensation of damage which in fact was not caused by radiation would reduce the limited amount available to compensate real nuclear damage

If the burden of proof is wholly placed on the defendant (the operator), the risk of wrong decisions might be smaller However, neither would the defendant be able to give absolutely certain evidence on the lack of causation between the exposure and the disease On the other hand, he would probably have better financial and expert resources, which would enable him to give stronger evidence than the plaintiff Besides, he would have greater possibilities of covering the risk through insurance than the victim[20] The defendant could possibly give evidence which proves that the probability of causation is very small In the case of delayed damage the statistical probability in favour of causation is usually much smaller than the probability against it In order to make at least some part of the delayed damage compensable, the degree of probability that the defendant's evidence is required to establish should be high

Using all resources to gain the best possible evidence is rational It promotes reaching the truthful solution It is not necessary to reduce the plaintiff's standard of proof in cases which are not especially difficult to prove When the question is of other aspects of the incident than the causation between the exposure and the disease, complete proof should be required of the plaintiff, although the burden of proof could be transferred in part to the defendant It is probably easier for the plaintiff to give evidence on facts such as where he was during the accident, what foodstuffs he has eaten etc It is neither rational nor reasonable to lay the burden of proof completely on one party

In the case of nuclear liability there is a need to construct a system where the special difficulties concerning the delayed damage would be taken into consideration comprehensively There are many examples where the evidentiary requirements in relation to causation are lessened The best model to serve in delayed damage may be that of the systems applied in social security laws which are based on both of the means referred to of reducing evidentiary requirements that have been described here[21] In these systems the burden of proof of causality is partly placed on the plaintiff but mostly on the defendant The plaintiff is required to establish only such proof as

indicates the possible existence of a causal link after which the defendant must prove that the damage is due to another cause to a degree of probability that is at least at the same level as in the case of complete proof[22]

NOTES AND REFERENCES

1 The evidence is considered to be sufficient when it reaches the required standard of proof i e the required degree of evidentiary strength The party with the burden of proof suffers a negative result if its case cannot be proved to the required standard

2 Hart & Honoré Causation in the Law Oxford 1985 p 9 ff and A Peczenik Causes and Damages Lund 1979 p 377 378

3 In the United States a system has been proposed to make this kind of compensation possible the Report to the Congress from the Presidential Commission on Catastrophic Nuclear Accidents Vol 1 Washington 8/1990 p 114 120

4 This is the case e g in the Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment (Art 10) Council of Europe 1993

5 See e g Berthold Moser Proof of Damage from Ionizing Radiation Nuclear Law Bulletin No 38/1986 p 71 ff

6 See e g Radiation Doses Effects Risks UNEP 1985 p 8 ff

7 I do not see that the Paris Convention s Art 3(a) necessarily imposes the burden of proof completely and absolutely on the plaintiff

8 Paris Convention Art 3 (b) and Art 5 (d) See Moser p 80-81

9 The imposition of strict liability was motivated by the difficulty of establishing negligence because of the complex technology of atomic energy Exposé des motifs, paragraph 14 This motivation can be seen more generally as an expression of the intention to remedy the position of injured parties in relation to difficulties in providing evidence

10 It is impossible to say exactly what is full proof or what kind of evidence is complete but in thelegal systems of the Scandinavian countries its value can be expressed by "almost certain probability" or "convincing probability" which in practice means almost the same as "beyond reasonable doubt The value of the evidence can be graduated for example to three degrees certainty probability possibility Moser p 83 85 Complete evidence is something between certainty and probability

11 The prime objective of the Paris Convention is to create a system in which the victims of a nuclear incident are compensated as fully as possible However the operators of nuclear installations should not be exposed to an excessively burdensome liability Exposé des motifs paras 2 and 5

12 However in Norway (Nuclear Energy Act 12 5 1972 Section 50) there is a similar kind of registration system to that in Switzerland (Act on Nuclear Third Party Liability 18 3 1983 Section 22) Information on the exposure registered soon after the accident can in some cases help to prove the causal link in the case of delayed damage

13 At the moment there are special laws concerning environmental damage at least in Germany (1990) Norway (1981/1989) Sweden (1986) and the United States (1980/1986) At the international level there is progress in the EU (Amended proposal for a Council Directive on civil liability for damage caused by waste COM (91)219 final - SYN 217 and in the Council of Europe see note 4

14 Proposal of the Government 165/1992 p 22 See also the similar reasoning in the explanatory report on the Environmental Convention made by the Council of Europe p 17 In the amended proposal of the EU directive the standard of proof has not been lessened, art 4 c), see also Peter Wilmowsky and Gerhard Roller, Civil Liability for Waste, Frankfurt am Main 1992 p 50-52

15 E g damage caused by asbestos drugs, chemicals and X-rays

16 This is obviously also the situation in Germany See the German Act on Environmental Damage (Gesetz über die Umwelthaftung of 10 12 1990) Section 6

17 See the Atomic Energy Act (23 12 1959) Section 26 (5) in Germany and the Act on Nuclear Third Party Liability of Operators of Nuclear Ships (12 11 1965 Section 11 (1)] in France

18 See Donald E Jose U S Court Practice Concerning Compensation for Alleged Radiation Injuries Proceedings of Nuclear Inter Jura 1985, Baden-Baden 1986 p 331 ff W G Schaffer, Claims for Injuries from Occupational Radiation Exposures in the Unites States Recent Developments NEA/IAEA Munich Symposium on nuclear third party liability and insurance OECD Paris 1985 p 262 ff Peter Riley Radiation as the Cause of Personal Injury in Compensation Claims Anglo American Law Review 1989 p 75 ff

19 The amount of delayed damage in the population in a fallout area and therefore the economic results can be roughly estimated after the accident, A Gonzales NEA/IAEA Helsinki Symposium on nuclear accidents liabilities and guarantees, OECD, Paris 1993 p 144

20 At least in Finland there is no insurance available to ordinary citizens against losses caused by a nuclear power plant accident

21 See e g the French Act on nuclear third party liability of operators of nuclear ships [12 11 1965 Section 11 (1)]

22 See Moser above p 81 82

THREE NEGOTIATIONS CONCERNING NUCLEAR LAW*

INTRODUCTION

Three negotiations are currently underway, with a view to drawing up new international agreements in the nuclear field, and 1994 should see significant developments in this regard The first of these negotiations, conducted under the auspices of the IAEA, is in fact almost complete that on the Nuclear Safety Convention Work on the second should restart after having been suspended for about a year the Nuclear Protocol in the framework of the European Energy Charter The last and the longest-running of these negotiations, and that which has encountered the most difficulties concerns the modernisation of the regime established by the Vienna Convention on Civil Liability for Nuclear Damage In fact it comprises two elements revision of the Vienna Convention itself and establishment of an international mechanism to provide supplementary funding to compensate for nuclear damage

It is of course not possible in a short note to describe all aspects of these negotiations nor to analyse in detail the proposals under discussion This is therefore simply an attempt to describe briefly the overall philosophy and direction of this work, and to offer with all necessary caution a prognosis for its future

GENERAL

International nuclear law is a relatively recent creation Its development (at least insofar as international treaties are concerned) has so far had three principal orientations civil liability international security (non-proliferation and physical protection), management of the consequences of a nuclear accident Having begun with the adoption of the civil liability conventions in the early 1960s at the same time as the creation of the three international organisations which specialise in nuclear co-operation, this process entered another phase during the following decade with the establishment of a system of implementation of the Treaty on the Non-Proliferation of Nuclear Weapons In addition to the adoption of the Convention on the Physical Protection of Nuclear Material which is more closely related to the preceding phase, the 1980s were above all marked by an adjustment of nuclear law directly inspired by the experience of the Chernobyl accident This consisted, notably, of two Conventions adopted during the summer of 1986 one on early notification of a nuclear accident and the other on assistance in the case of a nuclear accident or radiological emergency but also of the 1988 Joint Protocol which links the Paris and Vienna Conventions on civil liability The negotiations of the early 1990s, which will be described here denote a certain reactivation of the process of developing nuclear law

* Commentary by the Secretariat

The momentous political changes which have taken place in Eastern Europe since 1989 have certainly had a profound influence on the three current negotiations, either because they modified the attitude of countries which for ideological reasons had previously remained aloof from treaties relating to private law such as the 1963 Vienna Convention, or because the agreements being drawn up are intended to deal, directly or indirectly, with problems inherited from the communist era, as is the case in relation to the safety of nuclear installations

CURRENT STATE OF AFFAIRS

European Energy Charter/Nuclear Protocol

Since July 1992, an international conference has been underway in Brussels on the European Energy Charter This negotiation, which originated with an initiative of the Netherlands through the Council of the European Union is unusual in that it is taking place outside the framework of an international organisation, it does however have the benefit of the active support of the European Commission The countries of both Western and Eastern Europe are participating, as well as the non-European countries which belong to G-24 and various observers

The purpose of the conference is to establish on the European continent long-term co-operation in relation to energy and so contribute to a solution to the problems of economic restructuring, certainty of energy supply, and protection of the environment, faced by the countries on the other side of the former "iron curtain" The first step was the adoption, in December 1991, of the Charter itself, in the form of a declaration by the participating countries and the European Union, the Charter will be complemented by a "Basic Agreement" which will repeat in more detail the "intentions" contained in the Charter, giving them an executory character, as well as by three "sectorial" Protocols dealing, respectively, with the more effective use of energy resources and protection of the environment, hydrocarbons and, finally, nuclear energy The development of these various instruments has been delayed somewhat by difficulties in the negotiations on the Basic Agreement, it appears, however, that these could be surmounted in 1994

The idea of drawing up a "Protocol on Principles Governing the Peaceful Uses of Nuclear Energy and the Safety of Nuclear Installations and on Co-operation in these Areas", originated in the many references in the Charter to this subject, especially to the need to improve the safety of nuclear installations (more specifically in the countries of Eastern Europe) The latter objective clearly dominates the present draft As drafted, the Protocol sets out a framework for strengthened co-operation between the Parties, with a view to optimising the advantages of the use of nuclear energy while at the same time more effectively controlling its potential dangers, through adherence to a list of general principles This part of the Protocol, the most original, sets out the rules by which the Parties should be guided, both internally and internationally to ensure the safety of their nuclear power programmes In particular, it encourages the Parties to adhere to various treaties, regulations and recommendations which currently make up international nuclear law In exchange for these undertakings, the Protocol should also include provisions dealing with economic questions and nuclear co-operation but it is probable that these matters will be dealt with principally in the Basic Agreement

Indeed, difficulties related to economic exchanges - notably the right of access to national energy resources as well as to markets - explain the delay which has occurred in the preparation of this Agreement and, in consequence, the fact that the negotiation of the Nuclear Protocol has had to be suspended for a time

In addition, it is possible that the Protocol which originally was intended to be a formal international agreement associated with the Basic Agreement, will in the end take the form of a simple declaration - like the Charter itself - which may be more appropriate to its content, which

in reality suggests a sort of code of good conduct rather than formal obligations In addition the prospect of the imminent adoption of the text of a Nuclear Safety Convention the provisions of which in part cover the same ground as the principles incorporated in the Protocol, perhaps makes the use of a legally binding text less necessary

Nuclear Safety Convention

When it enters into force this Convention will fill a gap in nuclear law In fact when one considers the extent of the international co-operation which has led to the development of this body of law, and the exceptional degree of harmonisation which it exhibits the fact that until now there has been no international treaty governing the safety of nuclear installations is striking Of course the numerous recommendations and codes which exist in this field especially those produced within the IAEA, cannot be ignored but these texts are not obligatory Besides, they are intended to be didactic, rather than to establish rules

In reality the idea of establishing real international rules on this subject was for a long time met with scepticism if not marked reluctance, on the part of the regulatory authorities of many countries While, from 1986 onwards, there seemed to be some evolution in this regard it was at the Conference organised in September 1992 under the auspices of the IAEA and the European Commission that a real change of attitude on the part of the major nuclear countries became apparent In the wake of this meeting, a resolution of the General Conference of the IAEA emphasised the "need to consider a harmonized international approach to all aspects of nuclear safety" and invited the Director-General of the Vienna Agency to prepare an "outline of the possible elements of a nuclear safety convention" The resolution also emphasised the need to develop procedures which would allow effective verification of the extent to which functioning nuclear power plants meet internationally approved minimum safety standards - a concept which was to be at the heart of the discussions on the new draft Convention

These discussions took place as from 1992 within a group of experts consisting of safety specialists and lawyers invited by the Director-General The draft on which consensus was finally reached at the beginning of 1994 is significantly different from the initial idea of a framework convention to which specialised annexes or Protocols would be added, containing more detailed technical specifications than the text of the convention itself, like most modern conventions dealing with scientific or technical subjects At the end of some very lively discussions the idea of a single instrument prevailed Its text is based on rather general undertakings inspired by the NUSSAG document "Safety Fundamentals - The Safety of Nuclear Installations" which sets out, in a sense the philosophy of the regulatory authorities of the countries which are the most advanced in the area of nuclear safety Contrary to the wishes of certain of the countries which took part in the negotiations it was also decided that the scope of the Convention should be relatively narrow, covering only nuclear power plants By way of compensation the preamble of the Convention is expected to include an undertaking to begin without delay the elaboration of a Convention on the safety and management of radioactive waste In practice, the obligations provided for in the draft Convention apply principally to Governments and their relevant national authorities even if the text also recalls that primary responsibility for nuclear safety lies with the operator of each nuclear installation During the negotiations, several countries clearly showed their reluctance to give too wide powers to an international organisation in relation to the implementation of the Convention This being the case, the primary objective which is to "to achieve and maintain a high level of nuclear safety worldwide" should be pursued taking fully into account the predominant role which States retain in this field This is reflected in the mechanism which has been proposed to monitor implementation of the Convention This mechanism will take the form of "meetings of the Contracting Parties", held periodically, which will examine reports submitted in advance by the Parties on the way in which their obligations under the Convention have been implemented in their respective countries This procedure should allow a sort of "peer pressure" to be exerted on

countries whose performance in relation to nuclear safety leaves something to be desired, while avoiding publicity which could be counterproductive if it acted as a deterrent to the greatest possible number of States joining the Convention

The text adopted by the group of experts will be submitted to a diplomatic conference in June 1994 and it can therefore be expected that this self-styled "incentive" Convention, should soon be open for signature, thus perhaps opening the way for a family of agreements on the safety of other types of nuclear installation

Nuclear liability

Undertaken in the wake of the 1988 Joint Protocol which established a joint regime between the two Conventions on civil liability for nuclear damage - Paris and Vienna - the revision of the latter appeared at first sight to be a relatively simple exercise, especially since the 1982 revision of the Paris Convention had already prepared the way This estimate has however proved too optimistic, and some five years after the beginning the exercise the end is still not in sight

Paradoxically, this can be explained in part by the success of the exercise in attracting the participation of a large number of countries Besides the Parties to the Vienna Convention itself and to the Paris Convention, many "new" countries have joined in the negotiations, sometimes bringing with them questions which interest them in particular (international State responsibility in the case of a nuclear accident, for example) This has inevitably made the revision process more complex Another very important factor was the decision, made at the beginning of the negotiations, to add to the Vienna Convention a mechanism to raise supplementary funds for the compensation of nuclear damage, like the 1963 Brussels Convention which supplements the Paris Convention

Even if it preserves the basic principles which characterise the current system of civil liability for nuclear damage, the draft revised Vienna Convention - or possibly new draft Convention - which is emerging from these negotiations is quite profoundly different from the current text of the Vienna Convention Notably it includes an extension of the geographical scope of the Convention, the inclusion of "military" nuclear installations, a more elaborate definition of nuclear damage, longer time limits for bringing claims, etc Work on revision of the Convention is well advanced, and efforts are now concentrated on the mechanism for supplementary funding In this regard, there has been a long debate concerning the basis on which a collective contribution by the nuclear industry to compensation following a nuclear accident could arranged Unless consensus on this point can be reached, it would seem that the innovative idea of industry contributions may have to be abandoned, and the system of supplementary funding may have to rely solely on contributions of public funds, as is already the case for the Brussels Supplementary Convention

Another proposal which is now being examined is to increase the amount available for the compensation of nuclear damage by introducing into the basic Convention (Vienna and Paris) a tier of compensation to be provided by the State in which the installation in question is located, which would be added to the financial guarantee provided by the liable operator (such a tier exists already in the 1963 Brussels Supplementary Convention) A disadvantage of this approach, which is in other ways attractive, is that it would require a greater contribution from certain countries at which the new Convention is aimed, at a time when they are in extreme economic difficulties

It has been proposed that this mechanism should take the form of a new convention supplementary to the basic Conventions - Paris and Vienna - thus extending to the level of international financial solidarity the legal collaboration between the two Conventions which was established in 1988 Such a proposal of course raises many questions, of which the first is what would become of the Brussels Supplementary Convention Even if all the countries concerned accept the idea that the regime of nuclear liability should in future have as wide a scope as possible,

not all are convinced that the supplementary funding mechanism should also be global In fact many countries (notably various Parties to the Vienna Convention) think that regional arrangements are more appropriate There is also the question of the rights and obligations of the countries which, without having any nuclear power programme, are nonetheless exposed to the risk of transboundary damage In the Brussels Supplementary Convention, these countries agreed to make a financial contribution to the collective guarantee, will this be the case in the new Convention?

SIMILARITIES AND DIFFERENCES

Although their subjects and purposes are different, ranging from the modernisation of a legal regime which is already relatively long-established (liability) to the creation of new law (safety) via the addition of a nuclear element to a more general system (the Charter) these negotiations nevertheless have some factors in common

The first is that the stakes are principally European and more exactly East European Behind the desire for universality which is the natural vocation of international law there is a more concrete aim to anchor the countries of Central Europe and the newly independent States of the ex-USSR firmly in the legal systems which have been established by the countries of the West to define their obligations in relation to the risks which the use of nuclear energy creates for the population and the environment

A second common factor relates to general doubts concerning nuclear law following the Chernobyl accident This accident brought about a salutary recognition, on the political level of the gaps in that law, whether in relation to international obligations in the case of an accident, liability for transboundary nuclear damage or even certain aspects of radiation protection such as intervention levels in the case of radioactive contamination Chernobyl also shook the dogma according to which the safety of nuclear installations should remain a purely internal matter These negotiations are a response - at least a partial one - to the recognition of these deficiencies

Another aspect which relates in particular to the Nuclear Safety Convention and the revision of the Vienna Convention, is the convergence, stressed by many countries, between the preventive character of the establishment of an international instrument intended to improve the safety of nuclear installations and the need to improve the provisions guaranteeing satisfactory compensation to victims in case an accident nonetheless occurs The success of these simultaneous endeavours is considered essential if the public's fears with regard to nuclear power programmes are to be reduced

A final point, which is related to the previous ones is the desire to obtain a wider membership of the international instruments which make up nuclear law, the weaknesses in this regard having been glaringly revealed by the 1986 catastrophe At that time the Vienna Convention, in particular, had only a handful of parties most of which had no significant nuclear power programme

In spite of these common elements, the three negotiations nonetheless have very different goals Those related to the "Nuclear Protocol" must of course be considered in the context of the more ambitious aims of the European Charter However, in setting out the standards to which a government must conform in order to meet the criteria of good nuclear "citizenship" the Protocol is aimed more specifically at the countries of Eastern Europe, at inducing them to impose a new discipline in exchange for economic and technological assistance from Western countries

The negotiation on the Nuclear Safety Convention, for its part, should meet a particular challenge that of making a qualitative leap in the already established process of standard setting by passing from the stage of essentially technical recommendations to a international treaty setting out precise obligations and establishing procedures for mutual examination of national policies and

practices in relation to safety, with a view to ensuring greater transparency in this field The effective application of the Convention will allow us to judge whether its provisions measure up to its ambitions

In any case, these two negotiations are either well underway or practically concluded even if the fate of the Nuclear Protocol remains somewhat uncertain How, on the other hand, does one explain the slow progress of the work on modernisation of the regime of civil nuclear liability, especially when many international conventions on liability for transport accidents or environmental damage - the most recent being the 1993 Strasbourg Convention on civil liability for damage resulting from activities dangerous to the environment - have already largely shown the way for the necessary improvements It would seem that the problem is largely financial It is in the first place remarkable that after several years of negotiations, no agreement has yet been reached on raising the minimum liability level of the operator, although the current level is notoriously inadequate and its increase is essential in order to re-establish the credibility of the regime The idea of inviting all "nuclear" countries to supplement this amount by a substantial contribution of public funds, also creates difficulties for those countries which are in a precarious financial position, and which would rather rely on assistance from the wealthiest countries, which are those which insist on active programmes to improve nuclear safety Finally, the prospect of extending the scope of the future instrument on supplementary funding for nuclear damage to cover the whole world is a test of the concept of international solidarity on which the 1963 Brussels Supplementary Convention is based This final question is all the more serious since, in the absence of the nuclear countries of North America and Asia, the burden of financing such a system would, in essence, fall precisely on the countries which are currently Parties to the Brussels Supplementary Convention

Another possible explanation of the difficulties encountered relates to the fact that the mandate given to the IAEA Standing Committee which has responsibility for the conduct of the negotiations has several facets revision of the civil liability regime, international State responsibility, supplementary funding The decision to deal with three at once possibly overestimated the capacity of the Committee to achieve consensus on all of these questions within a reasonable time

Without wishing to be unduly pessimistic, it must be accepted that progress in international law, being by its nature subordinate to political will, tends to be achieved as a reaction to crises, rather than as a gradual evolution In the field of nuclear energy, it is easy to guess what sort of crisis is likely to have this effect But can we simply wait for a new accident to happen, in order to overcome resistance to the urgently needed updating of the nuclear third party liability regime?

POTENTIAL LIABILITY OF CONTRACTORS WORKING ON NUCLEAR SAFETY IMPROVEMENT PROJECTS IN CENTRAL AND EASTERN EUROPE*

It was the Chernobyl disaster in 1986 that brought to the attention of the public throughout the world the dangerous state of many of the nuclear installations in the USSR and other countries of Eastern Europe It also made abundantly clear that any major accident in one of those installations was likely to cause damage not only in the territory nearby, but also in Western Europe and possibly even beyond

Not long afterwards, the end of the communist era in Eastern Europe afforded the opportunity for co-operation between East and West to improve the safety of the installations causing most concern Intergovernmental entities, including the European Union[1] the IAEA, the EBRD and OECD/NEA, and certain Western Governments established schemes and made available funds to pay Western experts and contractors to undertake the necessary work in collaboration with Eastern European authorities and technicians Within G-24[2] a co-ordination mechanism was established for assistance activities concerning nuclear safety in Central and Eastern Europe The mandate given to it by G-7 is to focus on operational safety improvement of installations and their equipment and the strengthening of regulatory authority The co-ordination mechanism includes a data bank of such activities, a Steering Committee (established in September 1992 and consisting of G-7 countries plus two rotating chairs) and a secretariat (provided by the European Commission, which also takes the chair at the G-24 meetings) These efforts have however faltered at the stumbling block of nuclear third party liability

The problem of potential liability for nuclear damage is of course not new to Western Europe When the nuclear industry was first established there, in the 1950s and 1960s it was found necessary to regulate, at both national and international level, the question of liability in the case of an accident National legislation on the subject was introduced in the countries concerned and there was drawn up, within the then European Nuclear Energy Agency (now the NEA), the Paris Convention on Third Party Liability in the Field of Nuclear Energy, 1960 Its basic principles were taken up in the global Vienna Convention on Civil Liability for Nuclear Damage of 1963 They included strict liability for nuclear damage the limitation of the operator s liability and compulsory insurance or other financial security But the most important provision from the point of view of contractors and suppliers concerned the "channelling" of liability

According to this principle the operator of a nuclear installation is exclusively liable for accidents at and in relation to that installation, including in the course of the transport of nuclear substances to or from the installation

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* Note by the Secretariat

Whatever the cause of an accident, therefore, and indeed whether or not the cause is known, claims for compensation must always be brought against the operator of the nuclear installation concerned[3] Both Conventions allow the operator a limited right of recourse against the supplier or contractor, but only if this has been expressly agreed in the contract between them, or if the accident results from an act intended to cause damage A contractor can therefore decide whether to agree to a right of recourse, and if so can in the contract limit the extent of that right, for example up to the total value of the contract The costs of any compensation above that amount would be left to be borne by the operator

The advantage of channelling for victims of nuclear damage is that they know against whom their claims should be brought without the need for complicated preliminary investigations Channelling also simplifies insurance arrangements, since only the operator needs nuclear liability coverage

OECD countries with nuclear industries, even if they did not adhere to the liability Conventions, adopted the principle of channelling of liability in their national law Canada and Japan, for example, provided that the operator of an installation was exclusively liable for an accident involving that installation In the United States, there is no provision for exclusive legal liability, but the operator is required to hold liability insurance covering all incidents in his installation regardless of who is found to be legally liable Thus there is a form of "economic channelling"

In the former eastern bloc, however, the approach was different In most Eastern European countries, under the socialist system, a nuclear installation was regarded as just one more State-owned factory among many others engaged in potentially hazardous operations The countries concerned were not parties to the nuclear liability Conventions There was no specific law governing third party liability in the case of a nuclear accident Instead, the normal civil law applied No provision was made for limitation of liability nor for channelling In addition, there was no insurance industry The legal environment was therefore very different from that to which Western contractors and suppliers were accustomed

Nonetheless some valuable work has been performed by Western experts in the context of collaborative projects for safety improvement At first, this work principally took the form of studies Since it seemed extremely unlikely that this could give rise to any form of liability in the event of an accident, the legal situation was not an issue Later, however, it was envisaged that Western companies would work as contractors, provide technical advice to be followed by the operators in the host countries, and supply equipment As the work to be undertaken increasingly came to be of a type which could conceivably give rise to a claim of liability in the case of an accident, and as the industry became more aware of its potential exposure to liability, it began to express anxiety on this account The question began to be widely discussed in 1992

The fear is that if an accident were to occur during or after work on an installation by a Western company, and were to result in nuclear damage, the victims might choose to sue the company, either alone or jointly with the operator of the installation Such action might be taken because the victims considered that the goods or services provided by the company caused, aggravated, or failed to prevent the accident Indeed, in a legal system in which liability is not imposed exclusively on the operator, and given the complexity of the technical questions involved in determining the causes of a nuclear accident, it would be prudent for plaintiffs to bring compensation claims against as many defendants as possible

Other considerations might also play a part For example, the Western company might be brought before the court chosen by the victim more easily than the operator, choice of court being determined in turn by the level of damages customarily awarded (including, possibly, punitive damages) as well as the law applied Questions of immunity from jurisdiction could also play a role, since in the countries concerned nuclear installations are usually operated by the State Equally, the

disposable assets of the company might in some cases be greater, or at least more easily convertible, than those of the host State

Companies' fears are aggravated by the fact that in most of the host countries there is no limit on liability, and by the unfamiliarity of local laws and procedures These factors make it impossible for the companies concerned to estimate the extent of the risk to which they would be exposed, and to judge whether that risk is counterbalanced by the benefits offered by the contract In this regard it should be borne in mind that the degree to which a contractor is exposed to the risk of liability does not depend on the size of the contract Even a very limited provision of goods or services could potentially expose the contractor to huge compensation claims, if the goods or services could contribute to causing or aggravating a nuclear incident or its consequences

In addition, it appears that private insurance would generally not be available to contractors and suppliers to cover this risk of liability

Even if litigation against the company were eventually unsuccessful, the legal costs and the damage to its commercial reputation could be ruinous

As a result, many Western companies are now refusing to accept contracts as part of safety improvement projects in those countries in which the legal regime does not protect them from potential liability Funds[4], even though available cannot be spent

The problem was raised within the G-24 in 1992, and an ad hoc group of experts on nuclear third party liability was established in January 1993, including representatives of the NEA the IAEA, the CEC, as well as national experts This group has been asked by the Steering Committee of the G-24 Nuclear Safety Assistance Co-ordination to examine the question The NEA Group of Governmental Experts on Third Party Liability in the Field of Nuclear Energy has also discussed the situation, with the participation of observers from a number of Central and Eastern European countries[6] Bilateral negotiations have also been underway between host countries and various Western Governments and companies involved in safety improvement projects

There has also been considerable consultation between various contractors Some groupings of nuclear industry and electricity authorities, such as UNIPEDE, Foratom and the World Association of Nuclear Operators (WANO), have general co-operative functions[6] Others have arisen specifically in response to the current situation For example, the Twinning Programme Engineering Group (TPEG), consisting of operating utilities, and the European Nuclear Assistance Consortium (ENAC) which consists of seven major Western European nuclear companies, were formed as a response to the European Union's TACIS and PHARE programmes Another group - Casiopee - is interested in work relating to radioactive waste All of these groups have taken a very active interest in the liability situation In the United States, the Contractors International Group on Nuclear Liability (CIGNL) was formed specifically to encourage the development in the CIS and the countries of Eastern Europe of nuclear liability protection comparable to that available in the United States and Western Europe It is an ad hoc group of United States contractors with expertise in improving the safety of nuclear power plants and related activities

PROPOSED SOLUTIONS - APPLICATION OF THE INTERNATIONAL NUCLEAR LIABILITY REGIME

These groups have put forward a fairly uniform common position They require that in relation to delivery of goods and services to Central and Eastern Europe they should have equivalent protection to that which they enjoy in other parts of the world, notably Western Europe United States, and Japan That is neither the contractor/supplier nor its sub-contractors/sub suppliers can be held liable for any damage suffered by third parties within or outside the country of the nuclear facility nor for any damage to the nuclear facility or on-site property, as a result of

a nuclear incident in the nuclear facility, except in so far as a right of recourse by the operator is expressly provided in the contract between them

Their preferred solution is adherence by the countries concerned to the international nuclear liability Conventions providing for channelling, and the implementation of those agreements in national legislation Some add that it is necessary for appropriate financial provision to be made to ensure that the operator, who would be liable according to the channelling principle, would in fact be able to pay compensation up to the amount of the liability limit

In practice this will generally mean adherence to the Vienna Convention (The Paris Convention is open to accession by non-members of the NEA, but only with the prior unanimous agreement of all existing Contracting Parties, whereas the Vienna Convention may be acceded to, as of right, by all members of the United Nations, any of the specialized agencies, or the IAEA)

However, in order to ensure that, following a nuclear incident, the contractor may not be sued in his own country, it is necessary that the Convention should be applicable in the law of that country as well If it does so, not only does the channelling provision require that the operator should bear liability, but also exclusive jurisdiction over the claim is given to the courts of the country in which the installation involved is located Therefore, the courts of the contractor's home country could not hear any compensation claims

Since the Western European countries with contractors involved in this work are parties to the Paris, not the Vienna, Convention[7] therefore, adherence by the recipient State to the Vienna Convention alone is not sufficient However, the desired result can be achieved if both the recipient State and the contractor's home State are parties to the 1988 Joint Protocol, which links the Paris and Vienna Conventions The Joint Protocol in effect provides for parties to one Convention to be treated as if they were also parties to the other If a nuclear incident occurs in a State which is party to both the Vienna Convention and the Joint Protocol, it follows that in relation to all claims for nuclear damage occurring in that State or in any State which is a party to the Joint Protocol and either the Paris or Vienna Convention, the courts of the State in which the accident occurred will have exclusive jurisdiction Provided that State has national laws in conformity with the Vienna Convention, its courts will apply the channelling principle, according to which liability is borne exclusively by the operator

In fact, for all risk of liability to be avoided, it is necessary that not only the host country and the country of the contractor should be parties to a liability Convention, but that all neighbouring countries, in which nuclear damage might be suffered, should also be parties and have appropriate national legislation Otherwise, it would be possible for those suffering nuclear damage in a neighbouring country to sue in their own courts, in which the jurisdiction and channelling provisions of the liability Convention would not be applicable Contractors have tended to insist that any long-term solution must include coverage of neighbouring countries by the Conventions

REACTION OF RECIPIENT STATES[8] - THE LIABILITY CONVENTIONS

Recipient States are well aware of the problem - indeed work on a number of projects has already been interrupted or delayed - and have been working towards a solution

The issue of the potential liability of Western contractors working in Eastern Europe was first widely discussed in 1992 At that time, only a few countries in the region were parties to a liability Convention Hungary had been a party to the Vienna Convention since 1989, and to the Joint Protocol since 1990 Poland too had been a party to both since 1990[9] Croatia, Macedonia and Slovenia, on independence, became parties to the Vienna Convention through succession to Yugoslavia which had ratified it in 1977[10]

The pressure placed on other countries by the refusal of Western contractors to work on installations in those countries has already had an effect Armenia the Czech Republic, Lithuania and Romania have all joined the Vienna Convention since August 1992, the Czech Republic Lithuania and Romania also adhering to the Joint Protocol Estonia ratified the Vienna Convention and the Joint Protocol in 1994 and authorities in Bulgaria and Slovakia are working towards adherence to the Vienna Convention

Adherence to the Conventions alone is not normally enough to give effect to the channelling principle under national law Legislation must also be put in place The quickest way to do this is simply to pass an Act providing that the Vienna Convention and Joint Protocol shall have the force of national law Lithuania has adopted this approach [11] In Romania, the same effect is achieved by the 1991 Constitution which provides that international treaties to which Romania is a party are part of Romanian national law

Giving the Convention force under national law without further provision is not an ideal solution from the point of view of internal legislation The Vienna Convention leaves many matters to be regulated by national law, including the time limits for compensation claims the operator's liability limit the precise definition of "nuclear damage" and the system for distribution of compensation In the absence of specific legislation on these points they can probably be decided by reference to the general civil law but most countries prefer to deal with them in a special law on nuclear liability

The Bulgarian and Slovakian authorities are preparing draft legislation on nuclear liability with a view to subsequent accession to the Vienna Convention Although Hungary has been a party to the Vienna Convention for some years it has not so far passed specific implementing legislation Its law (dating from before adherence) is generally, but perhaps not entirely in conformity with the Vienna Convention, and its Constitution, like Romania's, now provides that the Convention will prevail in case of inconsistency A new Act on Atomic Energy including a chapter on liability is being prepared In the Czech Republic new nuclear legislation, including liability provisions, is being drafted It is hoped it will be enacted in 1994 In the meantime the general civil law inherited from Czechoslovakia applies together with temporary arrangements for a State guarantee for nuclear operators

The preparation of legislation to give effect to the liability Conventions can be time consuming In many countries of the former eastern bloc there is a need not only for new law on nuclear third party liability, but for legislation and regulations governing nuclear activities as a whole At present, it can be difficult for authorities even to identify an "operator" of an installation This situation could create difficulties and uncertainties in the application of the liability Conventions, and some countries, notably Ukraine and Russia, have taken the approach of first preparing general legislation on nuclear activities (including however some basic liability provisions), to be followed by more specific liability legislation

INTERIM SOLUTIONS - INDEMNITY AGREEMENTS

For many recipient countries, therefore, it may be some time before adherence to the Vienna Convention and Joint Protocol, and their implementation in national legislation, can be achieved Parliamentary approval is required, and the many urgent national problems which may be given greater legislative priority and, in some cases, the relative instability of the governments, make rapid completion of the process very difficult

Western contractors and recipient States therefore agree that interim solutions may be needed, which would allow urgent safety improvement work to proceed in the meantime Such a solution would probably take the form of an indemnity provided to the contractor

Some contractors have proposed that they should be given a guarantee of indemnity by the Western Governments or intergovernmental entities (notably the European Union) funding the projects The guaranteeing State or organisation might then have a right of recourse against the recipient government This appears unlikely to be acceptable to the Western Governments concerned, and in the case of intergovernmental entities budgetary and legal obstacles, as well as political ones, would arise A suggestion has also been made that there might be scope for some form of short-term multilateral mechanism providing funding for financial guarantees

However the type of interim solution which is being most closely examined at present is the provision of some form of guarantee by the recipient State or the operating entity Nuclear companies insist that indemnities should cover not only the contracting company itself, but also all of its sub-contractors or sub-suppliers of goods, services and information - as would be the case in a legal system which channelled liability to the operator Otherwise, contractors fear that they will have difficulties in finding sub-suppliers The indemnity should cover the nuclear installation itself and on-site property, as well as third party claims

Clearly, an indemnity is acceptable only where the guarantor has the financial resources to pay the amounts involved Operators of the nuclear installations in Central and Eastern Europe which are the subject of safety upgrades are unlikely to be able to obtain liability insurance from Western insurance companies, and there is usually no system of private nuclear insurance in their own country Moreover, they do not necessarily have control even over the assets involved in the operation of the plant (the plant itself, revenue from the sale of power) In these circumstances, an indemnity provided by the operator is unlikely to be acceptable Indeed, in some cases even a State guarantee might not be sufficient, since it is not clear that some of the smaller recipient States would have sufficient assets available to pay compensation claims following a major accident

Another problem is that in order to judge the efficacy of a proffered guarantee, a Western contractor needs legal advice from experts on the law in all of the countries in which claims might be brought, and most importantly on the law of the recipient country This may not be easily available, and the situation is further complicated by linguistic differences and the changes taking place in the legal systems concerned The unfamiliarity of those legal systems to Westerners, and probably the unfamiliarity of Eastern European authorities with the western experience of product liability litigation, also make the development of an appropriate indemnity arrangements difficult

It is not possible for us to say whether any or all of these factors may be to blame, but it appears that so far no indemnity arrangement offered by a recipient State has been judged entirely satisfactory by Western contractors However, efforts have certainly been made

In the Czech Republic, provision has been made to allow a temporary Government guarantee to be given, which until the entry into force of the Vienna Convention for the Czech Republic and the enactment of relevant legislation, is intended to ensure that the foreign suppliers would be exempted from liability in the case of an incident in a nuclear installation located in the Czech Republic Liability in this case would be channelled to the operator Similarly, in Bulgaria, as an interim solution until the accession of Bulgaria to the Vienna Convention, consideration is being given to a State guarantee, to be annexed to each contract, to defend compensation claims to which the foreign company may be exposed and hold it harmless against any liability that may be incurred In Slovakia, too, consideration has been given to provision by the Government of an indemnity agreement

Russian recipient organisations are able to sign appropriate liability statements, guaranteeing to withhold claims brought against contractors, their agents, subcontractors, personnel etc , in relation to activities within the framework of technical assistance programmes or projects This guarantee would be offered by the recipient organisation rather than the Russian State However, a bilateral agreement has been concluded between the Governments of the Russian Federation and

the United States, which would provide a Russian State guarantee to United States contractors[12] A similar agreement was also concluded between the Ukraine[13] and the United States

This Government to Government approach in the case of the United States is explained by the fact that the United States is not a party to either the Paris or Vienna Convention Therefore the United States courts would not be bound by the channelling or jurisdiction provisions of the liability Conventions, if an action were brought before them The effect of the Government to Government agreement - as opposed to a contractual arrangement is that the indemnity provided in the agreement for United States contractors would be enforceable by the Government of the United States, rather than directly by the contractors concerned

CONCLUSION

As we have said so far no entirely satisfactory solution appears to have been reached Given the difference between the legal climate of East and West, and the relatively short time during which attempts have been made to breach the gap, this is perhaps not surprising But now that a situation has been reached where co-operative efforts to improve the safety of nuclear installations in Eastern Europe are welcomed by both East and West, and where funds and technical expertise are available, it would be a pity to lose this opportunity for lack of a solution to the legal problem of potential liability

NOTES AND REFERENCES

1 The contribution of the European Union has been part of its TACIS and PHARE programmes which provide assistance to the countries of the former USSR and to other countries of Central and Eastern Europe, respectively (The Commission decided in April 1993 to merge the assistance activities on nuclear safety in the TACIS and PHARE programmes)

2 The G-24 is a negotiating group consisting of the 24 OECD countries (before the accession of Mexico to the Organisation in 1994)

3 Or where allowed by national legislation directly against the operator s insurer (Paris Convention Article 6, Vienna Convention Article 2(7))

4 These funds have been made available by Western Governments sometimes on a bilateral basis sometimes throught multilateral projects such as TACIS and PHARE and the EBRD s special nuclear safety fund

5 Bulgaria the Czech Republic, Hungary Poland Romania Russia Slovakia and the Ukraine

6 However their activities include work on safety improvement projects in Eastern Europe For example WANO has undertaken upgrading activities at the Kozloduy power plant in Bulgaria under the European Union s PHARE programme

7 The US is not a party to either the Paris or Vienna Convention The consequences of this situation will be discussed below

8 This note takes into account information that we have been able to obtain from Central and Eastern European countries relatively recently, but that information is far from complete The fact that a country in the region is not mentioned does not necessarily mean that it has taken no action In relation to

parties to the Vienna Convention the information here is that available from the IAEA, as depositary, in March 1994

9 Although Poland became a party to the Vienna Convention in the expectation that it would develop a nuclear power industry, that has not in fact occurred, although it does have some research reactors

10 The succession was officially notified to the IAEA by Croatia on 29 September 1992 Macedonia on 8 April 1994 and Slovenia on 7 July 1992 but had taken effect on the date on independence (Croatia 8 October 1991 Macedonia 8 September 1991 Slovenia 25 June 1991)

11 Act No I-134 of 30 November 1994 See summary in the Chapter on "National Legislative and Regulatory Activities" in this issue of the Bulletin

12 Agreement concerning Operational Safety Enhancements Risk Reduction Measures and Nuclear Safety Regulation for Civil Nuclear Facilities in the Russian Federation, December 1993

13 Agreement concerning Operational Safety Enhancements, Risk Reduction Measures and Nuclear Safety Regulation for Civil Nuclear Facilities in Ukraine 25 October 1993

CASE LAW AND ADMINISTRATIVE DECISIONS

CASE LAW

United Kingdom

The Sellafield Childhood Leukaemia Cases (1993)*

Judgment was given in October 1993 in the long running test cases brought against British Nuclear Fuels plc (BNFL) alleging health effects resulting from BNFL's operations at its Sellafield nuclear reprocessing plant in West Cumbria Mr Justice French found decisively in BNFL's favour and ruled that the plaintiffs had failed to prove that radiation from Sellafield had caused or materially contributed to their diseases

This Article summarises briefly the important points in the case It is, of course only possible to provide a synopsis of the key issues in a case which involved 2 1/2 years preparation, a trial lasting 90 days and the evidence of over 60 experts

The Facts

Test cases were brought against BNFL in 1990 by or on behalf of two individuals Dorothy Reay and Vivien Hope, for damages in respect of personal injury allegedly suffered as a result of radiation emanating from the Sellafield site in West Cumbria The first claim was brought by Elizabeth Reay in respect of the death of her daughter Dorothy in 1962 aged 11 months as a result of her contracting acute lymphatic leukaemia The second claim was brought by Vivien Hope who was diagnosed as suffering from non-Hodgkin's lymphoma (NHL) in June 1988 at the age of 23 She was treated successfully but she remains afflicted by the consequences of her illness Each child's father worked at the Sellafield site prior to her conception

The Allegations

The Plaintiffs alleged three mechanisms by which radiation emanating from Sellafield had caused their diseases These were as follows

- exposure of the child's father to ionizing radiation whilst working at Sellafield prior to her conception had caused or materially contributed to the child developing leukaemia,

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* This note was kindly prepared by Paul Bowden and Jonathan Isted Freshfields Environment Group Freshfields London

- exposure of the child and her parents to radiation discharged by BNFL into the environment had damaged the child's parent's ability to have a normal healthy child and/or damaged the child directly after conception,

- radiation carried home from Sellafield on the child's father's clothing had exposed her in such a way as to cause or materially contribute to her disease

As the case progressed the Plaintiffs dropped the third claim completely

The second allegation, in relation to environmental discharges, was pursued by the Plaintiffs throughout the preparation of the case and during the trial The allegation was in relation to damage caused by radiation discharged from Sellafield into the environment which delivered a radiation dose to the Plaintiffs and their families over and above that from natural background radiation and from other artificial sources for which the Defendant was not liable (such as weapons fallout) The preparation of BNFL's environmental dose evidence was enormously time consuming A mathematical model known as "SEAM" (Sellafield Environmental Assessment Model) was developed which was able to model the discharge and dispersion of radionuclides into the environment surrounding Sellafield from 1950 until 1988 (when Vivien Hope's disease was diagnosed) The model had been extensively verified, and peer-reviewed and also validated on the basis of measured concentrations of radioactivity in the environment Dr John Stather of the National Radiological Protection Board (NRPB) also gave evidence as to environmental doses

It became clear during the Plaintiffs' closing speech at the very end of the trial that this allegation was not being pursued any longer and the Judge was not asked to rule on it Nevertheless the Judge did find that the assessments of environmental doses put in evidence by BNFL were robust and likely to be overestimates rather than underestimates

The central issue which remained therefore was the allegation that paternal preconceptional irradiation of the child's father (which became known during the trial as "PPI") whilst working at Sellafield caused a mutation in the father's sperm which in turn caused a predisposition to leukaemia and/or non-Hodgkin's lymphoma in their offspring

The Gardner Hypothesis

The central plank of the Plaintiff's evidence was a case-control study carried out by the late Professor Martin Gardner and others ("The Gardner Study") into an excess of leukaemia and non-Hodgkin's lymphoma in West Cumbria observed in young people under 25 who had been born and diagnosed in West Cumbria between 1950 and 1985 This study was conducted under the auspices of the Committee on the Effects of Radiation in the Environment ("COMARE"), a standing body of independent scientific experts established by the UK Government in response to the report of an earlier committee chaired by Sir Douglas Black which had investigated anecdotal evidence of an excess of childhood leukaemia in the village of Seascale, a community some 3 kilometres from the Sellafield plant

The Gardner study found a statistical association between the doses of ionizing radiation received by fathers during the course of their employment at Sellafield, prior to the conception of their children, and the incidence of leukaemia in their children The report also found a raised incidence of leukaemia combined with non-Hodgkin's lymphoma amongst the same group

The problem that the Plaintiffs had was that the Gardner Study stood virtually alone in terms of the association between PPI and childhood leukaemia which it suggested Further, the excess of leukaemias which had prompted the study was confined to the one village of Seascale In order to succeed, the Plaintiffs had to show that the Gardner Study provided evidence to establish, on

a balance of probabilities, that one or both of the individual Plaintiffs particular diseases were caused or materially contributed to by ionizing radiation from Sellafield

At the trial three basic arguments were made by the BNFL in relation to the Gardner Study These were

- the Gardner Study itself had methodological flaws,
- the association suggested by Professor Gardner on the basis of his study results did not stand up to well-established epidemiological criteria for judging the existence of a causal relationship between the exposure and the disease being studied, and
- there was no plausible biological mechanism to explain what Gardner was suggesting

Each of these arguments is expanded on below

Although the Defendants accepted that the Gardner Study was by and large a well carried out and presented report, nevertheless there were serious shortcomings in the methodology used For example, the study had included a case who was born and lived in Seascale but was diagnosed as having leukaemia whilst resident at University outside the area The inclusion of this case contrary to the strict criteria for case selection weakened the credibility of the report In addition there was evidence that a decision was taken, after the Gardner team had started to collect data to limit the study to cases born as well as diagnosed in West Cumbria Such post hoc boundary selection is a serious error in the conduct of any case-control study In his judgment Mr Justice French recognised these criticisms (among others) as diminishing confidence in the study's conclusions which he said, underlined the "*good sense of requiring that studies such as [this] should be confirmed by one or more other studies of the same or similar subject matter before much reliance can properly be placed on them*"

The second key aspect of the trial was the application of the "Bradford Hill criteria" to the suggested association put forward by Gardner The Bradford Hill criteria (named after their formulator Sir Austin Bradford Hill the renowned British epidemiologist) were basically designed to enable the possibility of a causal relationship between an exposure and a disease suggested by a particular study to be evaluated in the context of other epidemiological studies and scientific evidence generally (In short, the criteria amount to taking a step back from the theory in question and applying a common-sense approach to its strengths and weaknesses) The main criteria are described below together with the Court's conclusions on each of them

- *the strength of association found by the Gardner Study in terms of the raised relative risk and the confidence intervals surrounding that risk* The Judge concluded that although a strong statistical prima facie association was shown by the Gardner Study the Defendant had shown the bounds of uncertainty in the specific raised risk figures reported by Gardner and therefore considerable reserve was necessary before placing reliance on it It was noteworthy that other risk factors which were considered by the Gardner study e g *maternal age prior to conception also showed a statistically significant association with* childhood leukaemia The Gardner study had, indeed, investigated a number of hypotheses as to the cause of the excess of childhood leukaemias This fact alone required the confidence in the statistical association for PPI to be reduced
- *The consistency of the study result when compared with other studies* Evidence was put forward by a total of 15 epidemiologists on both sides as to previous epidemiological studies looking at the possible association between PPI and childhood leukaemia Each side claimed to identify reports which supported their case However Mr Justice French placed very considerable weight on the large-scale studies of the Japanese A bomb

survivors in which there was a *negative* result for the inheritance of leukaemia by children of irradiated parents

- *The existence of a dose response relationship* This was regarded as a very important criterion - if the Plaintiff could show that as exposure to PPI increased so there was an increase in the incidence of leukaemia in the offspring of irradiated fathers then considerable credibility was added to the association However, the Judge found that the data in the Gardner Study fell short of demonstrating that a dose response relationship was present, although it was not inconsistent with such a response

Bradford Hill criteria considered to be of less importance in this case were those of *analogy, specificity, temporal association* (there was no dispute that exposure to the alleged causative agent preceded the leukaemia in offspring) and *experiments*

That left the final, and critical, criterion of *biological plausibility*

Biological Plausibility

Both sides called evidence from a large number of geneticists as to the plausibility of a genetic mechanism existing whereby irradiation of the father's sperm could lead to a predisposition to leukaemia in his child Before dealing with this "genetic" evidence mention should be made of the strong epidemiological evidence going to the question of biological plausibility Gardner had found an excess of childhood leukaemia cases in the village of Seascale, close to the Sellafield site, which he found to be associated with PPI If this association was real, the Defendants argued, then it ought to be possible to demonstrate PPI associated with childhood leukaemia in the other areas around Sellafield in which the vast majority of fathers with PPI lived However, when one looked at these other areas, this was not what was found On the contrary, the vast majority of fathers with PPI lived in areas where there was no excess of childhood leukaemia At a late stage of the trial a new study was published which indicated another small excess of childhood leukaemias in an area of Egremont, another village near to the Sellafield plant but which was *not associated* with PPI These points appeared to weigh very heavily with Mr Justice French

Turning back to the genetics evidence, this fell into two main areas The Plaintiffs had to explain why the risk estimates inherent in the Gardner hypothesis were so much higher than the internationally accepted risk estimates derived from human animal and in vitro studies In order to seek to overcome this incompatibility, the Plaintiffs introduced a "synergy" theory which suggested that PPI caused a mutation in the irradiated fathers' sperm which predisposed his child to leukaemia, but the leukaemia was only instigated by an unidentified factor (which became known as "factor X"), factor X being a virus or other infective agent or environmental background radiation This was dismissed by Mr Justice French as pure speculation

In relation to the totality of the genetics evidence, Mr Justice French concluded that *"the mechanisms proposed by the Plaintiffs to account for the astonishingly larger mutation rate which the Gardner hypothesis requires, over and above any human experience or murine experiment, remain, I consider, in the present state of scientific knowledge, speculative"*

Judgment

Having reached the findings which he did in relation to the validity of the Gardner Study, the Bradford Hill criteria and the genetics evidence, Mr Justice French concluded that *"in my judgment, however, on the evidence before me, the scales tilt decisively in favour of the Defendants and the*

Plaintiffs therefore have failed to satisfy me on the balance of probabilities that PPI was a material contributory cause of the leukaemia of Dorothy Reay or the NHL of Vivien Hope"

Conclusion

Mr Justice French was faced in the BNFL cases with a daunting number of expert witnesses giving evidence on scientific issues of the most extreme complexity However, throughout the evidence he adopted a common-sense approach to weighing the strengths and weaknesses of particular arguments In particular, he refused to accept the superficial line of argument that although scientists and epidemiologists in particular conventionally require causation to be proved to a 95% degree of probability, the burden of proof in court proceedings requires only a 51% certainty and that the courts should therefore be prepared to make findings of causation and liability even where the scientific community is unpersuaded The Judge instead took the view (which in fact was commended to him by the evidence of a number of the scientists) of approaching the assessment of causation issues on the totality of the relevant evidence and on a "common-sense" basis trying to determine whether it was more likely than not that the exposure of interest had caused the effect complained of

European Commission

Radiation Protection Standards Dose Limits Commission vs Belgium (1992)

The radiation protection standards presently in force in the European Union are contained in the Directive of the Council No 80/836/Euratom of 15 July 1980 laying down the revised basic standards for the health protection of the general public and workers against the dangers of ionizing radiation, as amended by Directive No 84/467/Euratom of 3 September 1984 (see Nuclear Law Bulletin Nos 25, 34)

In accordance with the Euratom Treaty (Article 33), Member States of the European Communities (now the European Union) must lay down appropriate provisions in their national legislation to ensure compliance with the basic standards established by the Commission Belgium transposed the above Directive into law, but laid down stricter limits than those set by the Directive The Commission took the view that the radiation protection provisions of the Euratom Treaty did not allow Member States to set stricter limits and brought the case before the Court of Justice of the European Communities

On 25 November 1992, the Court decided in favour of Belgium This case is analysed in an article in the "Articles" Chapter of this issue of the Bulletin

Switzerland

Application for a Licence to Operate the Beznau II Nuclear Power Plant for an Unlimited Period (1991)

On 18 December 1991, the Nordostschweizerische Kraftwerke AG (NOK) Company submitted to the Federal Council (the Government) an application for a licence to operate the above plant for an unlimited period The present licence, which dates back to 1985 expired on 31 December 1993 In accordance with the procedure, the application and the related safety report were submitted to a public inquiry from 28 January to 18 April 1991 Several objections were lodged by 33 organisations, 17 communes and 18 440 individuals 85 per cent came from Austria and Germany, 99 per cent of which were duplicated copies

Owing to a heavy workload, the Principal Division for the Safety of Nuclear Installations (DSN) had to delay its expert study Therefore the decision on that licence will only be delivered in the second half of 1994

Pending this decision, the Federal Department for Transport, Communications and Energy has extended for one year only the licence to operate the plant This provisional decision will be extinguished once the main decision is delivered, and at the latest on 31 December 1994

NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

OVERVIEW OF NUCLEAR LEGISLATION IN CENTRAL AND EASTERN EUROPE

Introduction

As a rule, the Nuclear Law Bulletin deals with national nuclear laws and regulations following an established pattern and by alphabetical order for countries, but this note departs from usual practice in order to give an overall view of the status of the regulatory framework for nuclear activities in certain Central and Eastern European countries today, including ex USSR countries It is based on information provided by national representatives of the countries concerned and, in so far as possible is set out according to a standardised plan Some of the laws and regulations have already been reported in the Nuclear Law Bulletin, but for the sake of completeness are briefly mentioned again below

Also, as the problem of liability in the context of the upgrading of the safety of nuclear power plants in the region by Western contractors is discussed in detail in the "Studies" Chapter in this issue of the Bulletin, it is simply mentioned here

A general trend to be noted is that those countries are in the process of revising amending or enacting nuclear legislation in line with that of the West and as regards nuclear third party liability, with the Vienna Convention on Civil Liability for Nuclear Damage

BULGARIA

Competent Authorities

In Bulgaria, the Council of Ministers is the competent authority regarding nuclear matters The Committee on the Use of Atomic Energy for Peaceful Purposes is placed under the authority of the Council and implements State policy on nuclear energy The Inspectorate on the Safe Use of Nuclear Energy, within the Committee, exercises control over all bodies organisations and officials engaged in nuclear activities to ensure that safety requirements are observed

Status of Nuclear Power Programme

There are six nuclear power plants in operation in Bulgaria at present with a 3538 MWe capacity *

Legislation in Force

The Law of 7 October 1985 on the use of atomic energy for peaceful purposes (the Nuclear Law) governs nuclear activities The Nuclear Law sets out the Committee's tasks which are, in particular, to establish programmes for the long term use of nuclear energy, nuclear safety requirements, systems for accounting, storage and transport of nuclear materials as well as to implement Bulgaria's economic, scientific and technical co-operation with international organisations in the nuclear field

The Nuclear Law governs all aspects of nuclear activities and sets out the licensing procedure, a regime of civil liability for nuclear damage and radiation protection provisions

All activities in the nuclear field require a licence issued by the Inspectorate The licensing conditions and procedures are determined by the Nuclear Law and regulations made in its implementation

The radiation protection provisions take into account the recommendations of the International Commission on Radiological Protection (ICRP)

The Regulations made under the Nuclear Law cover the following

- procedures for reporting operational changes, events and accidents related to nuclear and radiation safety to the Commission,
- nuclear power plant safety during design construction and operation,
- accounting for, storage and transport of nuclear materials,
- licensing of the uses of nuclear energy,
- criteria and requirements of training qualification and certification of personnel working in the nuclear field,
- collection, treatment, storage, transport and final disposal of radioactive waste

The third party liability provisions of the Nuclear Law apply to nuclear incidents and nuclear damage suffered in Bulgaria If radiation damage is caused by a nuclear incident or an incident in nuclear equipment, liability lies with the organisation to which the nuclear material was made available or which uses, carries or stores the nuclear material Such liability exists even in the absence of fault and it is unlimited

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* Source for information about national nuclear power programmes in this Note "Nuclear Power Reactors in the World" IAEA Reference Data Series No 2 April 1993 and national authorities

The State will compensate the damage which cannot be covered by the assets of the organisation concerned The nature, form and extent of the compensation are covered by the Civil Code

The time limit for bringing claims starts on the date on which the damage is determined The length of the limitation period is governed by the Civil Code

The city court of Sofia is the competent court for hearing actions for compensation of nuclear damage

(For further details about the Nuclear Law, see Nuclear Law Bulletin No 52 and the Analytical Study *Nuclear Legislation Third Party Liability*, OECD/NEA, 1990)

In August 1993 a Regulation on the physical protection of nuclear facilities and materials was adopted It sets out the organisational and technical requirements for physical protection of nuclear materials during their use, storage and transport The Regulation takes into account the IAEA Recommendations on the physical protection of nuclear materials

Draft Legislation

A Bill on accession to the 1963 Vienna Convention and the 1988 Joint Protocol on the application of the Vienna Convention and the Paris Convention has been submitted to the Council of Ministers, as well as a Bill for amendments and additions to the Nuclear Law including amendments to the Chapter on civil liability for damage in the Nuclear Law to bring it into line with the provisions of the Vienna Convention The following are among the proposed amendments to this Chapter

- the operator's liability is to be limited to the equivalent in leva of 15 million Special Drawing Rights of the International Monetary Fund,
- where the operator or his insurer cannot satisfy a claim for nuclear damage, the State will pay the compensation up to the limit of the operator's liability,
- the time-limit for bringing claims for compensation is five years
- damage caused by a nuclear incident directly due to a severe natural disaster is to be compensated by the State up to the limit of the operator's liability
- claims for nuclear damage are to be submitted to Bulgarian courts unless otherwise provided by the Vienna Convention,
- legal proceedings are to be free of charge for Bulgarian citizens and, based on reciprocity to foreign nationals as well

Matters not regulated by the Nuclear Law and the Vienna Convention will be subject to the provisions of the Civil Code concerning unlawful acts These provisions also apply to liability for damage caused by other sources of ionizing radiation, including those for medical purposes unless otherwise provided by other legislation

Both Bills have been considered by the Council of Ministers and are to be submitted to Parliament for adoption

Until Bulgaria accedes to the Vienna Convention, an interim solution is proposed to solve the problem of liability for nuclear damage in the context of supply of equipment and services by Western companies A draft model of an indemnity agreement giving a State guarantee to such companies, to be annexed to contracts, has been considered by the Council of Ministers and submitted to Parliament for adoption

CZECH REPUBLIC

Competent Authorities

Following the dissolution of Czechoslovakia, in respect of the Czech Republic, the responsibilities of the former Czechoslovak Atomic Energy Commission were transferred to the newly created State Office for Nuclear Safety (SONS) as the central administration for nuclear safety and to the Ministry of Industry and Trade regarding the development and use of nuclear energy The Ministry of Health is the competent authority regarding radiation protection

Act No 287 of 11 November 1993 determines the competence of SONS which exercises state supervision over

- nuclear safety in connection with nuclear facilities, radioactive waste and spent fuel,
- nuclear materials, including record-keeping and inspections,
- physical protection of nuclear materials and facilities

SONS is also responsible for co-ordinating co-operation with the IAEA

The Ministry of Industry and Trade is responsible for

- developing domestic legislation in the nuclear field and preparing intergovernmental treaties in this area,
- proposing strategic reserves of nuclear materials,
- co-operating with other government agencies in developing emergency preparedness plans and environmental protection principles,
- co-ordinating activities in the nuclear field from the viewpoint of the Government's economic policy,
- developing legislation for treaties in the nuclear field

Status of Nuclear Power Programme

There are four nuclear power plants in operation in the Czech Republic with a capacity of 1632 MWe Two nuclear power plants are under construction

Legislation in Force

Act No 28/1984 (Act of 22 March 1984) on State supervision of the safety of nuclear installations of the former Czech and Slovak Republic remains applicable in the Czech Republic pending adoption of a new Act

Under Act No 28, applications to construct and operate a nuclear installation must be submitted to the State Office for Nuclear Safety The organisation concerned submits its application to SONS, which, after consideration of the documentation provided in particular that on nuclear safety grants its consent and establishes the licensing conditions The decision of SONS must be issued no later than two months after the organisation has submitted the relevant documentation

Inspections of nuclear installations are carried out by SONS to ensure observance of the technical specifications for nuclear safety of operational instructions and conditions and radiation protection measures

Although there is as yet no specific legislation on nuclear third party liability, this matter is regulated for the time being in the framework of the Civil Code (Part VI Chapter II of Act No 40/1964) and the Commercial Code (Act No 513/1991) The Civil Code covers liability for damage to human health, including death or to property, including loss of property in the Czech Republic The operator is liable for damage due to the character of a particularly dangerous operation this includes operation of a nuclear power plant and transport of nuclear substances He is so liable regardless of fault if the damage was due to the hazardous nature of the operation In other cases he will be relieved of his liability if he can prove that the damage could not have been prevented in spite of all possible care There are no provisions in the Civil Code limiting the liability of the operator, or obliging him to hold insurance or other security to cover his liability nor does it contain provisions for State intervention to compensate damage (For further details see Analytical Study *Nuclear Legislation Third Party Liability*, OECD/NEA, 1990)

The Czech Republic prepared its accession to the Vienna Convention and the Joint Protocol The Government approved such accession by Resolution No 534 of 24 September 1993 and submitted the proposal to Parliament which approved this accession by Resolution No 308 of 15 February 1994

The President of the Czech Republic ratified Resolution No 308 on 9 March 1994 and the instrument of accession was deposited with the IAEA on 24 March 1994 Accordingly both international instruments will enter into force for the Czech Republic on 24 June 1994

Under Resolution No 534, the Minister for Industry and Trade of the Czech Republic is also empowered to sign on behalf of the Government a temporary State guarantee for nuclear operators which guarantees their coverage for compensation of potential victims of nuclear incidents up to the overall sum of CZK 6 billion (approximately 200 million US$) This guarantee is covered by para 5(b) of Act No 331 of 7 December 1993 on the 1994 State budget This guarantee remains valid until the new Nuclear Act enters into force

Draft Legislation

As mentioned above, work is under way on the drafting of an Act on the use of atomic energy and sources of ionizing radiation (the Nuclear Act) The Act will include provisions on nuclear third party liability

The nuclear third party liability provisions of the new Act under preparation will be in line with the principles of the Vienna and Paris Conventions namely strict and exclusive liability of the

operator limited in amount and in time, channelling of this liability and obligation to take out insurance for its coverage It is also planned to provide for supplementary compensation from public funds and to cover nuclear incidents outside the scope of the Conventions

HUNGARY

Competent Authorities

In Hungary responsibility for nuclear activities is shared among Ministries and the Hungarian Atomic Energy Commission The Ministry of the Interior is competent for the physical protection of nuclear materials and emergency preparedness while the Ministry of Welfare and Public Affairs is the authority responsible for radiation protection The Hungarian Atomic Energy Commission advises the Government on nuclear matters and is also the nuclear safety regulatory body The Commission

- promotes research and development in the field of nuclear safety,
- co-ordinates the regulatory tasks divided between the different Ministries,
- sets up and governs the operation of the national nuclear material accountancy and control system,
- performs the tasks arising from international obligations in connection with nuclear exports and imports,
- co-ordinates Hungarian participation in the activities of the IAEA and maintains relations with other international bodies involved in nuclear activities,
- establishes and maintains bilateral and multilateral relations in fields within its competence

Status of Nuclear Power Programme

There is at present one nuclear power plant with four units in operation in Hungary with a capacity of 1729 MWe

Legislation in Force

The legal regime applying to nuclear activities in Hungary is set down in Act No 1 of 1980, the Atomic Energy Act Ordinance No 12/1980, made under the Act, regulates nuclear activities in detail Also, Ordinance No 7 of 1988 lays down the radiation protection standards applicable to all activities involving the use of nuclear energy, it is supplemented by annexes relating to maximum permissible radiation doses and health requirements applicable to the setting up and operation of nuclear installations Ordinance No 8 of 1988 lays down the conditions for the transport by all modes of the radioactive substances referred to in Ordinance No 7 (see Nuclear Law Bulletin No 45)

The 1980 Act specifies that

- nuclear energy must be used exclusively for peaceful purposes,

- nuclear energy must be used in such a way as to avoid harming human life, health present and future living conditions the human environment and property,

- safety requirements in connection with the use of nuclear energy must be brought up to date on a continuous basis in line with technical and scientific developments,

- nuclear energy must be used solely under governmental control to ensure observance of safety requirements

As regards nuclear third party liability on an international level Hungary has been a Party to the Vienna Convention and the Joint Protocol since 1989 however the Atomic Energy Act which contains nuclear third party liability provisions was adopted in 1980 and is therefore not quite in line with the Vienna Convention The main features of the national nuclear third party liability regime are the following

- the Act provides for the operator's absolute liability, he is liable for damage caused by any event involving radiation or radioactive contamination during operation of a nuclear installation or transport of nuclear materials,

- in the Hungarian legal system there is no limit to the amount of compensation for nuclear damage the State guarantees such compensation and its means and extent are governed by the provisions of the Civil Code on compensation

- the Act applies to damage suffered in other countries only if such countries are a Party to an international convention to which Hungary is a Party or if there is a reciprocity agreement between Hungary and the country concerned

- the statutory limitation applicable to personal injury or property damage is ten years from the date of the nuclear incident causing the damage

  The Act makes no special provision as to the competent court for bringing claims for compensation the Code of Civil Procedure applies

(For further details, see the previously mentioned 1990 Study)

Draft Legislation

At present the Hungarian authorities are in the process of completely revising their nuclear legislation, in particular regarding the licensing procedure for nuclear installations radioactive waste management, security and nuclear third party liability

LITHUANIA

Status of Nuclear Power Programme

There are two nuclear reactors in operation (2760 MWe) and one under construction

Legislation in Force

On 30 November 1993, the President of the Republic of Lithuania promulgated Act No I-134 enforcing the application in Lithuania of the 1963 Vienna Convention and the 1988 Joint Protocol on the Application of the Vienna Convention and the Paris Convention Lithuania acceded to the Vienna Convention on 15 September 1992 and to the Joint Protocol on 20 September 1993

The Act provides that the Articles of substance in the Vienna Convention and the Joint Protocol are directly applicable in Lithuania It also provides that the nuclear operator's liability will be defined in Lithuanian litas, equivalent to the minimum liability amount referred to in the Vienna Convention namely 5 million US$, 1963 value

(The above is the only information on the status of nuclear legislation in Lithuania available to the Secretariat)

POLAND

Competent Authorities

In Poland, the National Atomic Energy Agency a governmental body directly under the authority of the Prime Minister, deals with activities in the nuclear field and is the main supervisory agency in that field It is assisted in its work by the Atomic Energy Council The National Atomic Energy Agency is responsible for

- co-ordinating and controlling the safe development of nuclear power,
- research on nuclear power and its applications
- manufacture of nuclear equipment and radiation sources,
- storage of radioactive waste,
- registration, control and physical protection of nuclear materials,
- informing the public on nuclear activities, and
- co-operating with other countries in the peaceful uses of nuclear energy

The Atomic Energy Council alongside the National Atomic Energy Agency, is an advisory and consulting body concerned with the matters falling within the scope of the Agency's activities Its statute was determined by a Decree of the Prime Minister of 8 February 1993

The Council consists of the Chairman, no more than three Vice-Chairmen a scientific secretary and no more than forty members Their term of office is four years

The Prime Minister on the proposal of the President of the Agency appoints and recalls the Council's Chairman

Scientists and practicians, atomic energy specialists, and representatives of State administration and social organisations may participate in the Council's activities

In particular the Council initiates and supports all activities with a view to the development of scientific activities connected with atomic energy, the improvement of radiation protection and nuclear safety in Poland information in matters connected with applying nuclear and radiation techniques

The Council issues resolutions, opinions experts' reports

The expenses of the Council are covered by the Agency s budget

Status of Nuclear Power Programme

At present Poland has no nuclear power programme

Legislation in Force

The Atomic Energy Act of 10 April 1986 is an outline Act governing all nuclear activities in Poland and determines the responsibility and tasks of the authorities and bodies engaged in these activities It is supplemented by several orders and decrees In particular an Order of 31 March 1988 lays down dose limits for ionizing radiation, as well as derived limits defining hazards from such radiation It defines dose limits for occupationally exposed persons for persons in the vicinity of nuclear power plants and radiation sources and for persons exposed to radiation through everyday use of radiation-emitting products (see Nuclear Law Bulletin No 45)

Also, a Regulation of 6 June 1988 made under the Act lays down principles for the physical protection of nuclear materials and provides for measures to protect nuclear materials against theft sabotage or illegal uses according to the category of nuclear material as classified in the Convention on the Physical Protection of Nuclear Material to which Poland is a Party

The Act provides that the primary consideration in the use of nuclear energy should be the protection of health life property and the environment It establishes a licensing system for the following

- nuclear installations (from site selection to decommissioning),
- production use, conversion, storage, transport of and trade in nuclear materials radioactive sources and waste,
- construction and operation of radioactive waste repositories
- manufacture and use of radiation-emitting devices etc

These licences are delivered by the Chairman of the Agency who may at any time withdraw or amend a licence if nuclear safety or radiation protection requirements are not met

Operators must keep records of licensed nuclear materials and radioactive sources as well as waste and take measures to ensure their physical protection

Establishments using nuclear materials must prepare training programmes for personnel, these programmes must be approved by the Chairman of the Agency

Control over the safety of nuclear installations and radiation protection is exercised by the Chairman of the Agency and by inspectors appointed by him who are in charge of the nuclear surveillance in all establishments using nuclear materials and equipment

The Act also governs civil liability for nuclear damage Although Poland has been a Party to the Vienna Convention and the Joint Protocol since 1990 the liability provisions of the Act have not been adapted to the Vienna Convention regime Therefore, claims from other countries would be within the scope of the Vienna Convention while the provisions of the Act would apply to national claims These provisions are summarised below

- the operator of a nuclear installation is solely liable for nuclear damage, where more than one person operates a nuclear installation, they are jointly and severally liable,

- there is no limit to the amount of compensation for nuclear damage, compensation includes losses suffered through personal injury, destruction of property, losses suffered through death of the victim and loss of expected profits Expenses incurred for preventive measures are also open to compensation as is damage to common property following impairment of the environment,

- the operator must take out insurance to cover his liability, the Finance Minister designates the insurance institution to insure the operator's civil liability Where a claim for compensation exceeds the amount of security, the victim may request payment for the difference from the Treasury,

- there is no prescriptive period for claims for personal injury, claims for property damage or environmental damage are subject to a prescriptive period of ten years from the date of the incident,

- claims for compensation may be brought before the courts on the basis of the Code of Civil Procedure

The provisions of the Civil Code apply to cases of liability for nuclear damage outside the scope of the Act (The text of the Act is reproduced in the Supplement to Nuclear Law Bulletin No 43, see also 1990 Study for analysis of third party liability provisions)

Draft Legislation

Work is under way to amend the penal provisions of the Atomic Energy Act concerning illegal transports and trade in nuclear materials, radioactive sources and wastes Furthermore, the provisions of the Act on radiation protection are being considered in the context of the Council of the European Union's Euratom Directive on basic radiation protection standards Also, draft orders and decrees have been prepared concerning the following matters

- conditions, from the radiation protection viewpoint, for issuing permits for nuclear activities,

- maximum permissible levels of radioactive contamination of food and fodder,

- procedures to be applied in the event of an extraordinary radiation threat to the population or the environment, and

- treatment of nuclear wastes

ROMANIA

Competent Authorities

In Romania, the National Commission for the Control of Nuclear Activities is the body responsible for the licensing and control of the uses and development of nuclear energy The Commission is headed by a chairman who holds the rank of Under Secretary of State he reports to the Minister of Water Forests and Environmental Protection

The Commission was set up by Decree No 29 of 8 January 1990 and its competence was established by Decree No 221 of 11 May 1990 The Commission is fully responsible for all issues relevant to nuclear safety in the siting construction and operation of all nuclear facilities in Romania as well as for quality assurance radiation safety safeguards export controls physical protection and emergency preparedness (see Nuclear Law Bulletin No 47)

The Institute of Atomic Physics has replaced the previous State Committee for Nuclear Energy and is responsible for scientific research development and applications of nuclear technologies as well as for promotion of nuclear-related applications in Romania's economy Presently the Institute is under the supervision of the Ministry for Research and Technology An important part of nuclear power plant research and design is performed by the Institute for Nuclear Research Pitesti and the Institute for Power Studies and Design - Nuclear Dept at the National Administration for Electricity (RENEL)

A National Export Control Agency was set up by a Government Decision of 23 September 1992 (Decision No 594/1992) on the regime for import and export of sensitive articles and technology The Agency is responsible for supervising implementation of the Decision under the authority of the Government Its duties include in particular

examining and advising on certificates for the import of nuclear products

- checking all questions dealing with export and import operations regarding articles and technologies subject to control,

- participating in international co-operation in this field

The Health Ministry is the competent authority for radiation protection and monitoring

Status of Nuclear Power Programme

There are no nuclear power plants in operation in Romania for the time being However several nuclear power plants are under construction

Legislation in Force

At present Act No 61/1974 governs all nuclear activities in Romania, including third party liability for nuclear damage, together with Act No 6/1982 on quality assurance of all projects and installations The Commission has issued nuclear safety regulations which take into account the IAEA's safety codes and guides

In accordance with Act No 61/1974 a licence, to be delivered by the National Commission for the Control of Nuclear Activities exclusively to legal persons, is required for the following activities

- scientific research, development and application of nuclear technology,
- design, construction and operation of nuclear installations
- prospecting for and mining, development, production utilisation, transport and storage of radioactive substances or nuclear-related materials, including radioactive waste,
- supply sale, possession transfer, import and export of radioactive substances and nuclear-related materials

The use of radionuclides and radiation sources for medical purposes as well as irradiated products for public consumption are subject to a licence issued by the Health Ministry

Licensees must ensure that their work is carried out in accordance with the regulations and standards in force They must apply the measures required for nuclear safety, protection of personnel, the population and the environment

Medical checks of occupationally exposed personnel are carried out continuously in accordance with measures laid down by the Health Ministry

Licensees must also keep a detailed account of the radioactive and nuclear materials they are responsible for and ensure that they will not be released accidentally, lost or stolen In case of accidental release, they must inform the authorities of the county in which such release occurred, and must limit and mitigate its consequences In the latter two cases they must inform the Commission and the nearest police department immediately

In addition, the Minister of Waterways, Forestry and Environmental Protection has enacted Order No 2/1993 providing for emergency preparedness in case of a nuclear accident or radiological emergency

Imports and exports of nuclear materials and equipment are regulated by the above-mentioned Government Decision No 594/1992 and by Orders Order No 40/1991, jointly issued by the Ministers of Foreign Affairs National Defence, Industry Trade and Tourism provides for a system of control over the export of materials, chemical and biological substances, etc which could contribute to the proliferation of nuclear, chemical and biological weapons Order No 2/1993 was made by the Minister of Trade in implementation of Government Decision No 594/1992 and lays down the licensing system for the import and export of radioactive materials and nuclear installations other than the equipment and products that can be used directly for the manufacture of nuclear explosive devices Also Act No 88/1992 introduced a provision in the Penal Code to penalise any breach of regulations on imports of wastes and residues (Fuller descriptions of these texts are given in Nuclear Law Bulletin Nos 49, 50 and 52)

As already specified Act No 61/1974 lays down the regime governing liability for nuclear damage in Romania On an international level, it has been a Party to the Vienna Convention and the Joint Protocol since 1992 The 1991 Constitution provides that international treaties to which Romania is a Party are part of Romanian national law

The following paragraphs provide an outline of the national nuclear third party liability regime, as laid down by Act No 61/1974

The Act does not define the territorial scope of the third party liability provisions

Liability for nuclear damage is assigned to the holder of a licence The licensee is liable exclusively, irrespective of fault, for damage caused by a nuclear incident in his installation or during a transport ordered by him Under the Civil Code the liability of a person in charge of a thing is absolute If several licensees are liable for nuclear damage liability is apportioned between them according to the extent of the damage each has caused, if this is impossible to establish liability is borne in equal parts A licensee is not liable for damage caused by a nuclear incident due to an armed conflict or a natural catastrophe

Liability covers loss of life personal injury and destruction of or damage to property

The liability of a licensee is limited to 80 million lei per nuclear incident (approximately 3 million SDRs) A licensee must take out insurance or other security to cover his liability

There are no provisions specifying that the State has an obligation to provide additional compensation in case the nuclear damage exceeds the licensee s maximum amount of liability

The right to compensation for nuclear damage expires ten years from the date on which the victim had or could have had knowledge of the damage and the licensee liable Finally as regards the competent court, the Code of Civil Procedure provides that jurisdiction lies both with the court of domicile of the defendant and with the court of the place where the incident occurred the plaintiff may decide where the action will be brought (For further details, see 1990 Study)

Draft Legislation

Act No 61/1974 governing nuclear activities and Act No 6/1982 on quality assurance are due to be replaced by a Bill on protection against the hazards of nuclear activities This new legislation has been prepared to take account of political changes in Romania the transition to a market economy and regulatory experience gained since adoption of those Acts

The new Act will apply to design construction operation and decommissioning of nuclear installations, to ore extraction and processing of uranium and thorium ores to production supply and storage of nuclear fuels, radioactive materials and waste

These activities will require a licence delivered by the National Commission for the Control of Nuclear Activities, covering nuclear safety, radiation protection quality assurance non proliferation and physical protection (see Nuclear Law Bulletin No 52)

Provisions dealing with nuclear questions are also included in other legislation namely a Bill on the environment and a Bill on civil defence The latter includes the measures to be taken in case of a nuclear accident

RUSSIAN FEDERATION

Competent Authorities

In the Russian Federation, responsibilities in the nuclear field are divided between the Ministry of the Russian Federation for Atomic Energy (MINATOM) and the State Committee for Nuclear and Radiation Safety (Gosatomnadzor) MINATOM is responsible for the national nuclear power programme and for research and development in that field The Gosatomnadzor is the regulatory body for nuclear and radiation safety

The Gosatomnadzor was established under the President of the Russian Federation Its mandate and competence were defined by Decree No 249 and Order No 137-rp issued by the President on 3 and 31 December 1991 respectively

The Gosatomnadzor is responsible for organising and implementing the regulation and control of nuclear activities for peaceful and military purposes It is to define safety principles and criteria, standards and rules as well as other regulatory measures, in particular by establishing a licensing and inspection system for such activities

In particular, the Gosatomnadzor must

- ensure that ministries, government departments, enterprises and citizens observe the principles laid down by law for the safe production and use of nuclear energy, nuclear materials and radioactive substances as well as the requirements of the nuclear and radiation safety rules and standards

- supervise the application of safeguards for non-proliferation purposes to nuclear technologies and materials as well as their physical protection also in implementation of international agreements in those fields,

- issue licences for activities related to the use of nuclear materials and radioactive substances according to the procedure it has established

- participate with interested organisations in the development of principles and criteria, standards and rules in the field of nuclear and radiation safety for nuclear installations

The ROSENERGOATOM, a State body, is responsible for all the management of nuclear power plants, with the exception of the LENINGRAD nuclear power plant It reports to MINATOM but is in principle autonomous ROSENERGOATOM is to be the licensee for NPPs and will also be the operator liable in connection with the nuclear third party liability regime

Status of Nuclear Power Programme

There are 28 nuclear power plants in operation (18 893 MWe) and 18 under construction

Legislation in Force

In the Russian Federation, there is no Act in force governing nuclear activities, however, a Bill on the Utilisation of Atomic Energy has been submitted to Parliament, as well as a Bill on State Policy on the Management of Radioactive Waste There are nevertheless several texts which deal with nuclear power plants, radioactive substances and imports and exports

An Ordinance of 28 December 1992 deals with the construction of nuclear power plants and in 1993 pending the adoption of the Act on Utilisation of Atomic Energy a Regulation was adopted concerning operators of nuclear power plants Also in 1993, another Regulation was adopted concerning temporary permits for such operators An Order of 25 May 1993 lays down regulations for granting temporary permits by the Gosatomnadzor for the production trade in and use of radioactive substances and products containing them

Several instruments have been adopted concerning the export of nuclear materials equipment and technology an Edict of the President of the Russian Federation dated 27 March 1992 provides for the control of such exports It specifies that such materials, equipment and technology may only be exported to States parties to the IAEA Safeguards System An Ordinance of 21 December 1992 sets out regulations for the import and export of nuclear materials technology equipment radioactive sources and radioisotopes while another Ordinance of 27 January 1993 regulates export control procedures for dual-purpose equipment and nuclear-related materials and technologies

Although there is no special legislation on liability for nuclear damage in the Russian Federation there are in force a series of laws and orders concerning protection and compensation of Russian citizens following the Chernobyl accident and other radiation accidents and also dealing with general measures in that context The instruments concerning protection and compensation are the following

- Act on the social protection of citizens exposed to radiation as a result of the disaster at the Chernobyl nuclear power plant as amended on 18 June 1992,

- Act of 20 May 1993 on the social protection of citizens exposed to radiation as a result of the accident at the Mayak production association and radioactive waste discharges into the River Techa in 1957

These laws define the legal status of such victims and lay down the procedure for their compensation

- Ordinance of 27 December 1991 on the applicability of the above Act on social protection following the Chernobyl disaster to citizens in high risk categories of employment

This Ordinance concerns military personnel dealing with the consequences of radiation accidents

- Ordinance of 25 December 1992 on the regime of territories exposed to radioactive contamination as a result of the Chernobyl disaster

- Ordinance of 23 July 1993 on measures dealing with the consequences of the accident at Tomsk Oblast

This Ordinance sets out a range of measures to compensate the damage suffered due to radioactive contamination

Also in connection with protection, more generally an Ordinance of 15 October 1992 concerns measures for the social protection of the population in territories adjacent to nuclear installations

Finally, on 25 March 1993, the Statute was adopted of a State Committee for the social protection of victims and rehabilitation of affected territories and an Ordinance adopted on 30 March 1993 setting out the procedure for payment of compensation and granting of concessions

Draft Legislation

The principles laid down in the Bill on the Utilisation of Atomic Energy (the Act) are to safeguard health and life, protect the environment and property when using atomic energy The Act defines the competence of the Russian Federation, its constituent republics, autonomous units regarding the applications of atomic energy and regulation of its use and calls for participation of the public in discussions on State policy, legislation and regulations on atomic energy and for accessibility of information on its use

The Act establishes a legal framework for the use of atomic energy and will apply to the following activities

- the siting, design, construction, operation and decommissioning of nuclear installations and storage facilities,

- the development, preparation, testing, transport, storage and use of nuclear weapons and nuclear explosive devices,

- the handling, production, use, processing, storage and transport of nuclear materials and radioactive substances, including prospecting for and extraction of ores containing them,

- the use of nuclear explosive devices for peaceful purposes,

- the physical protection of nuclear installations, radiation sources and nuclear materials

The Act provides for a system of State recording of nuclear materials and radioactive substances, for regulating the safety aspects of nuclear activities and for mandatory licensing of all activities in the nuclear field

It establishes a health protection zone to protect populations in the vicinity of nuclear installations and specifies the responsibilities of operating organisations (an enterprise or institution designated by the relevant government administrative body, involved in a nuclear activity) for ensuring the safety of nuclear installations and radiation sources

The Act provides that exports and imports of nuclear installations materials and technology and nuclear related materials and services may only be carried out in accordance with the international obligations stemming from the Non-Proliferation Treaty and other international agreements to which the Russian Federation is a Party Such operations require a licence from the State administrative bodies and the State regulatory bodies

It also contains a chapter on liability for radiation damage Although the Russian Federation is not a Party to the Vienna Convention, it takes into account its key elements

Liability for damage caused by operations connected with the use of atomic energy is borne by the operating organisation or owner of a nuclear installation, radiation source or storage facility The operating organisation is absolutely liable for damage arising from radiation, irrespective of fault

Compensation must be provided for personal injury, damage to property or to the environment caused by exposure to radiation as well as for any measures taken to prevent or minimise damage when the threat of such damage arises

The maximum limit of liability is set at 5 billion roubles (approximately 50 million dollars) at the prices obtaining in July 1992 This amount is subject to annual revision in line with the price index

Operating organisations must take out insurance to cover their liability up to the above limit from a special insurance fund set up by all the operating organisations Licences to operate a nuclear installation or a radiation source are granted only to holders of an insurance policy

There is no time limit for bringing claims for compensation for personal injury The statutory limitation for damage to property is ten years from the day the damage was caused

The operating organisation of a nuclear installation, radiation source or storage facility is liable for damage to the environment The administrative bodies of the territory in which the natural resources have suffered damage may claim compensation

The Act is silent on the courts having jurisdiction

The purpose of the Bill on State Policy on the Management of Radioactive Waste (the Act) is to ensure the safety of present and future generations and to protect the environment during the collection transport reprocessing, storage and burial of radioactive waste

Radioactive waste is defined as

- substances in any physical state whatsoever, materials manufactured items and biological elements not intended for further use and in which the content of radionuclides exceeds the levels established by regulations,

- spent nuclear fuel not intended for reprocessing

- radionuclide sources which are damaged or which have completed their useful life

Radioactive waste may be classified into three categories high medium or low radiation level This classification is to be established by regulation

The Act defines the policy of the Russian Federation at all stages of the management of radioactive waste as well as the competence of the executive and administrative authorities and the safety regulatory and monitoring agencies It determines the basic rights and duties of enterprises, organisations and institutions in the field of radioactive waste management and establishes the rights of citizens to compensation for enhanced risk, social protection as well as the right to claim and receive compensation in the event of damage to their health or property through radioactive waste management The Act defines the principles of international collaboration in the field of radioactive waste management

The Act sets up a State Radioactive Management Agency, to be responsible for administrative control of radioactive waste management in the Russian Federation, and specifies its main duties In particular it will develop radioactive waste management plans and implement radioactive waste programmes co-ordinate the scientific activities of administrative departments dealing with this questions participate in the elaboration and adoption of rules, regulations and standards in that area monitor radiation levels where radioactive waste is stored and set up and keep a State register on radioactive waste and its location

Radioactive waste is the exclusive property of the State

Finally, both instruments contain provisions on the rights of citizens and civic associations to be kept informed on radiation levels in their region as well as on the uses of atomic energy and on radioactive waste management respectively They also specify that in the event of an accident or radiological emergency, in compliance with the Russian Federation's international obligations, other States will be notified or provided with assistance, as the case may be, in accordance with the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

As regards potential third party liability problems in connection with improving the safety of nuclear power plants, Russian organisations provided with foreign assistance and services are to sign appropriate liability statements as an interim solution to such problems The Governments of the Russian Federation and the United States have concluded an agreement which holds harmless the United States Government and personnel or suppliers for damage to Russian property

Also the Gosatomnadzor has drawn up a liability statement with respect to the transfer of Western European methodology and practices (European Union countries) with a hold harmless clause

SLOVAK REPUBLIC

Competent Authorities

The Nuclear Regulatory Authority of the Slovak Republic (NRA) is the legitimate successor of the former Czechoslovak Commission of Atomic Energy in the Slovak It was established on 1 January 1993, and its powers are based on Act No 2/93 of the Slovak Parliament The NRA acts as an independent state regulatory body reporting directly to the Government and is headed by a Chairman appointed by the President of the Republic

Structure and Staffing of NRA

During 1993 the staff of the NRA was increased to 53 (present status is 60) and the NRA has started to fulfil its responsibilities based on the existing legislation from the former CSFR The staff have mainly been recruited from research workers utility staff, and other Ministries with regulatory practices

The organisational structure of the NRA is fairly simple, with a Chairman, supported by a small Secretariat and two Departments, one for Inspection Activities and one for Technical Support The Department of Inspection Activities is headed by the Chief Inspector and is based at Trnava, which is close to the nuclear power plants at Bohunice The Department of Technical Support is headed by the NRA's Vice Chairman and is based in the Bratislava headquarters There are two other small offices with resident inspectors, located on the NPP sites

The responsibilities of the NRA, based on present legislation cover the following areas

- the nuclear safety of nuclear facilities,
- radioactive waste management,

- safeguards and control of nuclear and dual-use materials,
- quality assurance programmes for nuclear components,
- the safety evaluation of different nuclear programmes,
- international agreements and obligations in the field of nuclear safety and nuclear materials

Other central bodies

A significant number of central bodies of the Slovak state administration are currently involved in various activities related to nuclear safety In particular

- the Ministry of Economy responsible for promoting and developing nuclear power
- the Ministry of Health responsible for radiation protection including the radiation monitoring network,
- the Ministry for the Environment, with direct control of the local authority offices granting siting, construction and operating licences and chairing the Governmental Commission for Radiological Emergencies,
- the Ministry for Interior, which is competent for fire protection physical protection of nuclear materials and nuclear facilities and civil defence during radiological accidents
- the Ministry of Labour, Social Affairs and Families, with the subordinate State Office for Safety of Work (SUBP)

Regardless of the fact that some areas are covered by specific legislation defining related duties and responsibilities there are still overlapping competencies of the different bodies e g between NRA the Ministry of the Environment and the Ministry of Interior during radiological emergencies or between the NRA and the Office for Safety at Work relating to regulatory inspections of pressurised components etc To avoid such conflicts a clarification of common boundaries and interfaces is recommended

Status of nuclear power programme

There are four nuclear power plants in operation in the Slovak Republic, with an installed capacity of 1760 MWe, and four units under construction at the Mochovce site One NPP (HWGCR) is being decommissioned and the repository for low level waste is completed

Legislation in force

The legal structure for the regulation of nuclear safety in the Slovak Republic consists of two basic forms of legislation laws and regulations, both are included in the so-called Register of Laws The set of laws are mainly represented by Act No 2/93 which identifies the authorities and responsibilities of NRA, Act No 28/84 on the State Supervision of the Nuclear Safety of Nuclear Facilities, and Civil Act No 50/76 on the licensing procedure

At present, Act No 28 governs the construction and operation of nuclear installations in the Slovak Republic The purpose of the Act is to ensure the safe operation of nuclear installations, to prevent any hazard to the public and the environment It lays down the licensing system for nuclear installations and provides that the licensing authority is the NRA (for further details, see the section on the Czech Republic)

The former CSFR did not have legislation specifically related to nuclear third party liability, but the Civil Code applied to especially dangerous activities This legislation is applicable in the Slovak Republic for the time being (see section on the Czech Republic)

Nuclear materials, dual use items, trigger list

The state supervision of nuclear materials, including their accountancy and control, carried out in accordance with the Non-Proliferation Treaty, is an important part of the NRA activities, as specified in Act No 2/1993 The recent development of the non-proliferation regime has been focused on so-called dual use items and the trigger list with the aim of controlling export and import of all materials and components which could be misused for the production of nuclear weapons The current legislative framework for the state control of export and import of nuclear materials and the above-mentioned sensitive items is laid down by Regulation No 28/1977, on the accountancy and control of nuclear materials, Act No 547/1990 on the management of some special substances and their control and by Regulation No 50/1990 and No 505/1992 pursuant to that Act Regulation No 505/1992 includes dual use items however the trigger list is not included

Act No 547/1990 identifies the Ministry of Economy as the competent body for issuing export/import licences for nuclear materials and other sensitive items, while the official contact point for international bodies dealing with non-proliferation regimes, such as the Nuclear Suppliers Group or the Zangger committee, is the NRA

Draft Legislation

Two major laws are being prepared the first is an Act on the creation of a fund for radioactive waste and decommissioning and the second is an Act on liability for nuclear damage

The principles of the Act on liability for nuclear damage are based on the provisions of the Vienna Convention which the Slovak Republic intends to join It specifies that the operator must provide compensation amounting to 2 billion crowns (approximately 50 million SDRs), a further 4 billion crowns are to be provided by the State

As regards liability problems in connection with assistance in improving safety at nuclear installations the Government is preparing a model indemnity agreement to be concluded with foreign countries if they so wish

UKRAINE

Competent Authorities

The Ukrainian State Committee on Nuclear and Radiation Safety (UkrSCNRS), created by Government Decree No 52 of 3 February 1992, is the regulatory authority for nuclear safety in Ukraine and reports directly to the Cabinet

The main objectives of the Committee are to

- establish standards and criteria and develop regulations on nuclear and radiation safety transport and storage of radioactive materials and radioactive substances, management of radioactive waste, and supervise observance of these standards and regulations by the enterprises organisations and institutions concerned,

- organise and conduct scientific research to improve safety and radiation technologies and co-operate in this work at international level

- keep account of nuclear materials and supervise their storage and use

- assess the safety of nuclear installations and devices as well as radiation sources

- analyse up to date experience on improvements in the field of the safe use of nuclear energy at international level and contribute to this work

The Main State Inspectorate for the Supervision of Nuclear and Radiation Safety, whose statute was approved by Regulations of 21 July 1992, is placed under the authority of the State Committee Its tasks include the organisation and implementation of State supervision of holders of licences for nuclear power plants, radioactive substances and equipment radiation sources radioactive waste storage and disposal, etc The Inspectorate develops and carries out programmes for controlling the safety of nuclear power plants, is responsible for their inspection and supervises the organisation of radiation control and monitoring

The State Centre for Quality Control of Supplies for Nuclear Activities is also placed under the authority of the State Committee for Nuclear and Radiation Safety Its main tasks include implementation of the regulatory policy with regard to the quality of the supplies works and services for nuclear activities supervision of compliance with the technical standards and specifications and establishment of measures to upgrade the reliability and safety of equipment

The Health Ministry is responsible for establishing radiation safety regulations and standards and for controlling occupational exposures The Environment Ministry is responsible for establishing environmental protection regulations and standards and for co-ordinating the activities of agencies and authorities regarding ecological safety, including the effects of radiation on the environment

In 1991, further legislation was passed on protection of the population after the Chernobyl accident (April 1986) and has been reported in Nuclear Law Bulletin No 52 Briefly, these laws established a system of compensation and protection for the population which lived in zones radiologically affected by the accident and set up local structures to administer these areas The Ministry for Chernobyl Affairs and the National Commission for Radiation Protection (also established under that legislation) deal with Chernobyl matters, and the State Committee for Protection of the Population against the After-effects of the Accident at the Chernobyl Nuclear Power Plant is responsible for carrying out State supervision of compliance with the legal regime in the affected zone (territory out of which the population was evacuated after the accident) while

the provincial Councils of Peoples' Deputies are responsible for supervising compliance with that regime in areas contaminated by the accident but not necessarily evacuated

The State Committee for the Utilisation of Nuclear Energy (GOSKOMATOM) is the body responsible for nuclear power plant management in the Ukraine

Status of Nuclear Power Programme

There are 14 nuclear power plants in operation in the Ukraine with a capacity of 13 020 MWe and six under construction

Legislation in Force

Several regulatory texts deal with nuclear activities in the Ukraine and a framework Act has been submitted to Parliament on the use of atomic energy and radiation protection

Decree No 18 of 13 January 1993 lists the activities subject to licensing by the State Committee on Nuclear and Radiation Safety They are the following

- mining, producing and using radioactive substances and ionizing radiation sources,
- designing, constructing and operating nuclear installations,
- reprocessing and disposing of radioactive waste (licences for such activities are to be issued in consultation with the Ministry of Health)

Regulation No 576 of 12 October 1992 specifies that licences for the production, acquisition, storage, accounting, holding, transport and use of radioactive materials and substances, as well as for enterprises and laboratories dealing with such substances must be issued in accordance with the conditions laid down by the State Committee The same applies to facilities for the final storage of radioactive waste

Regulation No 66 of 27 January 1993 regulates the safe transport of radioactive substances and specifies that the State Committee for Nuclear and Radiation Safety is the competent authority in that respect

The UkrSCNRS has developed the following procedures for the licensing process

- Temporary provisions on licensing procedures for activities in radioactive waste management (IID 306-501-93) which came into effect on 26 May 1993,
- Temporary provisions on licensing procedures for operation of nulear installations (put into effect on 22 December 1993)

Furthermore, the following documents were developed and prepared for official registration by the Ministry of Justice

- Temporary provisions on licensing procedures for transport of radioactive substances,
- Temporary provisions on licensing procedures for ore mining and manufacture and use of ionizing radiation sources

The Supreme Soviet of the Ukraine has adopted the concept of safety principles for nuclear energy regulation and management by Regulations of 25 January 1994

The existing principles are based on the Ukrainian nuclear legislation These Regulations further specify the structure, objectives and primary functions of the State safety regulatory and management authorities in the use of nuclear energy Competence is divided between the regulatory and the management authorities as follows

Regulatory authorities

- the UkrSCNRS,
- the Environment Ministry,
- the Health Ministry
- the National Commission for Radiation Protection,

Safety management authorities

- the State Committee for the Utilisation of Nuclear Energy (GOSKOMATOM),
- *the Ministry for Chernobyl Affairs (Public Protection regarding the Consequences of the* Accident in the Chernobyl NPP - Minchernobyl - Nuclear Waste Management)
- the Machine Engineering Ministry

The regulatory authorities are responsible for criteria, nuclear and radiation safety regulations as well as for licensing procedures Their activities are conducted on the basis of absolute independence from the nuclear energy management authorities (safety management)

As regards third party liability for nuclear damage the Ukraine is not a Party to the Vienna Convention and at domestic level, there is no special law governing that question

However, there are several texts which can be taken to deal with such liability Although the Ukranian Civil Code contains no specific provision concerning third party liability for nuclear damage, it provides for liability for high-risk sources These include bodies whose activities represent a hazard for their environment The Civil Code also makes provision for recourse against the guilty party by the accused and establishes the general principle of a legal entity's liability for damage caused by its employees

The Environmental Protection Act of 1991 and the Atmospheric Protection Act of 1992 respectively provide for the liability of organisations whose activities are connected with high risk sources in regard to compensation, and for the liability of persons guilty of releasing radioactive substances into the atmosphere

The Land Code makes it mandatory for guilty parties to compensate the total amount of damage caused by radioactive pollution of land and the Administrative Code establishes administrative liability for non-compliance with the radiological safety system

On 28 December 1993, the President of the Ukraine adopted a Decree on measures for physical protection of nuclear materials and nuclear installations in the Ukraine The Decree was adopted to prevent illegal acts against nuclear materials and installations and to establish the legal means for their physical protection The UkrSCNRS is responsible for ensuring implementation of

the physical protection regulations The State Committee for the Utilisation of Nuclear Energy and other entities responsible for nuclear installations and storage of nuclear materials must observe the regulations In addition, the Ukrainian Penal Code includes provisions on the punishable offenses under the Convention on the Physical Protection of Nuclear Material and specifies penal liability for illegal handling of equipment and materials connected with nuclear installations In accordance with the Convention on Physical Protection, the UkrSCNRS is responsible for the international relations of Ukraine connected with physical protection

Draft Legislation

The Concept ensures that the planned outline Act on the uses of atomic energy and radiation protection will lay down the legal regime for the following subjects

- mining and use of uranium ores and raw materials,
- nuclear materials manufacture,
- nuclear technology transfer,
- licensing procedures and state surveillance of nuclear installations,
- radiation protection,
- radioactive waste management,
- civil liability for nuclear damage,
- criminal liability for violation of nuclear legislation,
- transport of radioactive substances

The Act will complete the legislation already in force Its purpose is to establish a priority on the safe use of nuclear energy, regulate activities involving ionizing radiation and provide the legal basis for the Ukraine's international obligations in the field of nuclear energy

The Act sets out the competence of the State Committee for Nuclear and Radiation Safety as already specified in Decree No 52 of 3 February 1992

The Health Ministry is responsible for radiation protection it elaborates and approves the Radiation Safety Code and other health standards, from the health protection viewpoint, it carries out inspections and maintains records of the impact of radiation on the population, establishes requirements for patients and personnel exposures in the context of medical applications, undertakes research with the aim of improving radiation protection

The Chief State Inspector for Nuclear and Radiation Safety and the Chief Health Officer have free access to areas where ionizing radiation sources are held, the first to ensure that licensing conditions are being complied with and the second to ensure that the health protection conditions are observed

The Act sets out in further detail the activities subject to licensing, namely

- design and research work on the siting of nuclear installations and radioactive waste facilities,

- supply of safety-related equipment for ionizing radiation sources,

- mining, production and processing of nuclear materials,

- manufacture and production of ionizing radiation sources

- commissioning, operation and decommissioning of nuclear installations and radioactive waste facilities,

- use of ionizing radiation sources for industrial, agricultural, medical, educational and research purposes

Licensees are responsible for radiation protection on their premises as well as for the physical protection of nuclear materials They must inform the State Committee on Nuclear and Radiation Safety and the Ministry of Health of any possible accident and monitor the radiation release on a continuous basis Any transfer of a radiation source must be notified to both authorities such sources may only be transferred to a licence holder

Following its transfer to the State, processing of radioactive waste is financed by a special State fund collected by means of levies from licensees having produced such waste from their activities Radioactive waste transfers from other countries to the Ukraine are prohibited

The Act deals with the transport of radioactive substances and specifies that it is subject to licensing by the State Committee on Nuclear and Radiation Safety, which is also the authority for physical protection of nuclear materials and installations

The safeguards system applied is based on the international agreements to which Ukraine is a Party and includes in particular a system of accounting and control of nuclear materials and export controls over nuclear materials equipment and technologies

The Act also contains provisions on third party liability for nuclear damage which may be summarised as follows

- a running organisation (the licensee) is exclusively and absolutely liable for nuclear damage, except for nuclear damage to his installation or property thereon,

- a licensee must pay compensation for nuclear damage,

- suppliers are liable for the work accomplished and the services rendered The specific limits of liability are to be specified in a written contract between the licensee and the supplier,

- the liability of a licensee is limited to an amount to be set by legislation and he must cover his liability by insurance or other security,

- if the amount of such insurance or security is insufficient to cover a claim, necessary funds will be provided in accordance with the Act on Civil Law,

- the right to compensation is extinguished after ten years from the nuclear incident, the court may limit the right to bring an action to two years if the person having suffered the damage knew or ought to have known of the damage and the licensee liable,

- actions for compensation of nuclear damage due to a nuclear incident occurring in the Ukraine fall within the sole jurisdiction of the Ukraine unless otherwise provided by international treaties to which it is a Party

Finally, the Act provides that international agreements to which the Ukraine is a Party have priority over the national regulations It will also act in accordance with the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

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ARGENTINA

TRANSPORT OF RADIOACTIVE MATERIALS

Approval of the Regulations on the Safe Transport of Radioactive Materials (1993)

Resolution No 169/93 on the Safe Transport of Radioactive Materials was adopted on 12 October 1993 by the Steering Committee of the National Atomic Energy Commission (CNEA) and published in the Official Gazette of 22 November 1993 It repeals and replaces Resolution No 1065/77 on the same subject

The 1977 Resolution applied the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Materials - 1973 Edition The IAEA Regulations have since been revised to take account of scientific progress Resolution No 169/93 reaffirms that the transport of radioactive materials in Argentina must be carried out according to the conditions set out in those Regulations and provides for the implementation of their latest version the 1985 Edition, amended in 1990, annexed to the Resolution

The Radiological Safety Commission is responsible for controlling the proper implementation of the Regulations

AUSTRALIA

RADIATION PROTECTION

Radiation Control Regulation 1993 (New South Wales)

This Regulation was made in pursuance of the Radiation Control Act 1990 and replaces the Radioactive Substances Regulations 1959 repealed by the Act (see Nuclear Law Bulletin No 48) The Regulation entered into force on 1 September 1993

The Regulation specifies that the technical radiation protection definitions (e g "absorbed dose", "equivalent dose") have the same meaning as in the 1990 recommendations of the International Commission on Radiological Protection (ICRP) (see Nuclear Law Bulletin No 47)

The Regulation provides for the following matters

- the licensing of persons to use radioactive substances and radiation apparatus, including their supervision and the registration of certain sealed radioactive sources,
- prescribing activities which may only be carried out by an accredited radiation expert namely those dealing with radiation safety requirements,
- regulating the use of radiation apparatus and radioactive substances in the workplace and specifying the information employers should provide to exposed workers to ensure their protection against radiation,
- conditions for monitoring of radiation doses,
- regulating the disposal and transport of radiation apparatus and radioactive substances, as well as their discharge, and
- providing for measures to be taken by employers in the event of a radiation accident

The Schedules to the Regulation specify the prescribed activity of radioactive substances by group, the dose limits and exemptions from licensing

The dose limits for exposure to radiation are 20 mSv (millisievert) per year for occupationally exposed persons and 1mSv per year for members of the public There are a series of sources exempted from licensing requirements, they include sealed radioactive sources used for gas chromatography detectors and for fixed radiation gauges, clocks and watches with luminous dials, gaseous tritium light devices, etc

BELGIUM

ORGANISATION AND STRUCTURE

Bill concerning radiation protection and setting up the Federal Agency for Nuclear Control (1994)

A Bill on protection of the population and the environment against the dangers of ionizing radiation and providing for the setting up of the above Federal Agency was approved by the House of Representatives on 3 February 1994 and by the Senate on 3 March 1994 It was submitted to the King for signature and will enter into force by Royal Order

This note provides a description of its main provisions

The Act repeals the Act of 29 March 1958 on protection of the population against the dangers of ionizing radiation The Royal Orders made in implementation of that Act remain in operation until they are repealed or amended by the new Act

The Act sets up a public body with legal personality called the Federal Agency for Nuclear Control The Agency is generally responsible for control and supervision of the security and safety of establishments where ionizing radiation is used It is also responsible for accompanying the inspectors of the International Atomic Energy Agency (IAEA) when they undertake inspections and verifications on the national territory

The tasks of the Agency also include inspections, radiation protection, training, dissemination of information and interventions in emergency situations

Licences for establishing and operating installations which apply, produce or use ionizing radiation are granted by the King who also designates the Agency personnel to be responsible for supervising and controlling observance of the provisions of the Act The Agency examines applications for licences, which are granted following the favourable opinion of the Agency It also supervises the proper implementation of the licensing conditions

In the medical field, the Agency grants approvals for radiation-emitting devices for medical purposes, and also approves chemists and doctors who use ionizing radiation sources as well as doctors responsible for the surveillance of occupationally exposed workers

The Agency is responsible for monitoring radioactivity in the national territory This work includes regular measurement of radioactivity in the air, waters soil and food chain as well as of the ionizing radiation doses received by the population It also provides information on the emergency plans established by the Minister of the Interior

The Agency is managed by a Board of Directors and run by a Director General The Board is made up of a chairman and thirteen members, appointed by order by the King on the proposal of the Ministers for Employment and Labour and Public Health and the Environment, which are its joint supervisory authorities They are appointed for a six-year term which is renewable

The Act also sets up a Scientific Board alongside the Agency The Board advises the Agency regarding its control policy, and in particular, gives its prior advice on licences for nuclear installations or their renewal The composition of the Board, which includes experts in nuclear security and safety, and its powers, are decided by the King

The Act provides that the King may take measures to protect workers, the public and the environment These measures relate to conditions for the import export, production manufacture possession transit putting on sale and selling, apparatus, facilities or substances capable of emitting radiations

RADIATION PROTECTION

Order amending the 1963 Order regulating protection of the population and workers against the hazards of ionizing radiation (1993)

The Royal Order of 28 February 1963 laying down the general regulations for protection of the population and workers against the hazards of ionizing radiation was again amended by a Royal Order of 7 September 1993 (published in the Moniteur Belge of 15 October 1993) (the last amendment dates back to 17 June 1992, see Nuclear Law Bulletin No 50)

This new amendment concerns the conversion into the national law of the Council of the European Union's Directive 84/466/Euratom of 3 September 1984 laying down basic measures for radiation protection of persons undergoing medical examination or treatment (see Nuclear Law Bulletin No 34) This Directive, which is based on Article 31 of the Euratom Treaty, provides that all medical exposures to radiation must be medically justified and kept as low as reasonably achievable

ENVIRONMENTAL PROTECTION

Order amending the 1963 Order regulating protection of the population and workers (1993)

The Royal Order of 23 December 1993 amends the above-mentioned Royal Order of 1963 The most significant amendment relates to inclusion in the national law of the provisions of the Council of the European Union's Directive No 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment

Inclusion of these provisions means that applicants for a licence for a nuclear installation must henceforth send a report with their application assessing the effects such an installation could have on the environment The purpose of this procedure is to ensure that the effects of the project *concerned on the environment are recognised, described and assessed at an early stage and that* the results of the assessment are taken into account in all administrative decisions concerning that project

BRAZIL

RADIATION PROTECTION

Order on the application of SIPRON (1993)

Order No 28 of 15 October 1993 (published in the Official Gazette of 25 October 1993) specifies the conditions of application of the Protection System for the Brazilian Nuclear Power Programme (SIPRON) (see Nuclear Law Bulletin Nos 27 and 50) at the ANGRA-I nuclear power plant

The purpose of the Order is to approve the directives which establish the integrated planning, co-ordination and execution of measures to ensure the safety of activities and installations at the plant for the protection of workers, the population and the environment

CAMEROON

RADIATION PROTECTION

Bill on radiation protection (1994)*

Cameroon, a Member State of the International Atomic Energy Agency (IAEA) since 1964 and a Contracting Party to the 1963 Vienna Convention on Civil Liability for Nuclear Damage, has since then implemented many practical applications of radioactive substances and sources in diverse fields research and development, medicine, agriculture, prospecting for and mining of uranium ores, hydrology, etc However, only one regulatory text existed since 1983, on the preparation, possession, sale, import and export of artificial radioelements , namely, Decree No 83-410 of 29 August 1983 Licences under the Decree are issued by the Minister for Health, following the opinion of a Commission made up of

- two representatives of the Minister for Mines and Energy,
- a physician and a chemist from the armed forces, designated by the Minister for the Armed Forces, and
- six representatives of the Ministers for Agriculture, Social Providence, Trade, Industry and Veterinary Medicine as well as the General Delegation for Scientific and Technical Research respectively

However, over the years, this institutional mechanism proved to be inoperative and in addition, no regulatory control over the activities involved - mainly in the medical sector and in

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* This note was kindly prepared by Mr Ha Vinh Phuong Consultant for nuclear regulations in the IAEA Technical Co-operation Programme

scientific research - was set up A consultative mission in radiation protection (RAPAT) sent by the IAEA on the spot in 1989, had recommended, inter alia the adoption of appropriate radiological protection regulations and to this effect, expert assistance was provided in 1990 and subsequently towards the end of December 1993

The competent national authorities in this connection (Ministries of Scientific and Technical Research, Public Health Energy, Mines and Water, Labour and Social Providence) agreed to the IAEA recommendation that preparatory work should be speeded up on a Radiation Protection Act which would implement the applicable international standards in this field

A Bill on this subject, drafted in consultation with the IAEA, should be put before the National Assembly for consideration and approval at its June 1994 session Once promulgated, its provisions will provide a legislative framework and basic principles for adopting implementing decrees and orders where necessary to ensure radiation protection and protection of the ecosystem when using radioactive substances and sources and atomic energy for peaceful purposes

FINLAND

THIRD PARTY LIABILITY

Bill to amend the Nuclear Liability Act (1994)

The Finnish Council of State (the Cabinet) submitted to Parliament on 18 February 1994 a Bill to amend the Nuclear Liability Act of 8 June 1972, as amended in 1989 (the text of the Act as amended is reproduced in the Supplement to Nuclear Law Bulletin No 44)

The amendments proposed are the following

- the nuclear operator's amount of liability is to be raised from 100 to 150 million Special Drawing Rights (SDR), in line with the recommendation of the OECD Steering Committee for Nuclear Energy that Contracting Parties to the Paris Convention should set such liability at not less than that amount (see Nuclear Law Bulletin No 45)

- all actions for compensation of nuclear damage under the Act are to be brought before one single court - the Helsinki District Court

- the Finnish Council of State is to have exclusive competence to raise the amount of liability of a Finnish nuclear operator on condition that it should remain within the limit of the amount specified by Article 3(b)(ii) of the Brussels Supplementary Convention (up to 175 million SDRs)and that the insurance market can insure such amount

- certain Sections of the Act are to be amended to enable Finland to ratify the Joint Protocol on the Application of the Vienna Convention and the Paris Convention

FRANCE

ORGANISATION AND STRUCTURE

Decree on the organisation of the central administration of the Ministry for Industry (1993)

Decree No 93-1272 of 1 December 1993 on the organisation of the central administration of the Ministry for Industry, Postal Services, Telecommunications and Foreign Trade was published in the Official Gazette of the French Republic (JORF) of 2 December 1993

A main feature of the Decree is the creation of a Service for Nuclear Affairs within the General Directorate for Energy and Raw Materials (DGEMP)

The Service is responsible for preparing and implementing government decisions on nuclear reactor types, without prejudice to the competence of the Directorate for the Safety of Nuclear Installations It is the supervisory authority of the National Radioactive Waste Management Agency (ANDRA) and, in the framework of the national non-proliferation policy, it participates in the control of exports of sensitive materials

The Directorate for the Safety of Nuclear Installations, which was originally set up in 1973, is also within the DGEMP and is responsible for studying, defining and implementing the national policy in the field of nuclear safety, for giving advice on the Atomic Energy Commission's (CEA) programmes on nuclear safety, noting their implementation and examining the safety measures proposed for nuclear installations, for following all research and development work within its competence in other establishments and for proposing and organising public information on safety problems In particular, the Directorate prepares and proposes the national position in international discussions regarding nuclear safety and keeps the High Council for Nuclear Safety informed of its activities

The Decree provides that the DGEMP may, in liaison with the Ministry of the Environment, take all necessary measures to minimise any harmful effects resulting from the production and consumption of energy

The DGEMP is the supervisory authority of the Atomic Energy Commission, the General Company for Raw Materials *(Compagnie générale des matières premières - COGEMA)*, the French Fund for Raw Materials (*Caisse française des matières premières*) and the Agency for the Environment and Energy Policy (*Agence de l'environnement et de la maîtrise de l'énergie*)

Order on the transfer of certain responsibilities from the CEA to ANDRA (1993)

This Order of 8 September 1993 deals with the transfer of certain properties, rights and obligations of the Atomic Energy Commission (CEA) to the National Radioactive Waste Management Agency (ANDRA)

The Order, which was published in the JORF of 17 September 1993, approves an Agreement concluded between both public establishments which sets out the conditions for such transfer, and in particular, of the transfer of the ownership of the two radioactive waste storage sites in operation in France

RADIATION PROTECTION

Order on training in the radiation protection field (1994)

This Order of 21 January 1994 (published in the JORF of 9 February 1994) approves organisations authorised to train in radiation protection the persons responsible for surveillance in that field, as provided by Section 17 of Decree No 86-1103 of 2 October 1986 (see Nuclear Law Bulletin No 38)

The Order grants competence to certain organisations for a period of one to three years as from 1 January 1994, in the medical and the industrial fields

It provides that an annual activity report must be submitted to the Ministry of Labour Employment and Professional Training before 31 January of the following year, with a copy to the Central Service for Protection against Ionizing Radiation (*Service central de protection contre les rayonnements ionisants - SCPRI*)

TRANSPORT OF RADIOACTIVE MATERIALS

Amendment of the 1982 Order on protection and control of nuclear materials during transport (1993)

The Order of 20 September 1993 (published in the JORF of 30 September 1993) amends and supplements the system for the transport of nuclear materials during transport laid down by the Order of 26 March 1982 (see Nuclear Law Bulletin No 38)

Two new provisions have been inserted into the 1982 text The first provision specifies that in the event of an accident or an incident occurring during the transport of nuclear materials which implies a radiological risk, the Central Service for Protection against Ionizing Radiation (SCPRI) must be notified immediately

The other provision specifies that the transport vehicle must be equipped with a means of communication so as to inform the Institute for Protection and Nuclear Safety (IPSN) about the main stages of the operation (departure, arrival, possible delays, etc) In addition when the carrier crosses the border, he must comply with several other formalities

ITALY

GENERAL LEGISLATION

Community Law (radiation protection and radioactive waste) (1994)

Act No 146 of 22 February 1994 (published in the Official Gazette of 4 March 1994) includes two new Community Directives on the list of Directives of "Community Laws" for previous years Directives are the following

- Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas (see Nuclear Law Bulletin No 47) , and

- Directive 92/3/Euratom of 3 February 1992 on the supervision and control of shipment of radioactive waste between Member States and into and out of the Community (see Nuclear Law Bulletin No 49 and present number)

Act No 146, called "Community Law for 1993", enables the Italian Government to adopt a series of Decrees aimed at fulfilling Italy's obligations as a European Union Member State The Government must take the necessary steps to transpose into its own legislation the above-mentioned Directives within 12 months of the adoption of this Act The time-limit has therefore been fixed for March 1995

The purpose of this Act, as all the previous Community Laws (five up to now), is to speed up the procedure to incorporate the Community regulations into Italian legislation by a simplified process

ORGANISATION AND STRUCTURE

Act reorganising environmental controls and setting up the National Environmental Protection Agency (1994)

Act No 61 of 21 January 1994 (published in the Official Gazette of 27 January 1994) which followed up and amended Decree No 496 of 4 December 1993 operates on two levels at national level, it sets up the National Environmental Protection Agency (ANPA), at local/regional level, it provides for the setting up of regional and provincial agencies for environmental protection throughout Italy

ANPA replaces the Nuclear Safety and Health Protection Directorate (ENEA/DISP) of the National Agency for New Technology, Energy and the Environment (ENEA) The ENEA/DISP's tasks, staff, structures, technical equipment and financial resources are transferred to the new Agency ANPA is responsible for all the national technical and scientific activities and co-ordinates the working methods of the above-mentioned regional and provincial agencies It also provides consultation and support services to the Ministry of the Environment In particular, ANPA is competent for supervising activities related to the peaceful uses of nuclear energy and analysing the impact of radiation on the environment

The Act provides furthermore that ANPA, the Ministry of the Environment and ENEA will determine jointly the research activities to be carried out by ENEA, according to specific programmes

The new agencies will definitely take over from the Local Medical and Health Centres (see Nuclear Law Bulletin No 29) the tasks involving monitoring the state of the environment and its protection, as defined by the Act In effect, Act No 61/94 reflects the results of the referendum of 18 April 1993 which showed a marked tendency to do away with the powers held by those Centres regarding environmental matters

TRANSPORT OF RADIOACTIVE MATERIALS

Ministerial Circular on shipments of radioactive substances between Member States (1993)

Circular No 228 of 20 October 1993 of the Minister of Industry Commerce and Crafts sets out the conditions for implementing Euratom Regulation No 1493/93 on shipments of radioactive substances between Member States which is consolidated in the national legislation (see Nuclear Law Bulletin No 52) The purpose of this Regulation is to maintain the same level of information on shipments of radioactive substances as that which existed before customs border checks were abolished between European Union States

Accordingly, both consignors and consignees of radioactive substances from a European Union State must comply with the conditions laid down by the Regulation and set out in the Circular

As regards consignees, the Euratom Regulation provides that any person who receives sealed radioactive sources or other relevant sources from a consignor in one of the European Union Member State must prepare a written declaration This statement must certify that that person (the consignee) has complied with the radiation protection standards and conditions for the delivery of a licence The declaration must be submitted to the competent authority, at national level, the Ministry of Industry, Commerce and Crafts or at regional level, the Prefect, according to the nature of the commercial operation involved and the type of licence delivered

The Circular provides that consignors must send the authorities of the Member State of destination within 21 days of the calendar quarter, a statement on the particulars of the consignee the total activity of the shipment, the type of substance, etc

*MADAGASCAR**

ORGANISATION AND STRUCTURE

Decree on the creation of the National Institute for Nuclear Science and Technology (1993)

By Decree No 92-869 of 30 September 1992, the Prime Minister, on the proposal of the Minister for Higher Education, created the National Institute for NuclearScience and Technology (INSTN) The Institute has been granted administrative and financial autonomy and in effect, represents a change in the legal status of the previous Nuclear and Applied Physics Laboratory, set up in 1976 and located on the campus of Tananarive University Since then the Institute has been given the following responsibilities

- training specialists and technicians and teaching at university level,
- research and development in the peaceful applications of nuclear science and technology,
- transfer of nuclear technology to the actors in the field of economy with a view to the country's development

In particular, the INSTN has a Radiation Protection and Environmental Protection Department and benefits from the International Atomic Energy Agency's co-operation and assistance, both as regards personnel training and equipment for its sampling facilities and various devices and notably, its devices for radiological monitoring of public and private establishments on the national territory

RADIATION PROTECTION

Radiation Protection Regulations (1993)

Following the expert services in radiation protection and nuclear regulations provided by the IAEA these past three years, Madagascar enacted a series of regulatory texts in 1993 These regulations include Decree No 93/243 of 29 April 1993 concerning protection against ionizing radiation and several Interministerial Decrees all dated 6 August 1993 respectively dealing with

- the licensing conditions for the possession and use of ionizing radiation sources,
- the classification of workers and ionizing radiation annual exposure dose limits,

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* This note was kindly prepared by Mr Ha-Vinh Phuong, Consultant for nuclear regulatory matters in the IAEA Technical Co-operation Programme

- the conditions for controlling the use of radioactive sources and ionizing radiation-emitting equipment

- the use of individual dosimeters and the medical surveillance of workers exposed to ionizing radiation,

- the delineation and special marking of restricted and prohibited areas

- the conditions for possession and use of radioactive sources and radiation emitting equipment for medical uses

- the conditions for possession and use of radioactive sources and radiation emitting equipment for industrial uses, and

- the condition for controlling and determining the radionuclide concentration rates in foodstuffs

It should be noted that these Regulations entirely comply with the Basic Radiation Protection Standards jointly recommended by OECD/NEA IAEA ILO and WHO* (IAEA Safety Series No 9) Also, as regards the last Order mentioned above concerning irradiation or contamination of foodstuffs following the advice of the IAEA the competent national authorities intend to reproduce as an Annex to the Order the full text of intervention levels for foodstuffs and animal food, as established by the Council of the European Communities and the maximum permissible levels for foodstuffs as recommended by the IAEA (reproduced in IAEA-SM-306/120)

It should also be noted that the Radiation Protection Decree of 29 April 1993 specifies that under the authority of the Minister for Higher Education who supervises and co-ordinates the regulatory control of radiation protection the INSTN is responsible for ensuring that preventive, protective and intervention measures are implemented in that field It may call upon any ministerial department and any public or private establishment to carry out tasks within its competence

TRANSPORT OF RADIOACTIVE MATERIALS

Bill on the transport of radioactive materials (1994)

Following the IAEA advisory services on nuclear regulations in December 1993 and with the concurrent opinion of the governmental departments concerned (in particular the Ministries of Transport and Trade) a Bill on the transport of radioactive materials is being prepared based on the IAEA Transport Regulations

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* OECD Nuclear Energy Agency, International Atomic Energy Agency International Labour Organisation World Health Organisation

NETHERLANDS

Third Party Liability

Royal Decree to increase the liability amount of the operator of a nuclear installation (1993)

Pursuant to Section 5, subsection 2, of the Nuclear Third Party Liability Act of 1979 as amended in 1991 (the text of the Act is reproduced in the Supplement to Nuclear Law Bulletin No 49) a Royal Decree (No 702) of 14 December 1993 has increased the maximum amount of the operator's liability from 500 to 625 million Dutch guilders (approximately 240 million Special Drawing Rights) The Decree entered into force on 1 January 1994 The amount of cover from public funds set down in the Act has remained unchanged at 5 billion Dutch guilders

PORTUGAL

ORGANISATION AND STRUCTURE

Decree reorganising the General Directorate for Energy (1993)

Decree No 7/93 of 19 March 1993 (published in the Diario da Republica of 19 March 1993) reorganises the General Directorate for Energy (DGE) within the Ministry of Industry and Energy This Directorate *(Direcçao Geral de Energia)*, set up by Decree-Law No 548/77 (see Nuclear Law Bulletin No 22), was structured by Decree-Law No 442/86 and now the 1993 Decree redefines its tasks

The Decree specifies that the DGE shall, in particular

- assist in the preparation of legislation governing activities in its field of competence,
- establish the technical conditions for facilities and equipment which produce, use, transport or store energy products, and contribute to the preparation of appropriate technical regulations, taking into account environmental aspects,
- license activities related to the production, transport and distribution of electricity

The DGE is managed by an Administrative Board and a Director General

Its services include a Nuclear Energy Division which is responsible for keeping under review the technical and economic tendencies in the development of fuel and equipment for nuclear power plants and the problems in the field of radioactive waste management To this effect, the Nuclear Energy Division must

- keep up-to-date information on the nation's uranium reserves and the situation of nuclear fuels on the world market,

- prepare studies on the technical development of nuclear power plants,

- ensure that Portugal's rights and obligations under international treaties in the nuclear field are observed,

- encourage information of the public on nuclear matters

Decree-Law setting up the General Directorate for the Environment (1993)

The General Directorate for the Environment (*Direcçao Geral do Ambiente-DGA*) was set up within the Ministry for the Environment and Natural Resources by Decree-Law No 189/93 of 24 May 1993 and published on the same date in the Diario Oficial

The Protection and Nuclear Safety Bureau (*Gabinete de Protecçao e Segurança Nuclear - GPSN*) which had been transferred from the Ministry of Industry to the Ministry for the Environment and Natural Resources by Decree-Law No 329/87, was merged by the 1993 Decree-Law with other Directorates into this new General Directorate for the Environment

The following tasks in the nuclear field have been assigned to the DGA

- to assess and examine the radiological impact of nuclear and radioactive installations, including radioactive waste management,

- to assess and examine the safety of nuclear and radioactive installations,

- to ensure that nuclear third party liability guarantees and non-proliferation safeguards are complied with,

- to collaborate with national and international authorities in radiation emergency responses,

- to promote and establish the laws and regulations required to fulfil its tasks

Order on the General Directorate for the Environment (1993)

The General Directorate for the Environment (DGA) is responsible for nuclear emergency responses as provided by above-mentioned Decree-Law No 189/93 Order No 48/93 of 22 November 1993, published on that date, provides for the organisation of those services within the DGA, in compliance with the 1986 IAEA Convention on Early Notification of a Nuclear Accident to which Portugal is a Party (the text of the Convention is reproduced in the Supplement to Nuclear Law Bulletin No 38)

A Technical Emergency Group, set up within the DGA, has the following tasks

- ensure in co-operation with the national Civil Protection Service, a permanent connection with the international emergency network set up for this purpose by the IAEA,

ensure a permanent connection with nuclear authorities and nuclear emergency centres in Spain for provision of information on any relevant occurrence which might affect a neighbouring country,

- provide support services to national health protection bodies with a view to establishing preventive and protection measures in the context of nuclear emergencies,

- represent the nation in international working groups in the field of the technical safety of nuclear installations

SOUTH AFRICA

GENERAL LEGISLATION

Nuclear Energy Act, 1993

Act No 131 of 26 September 1993, published in the Government Gazette of 6 October 1993, repeals and replaces the Nuclear Energy Act, 1982 (Act No 92) (see Nuclear Law Bulletin Nos 35 and 43) This Act also amends the Hazardous Substances Act No 15 of 1973 (see Nuclear Law Bulletin No 24)

The purpose of the Act is to

- provide for the continued existence of the Atomic Energy Corporation of South Africa, Limited and the Council for Nuclear Safety,

- determine the objects, powers and functions of both the above bodies,

- provide for the implementation of the Nuclear Non-Proliferation Treaty and the related Safeguards Agreement

- regulate the licensing of nuclear activities

The 1993 Act also deals with other matters, namely liability and compensation, patents, etc which are reproduced from the 1982 Act without amendments Those provisions have been described in detail in Nuclear Law Bulletin No 35, but will be briefly mentioned here for the sake of completeness

A Atomic Energy Corporation of South Africa, Limited

The 1993 Act confirms the legal personality of the Corporation (AEC) despite the repeal of the 1982 Act and determines its objects, functions, structure and management

The objects of the AEC are inter alia, to

- develop technology and expertise in the nuclear field

- process source material, special nuclear material and restricted material and reprocess and enrich the two latter materials,

- commercially use the technological expertise it possesses

- exercise control over radioactive waste disposal and the storage of irradiated fuel,

- undertake and promote research in the nuclear field and in nuclear-related technology,

- co-operate and promote co-operation in the nuclear field both nationally and internationally,

- act as the national authority for the implementation of the Safeguards Agreement

To achieve its objects, the Act gives the Corporation decision-making powers In particular, it may establish a company for the purpose of exploiting or developing inventions or technological expertise, at the request or with the prior approval of the Minister for Mineral or Energy Affairs, it may enter into agreements abroad with any person, institution or government to undertake the development transfer or exploitation of nuclear or nuclear-related technology, the Corporation may also produce nuclear energy and import or export source material special nuclear material restricted material and nuclear-related equipment and material

The affairs of the Corporation are managed by a Board of Directors which determines its policy and goals and generally exercises control over the performance of its tasks The Board is made up of a chairman and six other directors all appointed by the Minister the directors are experts in the fields within the competence of the Corporation, the chief executive officer is an ex officio member of the Board The Act provides that the Board will establish a Management Board, from AEC employees to assist the chief executive officer in his tasks

The Minister of Mineral and Energy Affairs, with the concurrence of the Minister of Finance determines the amount of the share capital of the AEC The State takes up shares to such extent and conditions determined by both Ministers

B. Council for Nuclear Safety

The legal personality of the Council for Nuclear Safety (CNS) is confirmed by the Act Its objects are to regulate and exercise control through the issue of nuclear licences over the following activities

- the construction and use of a nuclear installation,

- the use, possession, production, storage, processing enriching reprocessing and disposal of radioactive materials,

- the disposal of radioactive waste,

- the storage of irradiated fuel

The affairs of the CNS are managed by a Council made up of the executive officer, as an ex officio member, and not more than seven members, including the chairman and vice-chairman The Council may establish such committees as it considers necessary to assist it in its tasks

The activities of the CNS are funded by fees paid by licensees, money appropriated by Parliament and money received from any other source

C International Safeguards

South Africa has been a Party to the Treaty on the Non-Proliferation of Nuclear Weapons since 10 July 1991 and, in accordance with the Treaty, concluded a Safeguards Agreement with the International Atomic Energy Agency (IAEA) on 16 September 1991

The AEC acts on behalf of the State as the national authority responsible for implementation of the Agreement The Chief Executive Officer of the AEC must keep in constant contact with the IAEA so as to

- negotiate subsidiary arrangements to the Safeguards Agreement,
- supply, on a continuing basis, information on the design of nuclear installations and their site,
- furnish the reports required under the Agreement,
- facilitate inpections by the IAEA,
- provide information on the import and export of nuclear material and nuclear-related equipment

The import and export of source, special nuclear or restricted materials and nuclear or nuclear-related equipment requires the written authority of the Minister for Mineral or Energy Affairs in accordance with the provisions of the international treaties on non-proliferation If the recipient country is a nuclear-weapon state, it must guarantee that the material and equipment concerned will be used solely for peaceful purposes, recipients which are non-nuclear weapon states must always remain subject to comprehensive (or full-scope) international safeguards

D Licensing of Nuclear Activities

i) Nuclear Installations and Vessels

Under the 1993 Act the CNS is the authority responsible for the licensing of nuclear activities

Licences for the construction and operation of nuclear installations and for possession, use, processing, etc of radioactive materials are granted by the CNS subject to the condition that the risk of nuclear damage associated with the activity will not exceed the limits laid down by the CNS to protect the health of the population

The conditions of the licence include provisions relating to the control of radioactive materials, maintenance of an efficient system for detecting radiation levels emergency plans in the event of a nuclear accident or other radiation emergency, etc

Nuclear-powered vessels or vessels carrying a reactor or radioactive materials require a licence to enter the territorial waters of South Africa or to visit its ports Such licences are subject to conditions relating to liability for nuclear damage and security therefor, as the Minister of Mineral and Energy Affairs, in agreement with the Minister of Finance, may determine

The CNS may at any time revoke a nuclear licence and it may also be surrendered by a licensee

ii) Nuclear Materials and Radioactive Waste

The Corporation is empowered to produce or otherwise acquire, convey or dispose of any radioactive materials

Except with the written authority of the Minister for Mineral and Energy Affairs *no person other than the Corporation may possess, use, import or export nuclear or* restricted materials or nuclear equipment Radioactive waste disposal and storage of irradiated fuel require a licence from the Chief Executive Officer of the Corporation

Any person who, in the course of prospecting or mining operations or during a scientific investigation, has reason to believe that a source material is to be found must submit a report to this effect within thirty days to the Ministry of Mineral and Energy Affairs and to the Corporation

The Minister may, when he considers that the national interest so requires acquire by purchase lease or expropriation any source material which has been mined *or processed and any special nuclear material Compensation is paid in regard to any* such expropriation

E Liability and compensation

Under the Act, holders of nuclear licences are absolutely liable for nuclear damage caused by their nuclear installation or by any activity in connection with radioactive materials or radioactive waste under their control, also during transport to or from the installation or site

Licensees must supply security to cover their liability, to an amount determined by the Minister for Mineral and Energy Affairs, with the concurrence of the Minister of Finance If the aggregate amount of any claims for compensation is likely to exceed the security provided, the licensee concerned must report accordingly to the Minister, he in turns submits the matter to Parliament recommending an appropriation to provide an additional amount The final decision rests with Parliament

F Patents

The Act lays down a detailed procedure regarding the filing of applications for patents in the nuclear field Applicants must provide the Corporation with a copy of the specifications of the invention and any other relevant information O n l y t h e Corporation can be granted patents relating to enrichment or source or special nuclear material

REGIME OF RADIOACTIVE MATERIALS

Amendment of the Hazardous Substances Act of 1973 (1993)

The Nuclear Energy Act, 1993 amends the Hazardous Substance Act, 1973 as amended in 1976 (see Nuclear Law Bulletin Nos 15 and 24) The amendment concerns Group IV hazardous substances and provides that it is radioactive material as defined in the 1993 Act itself, namely "radioactive material means any substance consisting of, or containing any radioactive nuclide, whether natural or artificial"

SWITZERLAND

GENERAL LEGISLATION

Procedure for partial revision of the Federal Atomic Energy Act and Federal Order concerning the Act (1994)

In January 1994, the Federal Council (the Government) adopted the message and draft revision of the Atomic Energy Act and Order concerning the Act (see Nuclear Law Bulletin No 52) These amendments aim to accelerate the licensing procedures needed for the management of nuclear waste and also to provide for a more severe statute of limitation regarding non-proliferation matters

According to this draft, the decision in principle to construct a radioactive waste repository is subject to a general licence which requires parliamentary approval Other licences and grants are grouped into one single licence delivered by the Federal Department of Transport, Communications and Energy The promoter who obtains it therefore has legal expropriation rights Moreover, the decision to grant a licence may be contested before the Federal Court In this way, the position of the interested parties is improved Thus, certain matters which were previously within the competence of the Cantons are henceforth placed under Federal responsibility although Cantons do still retain the right to intervene and their wishes will be taken into account in so far as possible This question mainly concerns land planning and mining rights

The second part of this partial revision concerns the introduction of more stringent conditions regarding the non-proliferation of nuclear weapons The revision provides the opportunity to increase heavily the penalties laid down for violation of the

Act and also to lengthen prescription periods Also, the Act will sanction the activities of "go-betweens" in trade in nuclear items and technology

REGULATIONS ON NUCLEAR TRADE

Amendment of the Ordinance on definitions and licences in the atomic energy field (Atomic Licence) (1993)

The 1978 Atomic Ordinance (see Nuclear Law Bulletin Nos 22 and 24) has been amended twice, on 26 June 1991 and 22 December 1993 These amendments of an essentially technical nature, aim to introduce in the Ordinance the Guidelines of the Nuclear Suppliers Group (NSG) concerning the supply of nuclear materials (see Nuclear Law Bulletin Nos 22 and 45)

TUNISIA

ORGANISATION AND STRUCTURE

Bill to set up a National Centre for Nuclear Science and Technology (1993)

A Bill to set up the above Centre (CNSTN) was submitted to the Council of Ministers on 7 July 1993 and subsequently presented to the Chamber of Deputies by the Government

The main points of the Bill are the following

- the Centre will be responsible for developing nuclear research and studies and apply nuclear technology for peaceful purposes,
- the Secretary of State for Scientific and Technological Research will be its supervisory authority,
- the Centre will be a public body with an industrial and commercial vocation and will enjoy financial autonomy,
- it will cover the economic (industry, agriculture energy) and social (medicine and environment) sectors

UNITED KINGDOM

THIRD PARTY LIABILITY

The Nuclear Installations (Increase of Operators' Limits of Liability) Order 1994

This Order (No 909 of 1994) increases the maximum amount payable as compensation by an operator liable for a nuclear incident from £20 million to £140 million per incident The amount of liability in respect of prescribed installations posing a reduced risk is increased from £5 million to £10 million The Order was made on 24 March 1994, and came into force on 1 April 1994

UNITED STATES

RADIATION PROTECTION

Emergency Planning and Preparedness at Production and Utilization Facilities (1993)

On 28 June 1993, the Nuclear Regulatory Commission (NRC) published, in the Federal Register, a proposed amendment to its emergency planning regulations in 10 CFR Part 50 to update and clarify ambiguities that have surfaced in the implementation of the Commission's emergency planning exercise requirements Among other things, the proposed amendment would simplify and clarify the NRC requirements for emergency exercise participation by State and local governments who have offsite planning responsibility for more than one nuclear power plant

REGIME OF NUCLEAR INSTALLATIONS

Training and Qualification of Nuclear Power Plant Personnel (1993)

The Nuclear Regulatory Commission amended its regulations in 10 CFR Parts 50 and 52, effective 26 April 1993, to require each applicant and each holder of a licence to operate a nuclear power plant to establish, implement, and maintain a training programme for nuclear power plant personnel The training programme is designed to provide qualified personnel to operate and maintain the nuclear power plant in a safe manner in all modes of operation The NRC issued these new training regulations in order to meet the directives of Section 306 of the Nuclear Waste Policy Act of 1982 (see Nuclear Law Bulletin Nos 35 and 41)

Monitoring the Effectiveness of Maintenance at Nuclear Power Plants (1993)

The Nuclear Regulatory Commission amended its regulations in 10 CFR Part 50 effective 23 June 1993, for monitoring the effectiveness of maintenance programmes at commercial nuclear power plants Before this amendment, the NRC's maintenance rule required nuclear power plant licensees to evaluate performance and condition monitoring activities and preventative maintenance activities at least annually The amendment changed the time interval for conducting evaluations from once a year to once every refuelling cycle (but not to exceed 24 months) The effective date of the maintenance rule (including this new amendment) is 10 July 1996

Announcements of Safeguards Inspections (1993)

The Nuclear Regulatory Commission published amendments to its regulations in 10 CFR Parts 73 and 74, effective 21 May 1993, to prohibit a licensee (at facilities possessing a formula quantity of strategic special nuclear material in unirradiated form) from announcing to its employees the arrival of NRC safeguards inspectors (unless specifically requested to do so by the inspector) The intended effect of the rule is to increase the effectiveness of unannounced safeguards inspections and enable a safeguards inspector to obtain a more accurate view of operations at the facility

Notification of Spent Fuel Management and Funding Plans by Licensees of Prematurely Shut Down Power Reactors (1993)

On 30 June 1993 the Nuclear Regulatory Commission published in the Federal Register proposed amendments to its regulations in 10 CFR Part 50 to clarify the timing of notification to the NRC of spent fuel management and funding plans by licensees of those nuclear power reactors that have been shut down before the expected end of their operating lives The proposed rule if adopted would require that a licensee submit such notification either within 2 years after permanently ceasing operation of its licensed power reactor or not later than 5 years before the reactor operating licence expires, whichever event occurs first The NRC believes that the ability of a licensee to plan properly and safely for decommissioning depends on a licensee's ability to manage and dispose of its spent fuel Accordingly the purpose of *the proposed amendments is to ensure consistency between the timing actions* required by the NRC for the management and storage of spent fuel and the NRC s *decommissioning requirements*

Self-guarantee of Decommissioning Funds (1994)

The United States Nuclear Regulatory Commission's rule entitled "Self-Guarantee as an Additional Financial Assurance Mechanism " became effective on 28 January 1994 The rule amends the Commission's existing regulations for establishing financial assurance of funds for decommissioning NRC-licensed facilities by instituting a change permitting the operator a self-guarantee to provide the requisite financial assurance in specified circumstances The rule, published in the United States Federal Register at 58 Fed Reg 68726 (29 December 1993) is codified in the United States Code of Federal Regulations at 10 CFR Parts 30, 40, 50, 70 and 72 for the various classes of licences

The rule change, which represents a significant change in financial assurance policy on the part of NRC, was sought in a petition to the Commission for rulemaking from General Electric Company and Westinghouse The rule, as it stood before the change, required - with one exception for electric utility licensees - that financial assurance be established by prepayment, insurance, surety bond, letter of credit or parent company guarantee The rule, as recently amended, specifies requirements which, if met by a non-electric utility licensee, will permit use of self-guarantee as an alternative means of establishing assurance of funding for decommissioning the licensed facility The Commission's acceptance of a limited role in decommissioning for self-guarantee affords eligible non-electric utility licensees a substantial potential reduction of the cost burden of establishing financial assurance while maintaining sufficient assurance that their decommissioning costs will be met Decommissioning costs include the costs of three separate but related functions (1) removing a facility safely from service, (2) reducing the residual radioactivity to levels that will permit release of the facility for unrestricted use, and (3) terminating the licence

The cost savings, for parties qualified to self-guarantee, are expected to result from the elimination of the cost of third party financial assurance Typically, annual fees for letters of credit, surety bonds and other forms of third party guarantee are roughly 1 5 percent of the total amount of the guarantee provided The Commission anticipates that fewer than 30 of its licensees will qualify for self-guarantee, but that the total of savings made possible will be significant to the industry without disturbing NRC's confidence that adequate funds will be available for decommissioning when needed

It should be noted that the Commission's rules already allowed electric utilities to accumulate decommissioning funds in an external sinking fund as a means of guarantee in addition to prepayment, insurance surety bond, letter of credit, or parent company guarantee Thus unlike other licensees subject to establishing financial assurance for decommissioning, electric utilities did not have to provide the full amount of required financial assurances "up front" but instead could build up their sinking funds over time In this manner, electric utilities were already permitted a cost-reducing financial assurance mechanism, which was not altered by the new rule

The financial criteria adopted by the Commission for self-guarantee are stringent, but somewhat less so than the original rule requested by Westinghouse and General Electric In essence, Westinghouse and General Electric had sought to rectify the anomaly they perceived in a rule that permitted a guarantee by a parent corporation, but not a self-guarantee by a billion-dollar-net-worth corporation, even though the parent corporation might have considerably less financial strength and stability than the billion-dollar corporation The Westinghouse and General Electric proposal would have made self guarantee available only to corporations with a net worth of at least one billion dollars

In considering fairness to financially very strong but less-than-billion-dollar-net-worth corporations, the Commission determined it could be satisfied with a net-worth-criterion requiring that the tangible net worth of the corporation be at least 10 times the current decommissioning cost estimate for all decommissioning activities for which the company is responsible as a self-guaranteeing licensee and as a parent-guarantor (The self-guarantee would be available only for a company having no parent company holding majority control of its voting stock) To self-guarantee, the corporation must also have and maintain an A or better bond rating by one of the recognized United States bond-rating organizations

Additional criteria of the new rule establish also that 90% of total assets or 10 times decommissioning estimates must be located in the United States and that certain security registration, accounting, and reporting requirements must be met Together these provisions assure that the self-guaranteeing licensee maintains the indicia of financial strength to satisfy the initial requirements or that the NRC will be promptly informed of any deficiency so that appropriate steps can be taken

REGIME OF RADIOACTIVE MATERIALS

Information to be supplied on the status of installations at their decommissioning stage (1993)

The Nuclear Regulatory Commission on 28 July 1993 amended its regulations in 10 CFR Parts 30, 40, 70 and 72 to require holders of a specific licence for possession of certain byproduct material, source material, special nuclear material or for independent storage of spent nuclear fuel and high level radioactive waste to prepare and maintain additional documentation The amendment entered into force on 25 October 1993 This documentation must identify

- all restricted areas where licensed materials and equipment were stored or used,
- all areas outside of restricted areas where documentation is required under current decommissioning regulations for unusual occurrences or spills
- all areas outside of restricted areas where waste has been buried
- all areas outside of restricted areas containing material such that if the licence were terminated, the licensee would be required to decontaminate the area or seek special approval for disposal

The new rule also requires licensees to submit specific information at the time of final decommissioning on decontaminated equipment that had been involved in the licensed activity that will remain on site at the time of licence termination The NRC believes that the information required by the amendments will provide greater assurance that decontamination and decommissioning of licensee facilities have been carried out in accordance with the Commission's regulations

REGULATIONS ON NUCLEAR TRADE

Export and Import of Nuclear Equipment and Material (1993)

The Nuclear Regulatory Commission on 9 March 1993, amended its regulations in 10 CFR part 110 concerning the export and import of nuclear equipment and material in order to clarify the NRC's licensing requirements in this area These amendments involve a variety of changes to elements of the export regulations including definitions, application fees, physical security standards, and the list of embargoed destinations The changes make NRC's regulations consistent with the physical protection guidelines in IAEA INFCIRC/225

Licensing of Exports of Certain Alpha-Emitting Radionuclides and Byproduct Material (1993)

On 17 March 1993, the Nuclear Regulatory Commission proposed changes to its regulations in 10 CFR part 110 to amend its general licences for the export of special nuclear material, source material, and byproduct material The amendments, if adopted, will bring the export controls of the United States in conformity with international export control guidelines and treaty obligations The amendments, among other things, would align U S controls for exports of alpha-emitting radionuclides and tritium with the Nuclear Suppliers Group (NSG - London Club) list established in the spring of 1992 To reduce additional requirements imposed on U S exporters resulting from the general licence revisions, the NRC proposed three new general licences in order to permit (1) exports of small quantities of alpha-emitting radionuclides to most countries, (2) exports of any quantity of alpha-emitting radionuclides to the Member States of the NSG, and (3) exports of dispersed tritium when contained in a product or device in quantities of not more than 40 curies of tritium to the member states of the NSG

INTERNATIONAL REGULATORY ACTIVITIES

OECD NUCLEAR ENERGY AGENCY

PARTICIPATION OF MEXICO IN THE AGENCY (1994)

On 14 April 1994, Mexico was formally invited by the Council to accede to the OECD Convention The Mexican statement concerning its acceptance of the obligations of OECD membership records the intention of Mexico to take part in the Nuclear Energy Agency and the NEA Data Bank In the process leading to this invitation, Mexico reviewed the Acts adopted by the Organisation in the field of nuclear energy which are currently in force and intends to accept all of them

The accession of Mexico to the OECD Convention became effective on 18 May 1994, upon the deposit by Mexico of its instrument of accession with the French Government which is the depositary of the Convention

With the accession of Mexico, the Agency henceforth has 25 Member countries

THE REPUBLIC OF KOREA JOINS THE NEA DATA BANK (1994)

The Government of the Republic of Korea decided to join the Data Bank of the OECD Nuclear Energy Agency (NEA) This decision is effective from 1 May 1994 The Republic of Korea had joined the NEA on 24 May 1993, and this decision follows from that membership (see Nuclear Law Bulletin n°51)

THE NEW INTERNATIONAL STANDARDS FOR RADIATION PROTECTION (1994)

In order to cope with the expanding uses of radiation sources and nuclear practices, and in view of the particular character of radiation risks radiation protection has developed during the last few decades a unique and elaborate system of concepts principles and techniques for the prevention and control of radiological risks

The scientific and conceptual bases for this system are established by the International Commission on Radiological Protection (ICRP) under the form of Recommendations that are regularly updated and expanded to adapt to new requirements and evolving situations The ICRP Recommendations are deliberately drafted in general and scientific terms so that sufficient scope for interpretation and application is left to the users of the recommendations particularly the national authorities There is, therefore, a continuing need for a conversion of the ICRP guidance

into terms which are sufficiently practical and straightforward to facilitate their transfer into regulatory and operational practices at the national level

On the other hand, it is well recognised that one of the principal reasons for the remarkable results achieved so far in ensuring the protection of workers and members of the public is the large degree of homogeneity of policies and practices adopted in this area by the various countries This is due to the dynamic role played by the International Inter-governmental Organisations, such as the International Atomic Energy Agency (IAEA) and other UN Agencies, the Commission of the European Communities (now the European Commission) and the OECD Nuclear Energy Agency (OECD/NEA) This harmonization of approaches was further improved, at the beginning of the eighties, when the International Atomic Energy Agency (IAEA), the International Labour Organisation (ILO), the World Health Organisation (WHO) and the NEA produced joint Basic Safety Standards for Radiation Protection (BSS), which were published in 1982 (see NLB 28)

When the ICRP issued at the beginning of this decade, its new Recommendations which introduced substantial changes and elements of novelty in comparison with the previous Recommendations of 1977, the international organisations sponsoring the BSS decided to continue their concerted effort to provide unified radiation protection standards Therefore, a group of six organisations including the Food and Agriculture Organisation (FAO), the IAEA, the ILO, the NEA, the Pan American Health Organisation (PAHO) and the WHO, concurred, in 1990, on the need to revise the BSS of 1982 in order to take account of the last developments in scientific knowledge and the recent orientations in radiation protection principles and concepts, as expressed in the new ICRP Recommendations which were published in 1991 as ICRP Publication No 60 (see Nuclear Law Bulletin No 47)

A Joint Secretariat from the six organisations indicated above was set up to organise and co-ordinate this international effort, which involved hundreds of scientific, governmental and industrial experts from Member countries and required a substantial number of technical meetings and difficult consultations throughout a period of almost three years

The main purpose of the BSS is to offer a base for and give guidance to national authorities on the establishment of regulations and operational criteria adapted to the local situations Therefore, it was decided by the Joint Secretariat that the applicative requirements and guidelines of the BSS should be given the character of "Standards" that national authorities could use directly as a regulatory basis for the protection of workers and members of the public, although some authorities might simply wish to use this text as a reference in making regulations more specifically fitted to the particular needs and conditions of their countries Member countries, in fact, are not formally committed to bring their legislation into conformity with the Standards, which are not intended to replace national laws and regulations Another function of the BSS is to provide technical guidance for the management bodies with responsibilities for radiation protection in their own operations, as well as to the professional operators in radiation protection

The Standards cover protection from all kinds of radiation sources to which it is conceivable to apply control These include a large variety of natural radiation sources, with particular emphasis on sources of radon exposure (buildings, underground mines, etc), all activities in the nuclear fuel cycle, the medical applications of radiation, and sources used in industry, research, agriculture, etc The provisions of the Standards address the exposure of workers and members of the public, but special provisions are laid down for the protection of patients exposed to medical radiation sources

The requirements of the Standards refer not only to protection in conditions of normal operation but also to the protective measures to be adopted in situations where protection cannot be planned in advance and "intervention" is the only available option This is the case for the radiological consequences of accidents or long-term environmental contamination resulting from previous practices

An important aspect which distinguishes the new Standards from the BSS of 1982 is the extension to include, besides guidance for radiation protection, a set of design and operational requirements addressing the safety of radiation sources, namely, the prevention of potential exposures of persons from accidents or misuse of sources

The Standards contain general and specific requirements for all the above-mentioned aspects and are completed, in some cases by detailed numerical guidance in terms of limits, reference levels intervention levels and exemption levels The degree of development of this numerical guidance is different in the various areas, depending on the degree of international consensus which it was possible to achieve

The Standards apply to the protection of human beings only It is, in fact the current understanding that standards that are adequate for the protection of humans will also ensure that no other species is threatened as a population, even if individuals of the species may be harmed

The Standards apply only to ionizing radiation namely gamma and X rays and alpha beta and other particles that can induce ionization, they do not apply to non-ionizing radiation Nor do they apply to the control of other non-radiological aspects of health and safety the Standards however recognise that radiation is only one of many sources of risk in life and that the risks associated with radiation should not only be weighed against its benefit but also viewed in perspective with risks from other sources and practices

The procedure for issuing the Standards is reaching its final stage Consensus on the final draft of the BSS was in fact reached by the experts of Member countries in December 1993 and the document is now being submitted, for adoption to the Governing bodies of the six sponsoring organisations In view of the different agendas of these bodies this procedure will be carried out between June 1994 and March 1995 Formal publication of the Standards is therefore expected in late Spring or early Summer 1995

INTERNATIONAL ATOMIC ENERGY AGENCY

PREPARATORY WORK ON THE NUCLEAR SAFETY CONVENTION (1994)

The Group of Legal and Technical Experts set up by the Director General of the IAEA in 1992 to carry out the necessary substantive preparations for a Nuclear Safety Convention completed its work at the end of its seventh meeting held from 31 January to 4 February 1994

It is briefly recalled that the General Conference of the IAEA in a Resolution adopted at its 35th regular session September 1991, [GC(XXXV)RES/553] invited the Director General to prepare an outline of the possible elements of a nuclear safety convention taking into account the activities of relevant international organisations and drawing on the advice of the Agency's standing groups like INSAG NUSSAG and INWAC* and expertise made available by Member States and competent international organisations (see Nuclear Law Bulletin No 50)

* INSAG = International Nuclear Safety Advisory Group NUSSAG = Nuclear Safety Standards Advisory Group INWAC = International Radioactive Waste Management Advisory Committee

The Group of Experts held seven meetings during the period from May 1992 to February 1994 The Director General of the Directorate of Reactor Regulation, Atomic Energy Control Board of Canada served as the Group's Chairman More than one hundred experts from fifty countries, the European Commission, the OECD Nuclear Energy Agency and the International Labour Organisation took part in the Group's work

At its first meeting the Group of Experts agreed that (a) the main obligations of the Parties to the Convention would be based in large measure on the principles for the regulation and management of safety and the operation of nuclear installations contained in a draft NUSSAG document entitled "Safety Fundamentals - the Safety of Nuclear Installations", (b) the Convention would provide for an obligation of the Contracting Parties to report on implementation of the Convention, a review mechanism being established through a "meeting of the Parties", and (c) the Agency would provide the "meeting of the Parties" with support services and technical expertise

The Group of Experts, at its second meeting in October 1992, discussed a Secretariat paper entitled "Annotated Draft Elements for a Nuclear Safety Convention" and comments thereon from Member States and international organisations The Experts agreed that the objective was to establish, at an early date a convention with an incentive character to which a large number of States could adhere

At its third meeting, in January 1993, the Group of Experts reviewed revised draft texts on a Nuclear Safety Convention together with comments and annotations prepared by the Secretariat The Group agreed on the need for further discussion based on detailed drafting proposals and general comments submitted by individual members of the Group

At its fourth meeting, in May 1993, the Group of Experts decided to discuss the main outstanding issues in order to facilitate the drafting process and allow for the establishment of a negotiating text of the Convention incorporating the drafting proposals submitted so far The experts agreed that rapid progress in achieving consensus on all main issues was essential

Having reached consensus on the structure and contents of the Convention, the Group entrusted its Chairman to prepare a comprehensive reference text This comprehensive draft text was reviewed by the Group at its fifth (October 1993) and sixth (December 1993) meetings

At its seventh meeting, the Group of Experts finalized a comprehensive draft Convention The final report of the Group's chairman, addressed to the Director General, notes - inter alia - that the draft text "reflects the broad agreement reached by the experts" and "has the overall support of the Group", the Group considered "that it had fulfilled its mandate to carry out the necessary substantive preparation for a Nuclear Safety Convention" The Group of Experts agreed that in accordance with General Conference resolution GC(XXXVII)RES/615, a diplomatic conference should be convened as soon as possible to adopt the Nuclear Safety Convention on the basis of the comprehensive draft text prepared by the Group

On the basis of a Report by the Director General, the Board of Governors at its February 1994 meeting decided that a diplomatic conference be convened from 14-17 June 1994 to consider and adopt the Nuclear Safety Convention, the draft Convention to be submitted to the diplomatic conference being the comprehensive text prepared by the Group of Experts The Convention, if adopted will be opened for signature at the thirty-eighth session (1994) of the General Conference of the IAEA

The draft text of the Convention is reproduced in the "Full Texts" Chapter of this issue of the Bulletin

WORK ON REVISION OF THE VIENNA CONVENTION AND SUPPLEMENTARY FUNDING (1994)

The IAEA Standing Committee on Liability for Nuclear Damage held its eighth and ninth sessions, on 11-15 October 1993 and 7-11 February 1994 They were marked by concern over the slow progress in the establishment of a worldwide liability regime that was having a negative effect on current bilateral and multilateral efforts to improve nuclear safety Given the broad area of agreement reached on revision of the Vienna Convention, concomitant progress on supplementary funding was essential to expedite the Committee's work Consequently, effort was concentrated on ways to make headway in the elaboration of a supplementary funding convention and determination of priorities on the Committee's agenda with a view to advancing its work

The Standing Committee completed its consideration of the "levy" and "pool" texts of a supplementary funding convention As the "levy" approach had already been explored the Committee at its eighth session proceeded, article by article, to study the "pool" text The review provided a clearer understanding of the system of compensation followed in it which facilitated its comparative assessment with the "levy" text The Committee was also informed by the delegations of the United Kingdom, France and Germany which had been involved in consultations in search of a compromise between the "levy" and "pool" drafts, that it did not yet seem feasible to bridge the two and that effort should instead be placed in developing one or the other draft with a view to removing objections to it

In view of uncertainty about the prospects for a compromise on the basis of the "levy" and "pool" texts, there was a broad positive response in the Standing Committee to a new proposal by Denmark and Sweden that drew on the approach set out in an earlier proposal by Poland that was kept available as a fallback option The joint proposal envisaged inclusion already in the revised Vienna Convention of a sufficiently high level of compensation by the Installation State which could then serve as a threshold for a supplementary compensation scheme The joint proposal was seen as an important improvement of the Vienna Convention as well as a valuable initiative to resolve the protracted stalemate on supplementary funding However, it was recognized that a detailed examination was needed to determine the adjustments that would be required in the Vienna Convention consequential to the joint proposal and its implications for a system of supplementary funding It was agreed that such examination would be made by the chairman of the drafting committee in consultation with interested experts

There was a broad feeling that while the joint proposal created favourable conditions for rapid progress on revision of the Vienna Convention, elaboration of a new approach to supplementary funding would require more effort It was therefore suggested that a separate conference on revision of the Vienna Convention should be held first with work on supplementary funding to be pursued later This, however did not meet with consensus The Committee reiterated the integrated approach to the two issues and agreed that, at this juncture, it was premature to fix a specific target date for the revision conference

At the ninth session, the Committee undertook detailed consideration of the system of compensation in the joint Danish-Swedish proposal The discussion was on the basis of suggestions prepared by the chairman of the drafting committee although other related proposals were also discussed

Notwithstanding certain critical observations there was broad support for the joint proposal Given the lack of progress in efforts to bridge the "levy" and "pool" drafts, it was seen as a viable attempt to facilitate compromise As amended by the drafting committee, the joint proposal was included in the basic texts of the Committee for further consideration

It was generally held that the structure of compensation envisaged in the joint proposal could be compatible with a supplementary funding scheme According to the prevailing view, the latter should be embodied in a separate universal convention additional to the regime of the Vienna and Paris Conventions linked by the Joint Protocol Since the joint proposal stipulates inclusion of the Installation State tier in the basic convention and no agreement could be reached on a layer of joint contributions by operators, a supplementary instrument could most probably provide only for collective contributions by States Parties Some felt, however, that the possibility of industry pooling should not be dismissed and that relevant proposals should be maintained in the Committee's documentation

In the deliberations, the issue of amounts of compensation in the joint proposal attracted much attention Some were of the opinion that unless these amounts were above the present capacity of the private insurance market, the Convention would not effectively require State funding On the other hand, it was argued that as the insurance market capacity was not uniform in different countries, high amounts might be unaffordable by countries in difficult economic situations, thus preventing them from joining the regime Several Latin American delegations expressed their intention to study the possibility of a regional supplementary funding system that might be compatible with a global system

In order to speed up work on elaboration of a supplementary funding convention, a meeting of an informal intersessional working group was scheduled for 9-14 May 1994 The IAEA Secretariat was requested to prepare for the meeting a text of a draft instrument based on the Brussels Supplementary Convention the "levy" and "pool" texts, and on the basis of views and proposals that received sufficient support

The Committee reaffirmed, for the time being, a package approach in dealing with proposals for revision of the Vienna Convention and supplementary funding instrument in an attempt to finalize preparatory work on both issues in time for submitting them to the same diplomatic conference The next session of the Standing Committee, to be held from 31 October to 4 November 1994, will have to decide if this is feasible in light of the progress on both issues

EUROPEAN UNION

STANDARD DOCUMENT FOR SHIPMENTS OF RADIOACTIVE WASTE (1993)

The Council of the European Communities (now the European Union) adopted, on 3 February 1992, Directive 92/3/Euratom on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community territory The Directive applies to shipments of radioactive waste whenever the quantities and concentrations exceed the levels laid down in Directive 80/836/Euratom laying down basic safety standards for radiation protection

Directive 92/3/Euratom which is reproduced in Nuclear Law Bulletin No 49, provides that a standard document must be used for applications for authorisations to the competent authorities of the country of origin of the shipment Accordingly, the European Commission established a standard document for such applications, by Decision 93/552/Euratom, dated 1 October 1993 and published in the Official Journal of the European Communities No L 268/83 of 29 October 1993

The standard document whose model is reproduced in the Decision requires, in particular that the following information be supplied

- name and address of consignor and consignee,
- type of shipment,
- nature of the waste and its activity,
- type of activity having produced the waste,
- purpose of shipment,
- list of packages, and
- competent authorities of country of origin and country of destination

BILATERAL AGREEMENTS

Argentina-Indonesia

AGREEMENT FOR CO-OPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY (1990)

The Republic of Argentina and the Republic of Indonesia concluded the above Agreement on 17 May 1990

Both countries approved the Agreement at the national level Indonesia on 9 March 1991 (Presidential Decree No 12) and Argentina on 30 September 1992 (Act No 24 161) The Agreement entered into force on 9 March 1993

Under the Agreement, both Parties undertake to co-operate in the following fields

- fundamental and applied research in the field of the peaceful uses of nuclear energy,
- design, construction and operation of research and power reactors,
- nuclear fuel cycle technology,
- industrial production of nuclear materials and equipment,
- production and utilisation of radioisotopes,
- radiological protection and nuclear safety,
- any other technological question of common interest

Co-operation will be undertaken through mutual assistance in training of scientific and technical personnel and support services Expert visits and an exchange of views on specific questions are planned as is the creation of joint working parties, joint projects, etc

The Argentine Commission on Atomic Energy (CNEA) and the Indonesian Atomic Energy Agency (BATAN) are responsible for implementing this Agreement

The Parties also undertake that all the information obtained and the results of the work performed under the Agreement will only be used for peaceful purposes

The Agreement was concluded for a period of five years renewable thereafter automatically for one-year periods Each Party may end the Agreement by giving six months' notice in writing

Argentina-Romania

AGREEMENT FOR CO-OPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY (1990)

On 24 June 1993, the Argentine Parliament approved Act No 24 217 concerning the Agreement concluded between Argentina and Romania on 27 November 1990

Both countries agree to co-operate in the following fields

- research, development, design, construction and operation of research and power reactors and nuclear fuel cycle installations,
- the nuclear fuel cycle, including research and exploitation of nuclear resources, fuel element production and radioactive waste management,
- industrial production of reactor equipment,
- radioisotope production and application

This co-operative programme will be implemented through technical and scientific assistance, exchange of information and personnel, organisation of working groups and meetings on specific subjects and by co-ordinating research and development activities The Argentine Atomic Energy Commission (CNEA) and the Romanian Electrical and Thermal Energy Department are in charge of implementing the Agreement

The Agreement specifies that the materials and equipment to which it applies will be used solely for peaceful purposes

The Agreement was concluded for ten years and is automatically renewable for five-year periods Each Party may end it by giving six months notice

Australia/CERN

AGREEMENT ON DEVELOPMENT OF SCIENTIFIC AND TECHNICAL CO-OPERATION (1991)

The Agreement on the Further Development of Scientific and Technical Co-operation in the Research Projects of the European Organisation for Nuclear Research (CERN) between Australia and that Organisation was concluded on 1 November 1991, it entered into force on the date of its signature for an initial period of five years and is renewable for the same period unless six months notice of termination is given by either Party

The purpose of the Agreement is to provide a framework to enable the Parties to continue and further develop their scientific and technical co-operation on a basis of reciprocity

The co-operation is organised on the basis of research projects Australian specialists may participate in CERN research projects in the fields of experimental and theoretical physics, accelerator and detector engineering (including the upgrading of the Large Electron-Positron Collider - LEP)

Poland/Ukraine

AGREEMENT ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT AND ON NUCLEAR SAFETY AND RADIATION PROTECTION (1993)

On 24 May 1993, the Government of Poland and the Government of Ukraine signed an Agreement on early notification of a nuclear accident and exchange of information and co-operation in the field of nuclear safety and radiation protection The purpose of the Agreement is to implement the IAEA 1986 Convention on Early Notification of a Nuclear Accident (the text of the Convention is reproduced in the Supplement to Nuclear Law Bulletin No 38) It also takes into account the provisions of the Final Act of the 1975 Conference on Security and Co-operation in Europe

The Agreement provides that nuclear accidents occurring on the territory of one Contracting Party will immediately be notified to the other Contracting Party if a release of radioactive materials could have an effect outside its territory It also contains provisions on the exchange of safety-related information concerning nuclear activities

United States/Russia
United States/Ukraine (1993)

AGREEMENTS ON OPERATIONAL SAFETY ENHANCEMENTS, RISK REDUCTION MEASURES ETC FOR CIVILIAN NUCLEAR FACILITIES (1993)

The United States of America entered into two Agreements, one with the Russian Federation and the other with the Ukraine, on 16 December 1993 and 25 October 1993 respectively The Agreements concern operational safety enhancements for nuclear installations, risk reduction measures and nuclear safety regulation for civilian nuclear facilities in the Russian Federation and in the Ukraine As the two Agreements are similar, they will not be dealt with separately, and the following paragraphs provide a brief description of their main provisions

The Agreements were concluded in support of the Multilateral Nuclear Safety Initiative decided at a meeting held on 23 May 1992 in Lisbon for the co-ordination of assistance to the states that were formerly a part of the Union of Soviet Socialist Republics

Co-operation will, in particular, cover the provision of further operational safety enhancements, further development of emergency operating procedures, training and administrative and operational controls, and reducing the risks associated with the operation of civilian nuclear power reactors in the Russian Federation and in the Ukraine respectively

Both Agreements contain an Article (Article IV) which provides that, with the exception of claims for damage or injury against individuals arising from their premeditated actions the Governments of the Russian Federation and the Ukraine shall bring no claims arising from activities in pursuance of the Agreements against the Government of the United States its personnel or its contractors, etc , for injury or damage to property

The Agreements entered into force on the date of their signature for a period of five years and may be terminated prior to their expiry by six months' written notice to the other Party

(For further details on this question, see the Note on potential liabilities of nuclear contractors in Central and Eastern Europe in the "Studies" Chapter of this issue of the Bulletin)

MULTILATERAL AGREEMENTS

CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY THE DUMPING OF WASTES AND OTHER MATTER (1994)

The above so-called London Dumping Convention of 29 December 1972 provides that Consultative Meetings are held regularly to take note of progress made in its implementation and where necessary to revise the Convention and its Annexes in accordance with the simplified procedure laid down by the Convention (see Nuclear Law Bulletin Nos 17, 36)

The Annexes to the Convention contain provisions regulating the dumping at sea of radioactive waste In February 1983, at the Seventh Consultative Meeting the Contracting Parties had already adopted a Resolution calling for a moratorium in this field At the Ninth Consultative Meeting in 1985 a further Resolution was adopted extending such suspension pending further consideration of proposals to amend the Annexes to the Convention resulting in a total prohibition of sea dumping of radioactive wastes

At the Sixteenth Consultative Meeting of the Contracting Parties held from 8 to 12 November 1993 a Resolution was adopted [LC 51(16)] which, by amending Annex I of the Convention effectively prohibited all dumping of radioactive wastes

Five Contracting Parties abstained from voting the Resolution at the meeting Belgium, China, France, the United Kingdom and the Russian Federation However, the first four countries subsequently accepted the Resolution

The amendments entered into force one hundred days after their adoption, that is on 20 February 1994, for all the Contracting Parties except for those having made a declaration of non-acceptance before that date, namely only the Russian Federation However, in this latter case, the Resolution provides that the previous suppression of all sea dumping of radioactive wastes continues to apply pending completion of the above-mentioned studies and assessments

Also, the Resolution reaffirms that any disposal of radioactive wastes or other matter in sub-seabed depositories, accessible by sea, must remain suspended until the Parties otherwise decide

CONVENTIONS ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT AND ASSISTANCE IN CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY

Both of the above Conventions were opened for signature on 26 September 1986 and entered into force thirty days after consent to be bound had been expressed by three States Accordingly, the Convention on Early Notification became effective on 27 October 1986 and the Convention on Assistance on 26 February 1987, in accordance with their Articles 12 3 and 14 3 respectively For States having expressed such consent after those dates, they entered into force thirty days following such expression, in accordance with their Articles 12 4 and 14 4 respectively (The text of both Conventions is reproduced in the Supplement to Nuclear Law Bulletin No 38)

The following tables give the status of both Conventions as of 12 November 1993 respectively

Convention on Early Notification of a Nuclear Accident

Status of signatures, ratifications, acceptances, approvals or accessions

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Afghanistan*	26 Sept 1986	
Algeria*	24 Sept 1987	
Argentina*		17 Jan 1990 (access)
Armenia		24 Aug 1993 (access)
Australia*	26 Sept 1986	22 Sept 1987 (ratif)
Austria	26 Sept 1986	18 Feb 1988 (ratif)

* Reservation/declaration deposited upon or following signature/ratification

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Bangladesh		7 Jan 1988 (access)
Belarus*	26 Sept 1986	26 Jan 1987 (ratif)
Belgium	26 Sept 1986	
Brazil	26 Sept 1986	4 Dec 1990 (ratif)
Bulgaria*	26 Sept 1986	24 Feb 1988 (ratif)
Cameroon	25 Sept 1987	
Canada*	26 Sept 1986	18 Jan 1990 (ratif)
Chile	26 Sept 1986	
China*	26 Sept 1986	10 Sept 1987 (ratif)
Costa Rica	26 Sept 1986	16 Sept 1991 (ratif)
Cote d Ivoire	26 Sept 1986	
Cuba*	26 Sept 1986	8 Jan 1991 (ratif)
Croatia		29 Sept 1992 (succ notif)
Cyprus		4 Jan 1989 (access)
Czech Republic		24 March 1993 (succ notif)
Democratic People s Republic of Korea*	29 Sept 1986	
Denmark	26 Sept 1986	26 Sept 1986 (on sign)
Egypt	26 Sept 1986	6 July 1988 (ratif)
Finland	26 Sept 1986	11 Dec 1986 (approv)
France*	26 Sept 1986	6 Mar 1989 (approv)
Germany*	26 Sept 1986	14 Sept 1989 (ratif)
Greece*	26 Sept 1986	6 June 1991 (ratif)
Guatemala	26 Sept 1986	8 Aug 1988 (ratif)
Holy See	26 Sept 1986	
Hungary*	26 Sept 1986	10 Mar 1987 (ratif)
Iceland	26 Sept 1986	27 Sept 1989 (ratif)
India*	29 Sept 1986	28 Jan 1988 (ratif)
Indonesia*	26 Sept 1986	12 Nov 1993 (ratif)
Iran Islamic Republic of	26 Sept 1986	
Iraq*	12 Aug 1987	21 July 1988 (ratif)
Ireland*	26 Sept 1986	13 Sept 1991 (ratif)
Israel	26 Sept 1986	25 May 1989 (ratif)
Italy*	26 Sept 1986	8 Feb 1990 (ratif)
Japan	6 Mar 1987	9 June 1987 (accept)
Jordan	2 Oct 1986	11 Dec 1987 (ratif)
Korea Republic of		8 June 1990 (access)
Latvia		28 Dec 1992 (access)
Lebanon	26 Sept 1986	
Liechtenstein	26 Sept 1986	
Luxembourg	29 Sept 1986	
Malaysia*	1 Sept 1987	1 Sept 1987 (on sign)
Mali	2 Oct 1986	
Mauritius		17 Aug 1992 (access)
Mexico	26 Sept 1986	10 May 1988 (ratif)
Monaco	26 Sept 1986	19 July 1989 (approv)
Mongolia*	8 Jan 1987	11 June 1987 (ratif)
Morocco	26 Sept 1986	7 Oct 1993 (ratif)
Netherlands*	26 Sept 1986	23 Sept 1991 (accept)
New Zealand		11 Mar 1987 (access)
Nicaragua		11 Nov 1993 (access)

Succ notif = succession notified

* Reservation/declaration deposited upon or following signature/ratification

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Niger	26 Sept 1986	
Nigeria	21 Jan 1987	10 Aug 1990 (ratif)
Norway	26 Sept 1986	26 Sept 1986 (on sign)
Pakistan		11 Sept 1989 (access)
Panama	26 Sept 1986	
Paraguay	2 Oct 1986	
Poland*	26 Sept 1986	24 Mar 1988 (ratif)
Portugal	26 Sept 1986	30 April 1993 (ratif)
Romania		12 Jun 1990 (access)
Russian Federation*[1]	26 Sept 1986	23 Dec 1986 (cont)
Saudi Arabia		3 Nov 1989 (access)
Senegal	15 Jun 1987	
Sierra Leone	25 Mar 1987	
Slovak Republic		10 Feb 1993 (succ notif)
Slovenia		7 July 1992 (succ notif)
South Africa	10 Aug 1987	10 Aug 1987 (ratif)
Spain	26 Sept 1986	13 Sept 1989 (ratif)
Sri Lanka		11 Jan 1991 (access)
Sudan	26 Sept 1986	
Sweden	26 Sept 1986	27 Feb 1987 (ratif)
Switzerland	26 Sept 1986	31 May 1988 (ratif)
Syrian Arab Republic	2 July 1987	
Thailand*	25 Sept 1987	21 Mar 1989 (ratif)
Tunisia	24 Feb 1987	24 Feb 1989 (ratif)
Turkey*	26 Sept 1986	3 Jan 1991 (ratif)
Ukraine*	26 Sept 1986	26 Jan 1987 (ratif)
United Arab Emirates*		2 Oct 1987 (access)
United Kingdom*	26 Sept 1986	9 Feb 1990 (ratif)
United States*	26 Sept 1986	19 Sept 1988 (ratif)
Uruguay		21 Dec 1989 (access)
Viet Nam, Socialist Republic of		29 Sept 1987 (access)
Yugoslavia[2]	27 May 1987	8 Feb 1989 (contin)
Zaire	30 Sept 1986	
Zimbabwe	26 Sept 1986	
Food and Agriculture Organisation*		19 Oct 1990 (access)
World Health Organisation*		10 Aug 1988 (access)
World Meteorological Organisation*		17 Apr 1990 (access)

Succ notif = succession notified

* Reservation/declaration deposited upon or following signature/ratification

[1] Continuation notified on 26 December 1991

[2] Continuation notified on 28 April 1992

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

Status of signatures, ratifications, acceptances, approvals or accessions

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Afghanistan*	26 Sept 1986	
Algeria*	24 Sept 1987	
Argentina		17 Jan 1990 (access)
Armenia		24 Aug 1993 (access)
Australia*	26 Sept 1986	22 Sept 1987 (ratif)
Austria	26 Sept 1986	21 Nov 1989 (ratif)
Bangladesh		7 Jan 1988 (access)
Belarus*	26 Sept 1986	26 Jan 1987 (ratif)
Belgium	26 Sept 1986	
Brazil	26 Sept 1986	4 Dec 1990 (ratif)
Bulgaria*	26 Sept 1986	24 Feb 1988 (ratif)
Cameroon	25 Sept 1987	
Canada*	26 Sept 1986	
Chile	26 Sept 1986	
China*	26 Sept 1986	10 Sept 1987 (ratif)
Costa Rica	26 Sept 1986	16 Sept 1991 (ratif)
Cote d Ivoire	26 Sept 1986	
Croatia		29 Sept 1992 (succ notif)
Cuba*	26 Sept 1986	8 Jan 1991 (ratif)
Cyprus		4 Jan 1989 (access)
Czech Republic		24 Mar 1993 (succ notif)
Democratic People's Republic of Korea*	29 Sept 1986	
Denmark	26 Sept 1986	
Egypt*	26 Sept 1986	17 Oct 1988 (ratif)
Finland	26 Sept 1986	27 Nov 1990 (approv)
France*	26 Sept 1986	6 Mar 1989 (approv)
Germany*	26 Sept 1986	14 Sept 1989 (ratif)
Greece*	26 Sept 1986	6 June 1991 (ratif)
Guatemala	26 Sept 1986	8 Aug 1988 (ratif)
Holy See	26 Sept 1986	
Hungary*	26 Sept 1986	10 Mar 1987 (ratif)
Iceland	26 Sept 1986	
India*	29 Sept 1986	28 Jan 1988 (ratif)
Indonesia*	26 Sept 1986	12 Nov 1993 (ratif)
Iran Islamic Republic of	26 Sept 1986	
Iraq*	12 Aug 1987	21 July 1988 (ratif)
Ireland*	26 Sept 1986	13 Sept 1991 (ratif)
Israel	26 Sept 1986	25 May 1989 (ratif)
Italy*	26 Sept 1986	25 Oct 1990 (ratif)
Japan*	6 Mar 1987	9 Jun 1987 (accept)
Jordan	2 Oct 1986	11 Dec 1987 (ratif)
Korea Republic of*		8 Jun 1990 (access)

Succ notif = succession notified

* Reservation/declaration deposited upon signature, ratification acceptance approval accession

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Latvia		28 Dec 1992 (access)
Lebanon	26 Sept 1986	
Libyan Arab Jamahiriya		27 Jun 1990 (access)
Liechtenstein	26 Sept 1986	
Malaysia*	1 Sept 1987	1 Sept 1987 (on sign)
Mali	2 Oct 1986	
Mauritius		17 August 1992 (access)
Mexico	26 Sept 1986	10 May 1988 (ratif)
Monaco*	26 Sept 1986	19 July 1989 (approv)
Mongolia*	8 Jan 1987	11 Jun 1987 (ratif)
Morocco	26 Sept 1986	7 Oct 1993 (ratif)
Netherlands*	26 Sept 1986	23 Sept 1991 (accept)
New Zealand*		11 Mar 1987 (access)
Nicaragua		11 Nov 1993 (access)
Niger	26 Sept 1986	
Nigeria	21 Jan 1987	10 Aug 1990 (ratif)
Norway*	26 Sept 1986	26 Sept 1986 (on sign)
Pakistan		11 Sept 1989 (access)
Panama	26 Sept 1986	
Paraguay	2 Oct 1986	
Poland*	26 Sept 1986	24 Mar 1988 (ratif)
Portugal	26 Sept 1986	
Romania		12 Jun 1990 (access)
Russian Federation*[1]	26 Sept 1986	23 Dec 1986 (contin)
Saudi Arabia*		3 Nov 1989 (access)
Senegal	15 Jun 1987	
Sierra Leone	25 Mar 1987	
Slovak Republic		10 Feb 1993 (succ notif)
Slovenia		7 July 1992 (succ notif)
South Africa*	10 Aug 1987	10 Aug 1987 (ratif)
Spain	26 Sept 1986	13 Sept 1989 (ratif)
Sri Lanka		11 Jan 1991 (access)
Sudan	26 Sept 1986	
Sweden	26 Sept 1986	
Switzerland	26 Sept 1986	31 May 1988 (ratif)
Syrian Arab Republic	2 July 1987	
Thailand*	25 Sept 1987	21 Mar 1989 (ratif)
Tunisia	24 Feb 1987	24 Feb 1989 (ratif)
Turkey*	26 Sept 1986	3 Jan 1991 (ratif)
Ukraine*	26 Sept 1986	26 Jan 1987 (ratif)
United Arab Emirates		2 Oct 1987 (access)
United Kingdom*	26 Sept 1986	9 Feb 1990 (ratif)
United States*	26 Sept 1986	19 Sept 1988 (ratif)
Uruguay		21 Dec 1989 (access)
Viet Nam, Socialist Republic of*		29 Sept 1987 (access)
Yugoslavia[2]		9 Apr 1991 (notif)

Succ notif = succession notified

* Reservation/declaration deposited upon signature, ratification, acceptance, approval, accession

[1] Continuation notified on 26 December 1991

[2] Continuation notified on 28 April 1992

State/Organisation	*Date of Signature*	*Date of Deposit of Instrument*
Zaire	30 Sept 1986	
Zimbabwe	26 Sept 1986	
Food and Agriculture Organisation*		19 Oct 1990 (access)
World Health Organisation*		10 Aug 1988 (access)
World Meteorological Organisation*		17 Apr 1990 (access)

* Reservation/declaration deposited upon signature ratification acceptance approval accession

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL

The above Convention was opened for signature on 3 March 1980 and, in accordance with its Article 19 1, entered into force on 8 February 1987, thirty days following the deposit of the twenty-first instrument of ratification For States having ratified, accepted, appproved or acceded to the Convention after that date, it entered into force thirty days following deposit of their instrument, in accordance with its Article 19 2 (for the text of the Convention, see Nuclear Law Bulletin No 24) A Review Conference of the Parties to the Convention was convened in 1992 by the International Atomic Energy Agency, in accordance with its Article 16 They reviewed the text, found it to be adequate and considered that it provides an appropriate framework for co-operation between States in that field (see Nuclear Law Bulletin No 50)

The table below gives the status of the Convention as of 7 December 1993

Convention on the Physical Protection of Nuclear Material

Signature, ratification, acceptance, approval or accession by States or organisations

State/Organisation	*Date of signature*	*Place*	*Means/date of deposit of expression of consent to be bound*	
Antigua/Barbuda			acceded	4 Aug 93
Argentina*	28 Feb 1986	Vienna	ratified*	6 Apr 89
Armenia			acceded	24 Aug 93
Australia	22 Feb 1984	Vienna	ratified	22 Sep 87

* Indicates that a reservation/declaration was deposited upon signature/ratification/acceptance/approval/ accession

State/Organisation	*Date of signature*	*Place*	*Means/date of deposit of expression of consent to be bound*	
Austria	3 Mar 1980	Vienna	ratified	22 Dec 88
Belarus			succ notif	9 Sep 93
Belgium	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
Brazil	15 May 1981	Vienna	ratified	17 Oct 85
Bulgaria*	23 Jun 1981	Vienna	ratified*	10 Apr 84
Canada	23 Sep 1980	Vienna	ratified	21 Mar 86
China			acceded*	10 Jan 89
Croatia			succ notif	29 Sep 92
Czech Republic*			succ notif	24 Mar 93
Denmark	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
Dominican Republic	3 Mar 1980	New York		
Equador	26 Jun 1986	New York		
EURATOM*	13 Jun 1980	Vienna	confirmed*	6 Sep 91
Finland	25 Jun 1981	Vienna	accepted	22 Sep 89
France*	13 Jun 1980(*)	Vienna	approved(*)*	6 Sep 91
Germany	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
Greece	3 Mar 1980	Vienna	ratified(*)	6 Sep 91
Guatemala	12 Mar 1980	Vienna	ratified	23 Apr 85
Haiti	9 Apr 1980	New York		
Hungary*	17 Jun 1980	Vienna	ratified* 1/	4 May 84
Indonesia	3 Jul 1986	Vienna	ratified*	5 Nov 86
Ireland	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
Israel*	17 Jun 1983	Vienna		
Italy*	13 Jun 1980(*)	Vienna	ratified(*)*	6 Sep 91
Japan			acceded	28 Oct 88
Korea, Republic of*	29 Dec 1981	Vienna	ratified*	7 Apr 82
Liechtenstein	13 Jan 1986	Vienna	ratified	25 Nov 86
Lithuania			acceded	7 Dec 93
Luxembourg	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
Mexico			acceded	4 Apr 88
Mongolia*	23 Jan 1986	New York	ratified* 1/	28 May 86
Morocco	25 Jul 1980	New York		
Netherlands	13 Jun 1980(*)	Vienna	accepted(*)*	6 Sep 91
Niger	7 Jan 1985	Vienna		
Norway	26 Jan 1983	Vienna	ratified	15 Aug 85
Panama	18 Mar 1980	Vienna		
Paraguay	21 May 1980	New York	ratified	6 Feb 85
Philippines	19 May 1980	Vienna	ratified	22 Sep 81
Poland*	6 Aug 1980	Vienna	ratified*	5 Oct 83
Portugal	19 Sep 1984	Vienna	ratified(*)	6 Sep 91
Romania*	15 Jan 1981	Vienna	ratified	23 Nov 93
Russion Federation*	22 May 1980	Vienna	ratified*/continued	25 May 83
				26 Dec 91
Slovak Republic			succ notif	10 Feb 93
Slovenia			succ notif	7Jul 92
South Africa*	18 May 1981	Vienna		

succ notif = succession notified

* Indicates that a reservation/declaration was deposited upon signature/ratification/acceptance/approval/accession

(*) signed/ratified as EURATOM Member State

1/ Indicates that reservation/declaration was subsequently withdrawn

State/Organisation	*Date of signature*	*Place*	*Means/date of deposit of expression of consent to be bound*	
Spain*	7 Apr 1986(*)	Vienna	ratified(*)*	6 Sep 91
Sweden	2 Jul 1980	Vienna	ratified	1 Aug 80
Switzerland	9 Jan 1987	Vienna	ratified	9 Jan 87
Tunisia			acceded	8 Apr 93
Turkey*	23 Aug 1983	Vienna	ratified*	27 Feb 85
Ukraine			acceded	6 Jul 93
United Kingdom	13 Jun 1980(*)	Vienna	ratified(*)	6 Sep 91
United States	3 Mar 1980	New York/ Vienna	ratified	13 Dec 82
Yugoslavia	15 Jul 1980	Vienna	ratified/continued	14 May 86 28 Apr 92

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* Indicates that a reservation/declaration was deposited upon signature/ratification/acceptance/approval/accession

(*) signed/ratified as EURATOM Member State

IAEA

Draft Nuclear Safety Convention

Preamble

THE CONTRACTING PARTIES

(i) Aware of the importance to the international community of ensuring that the use of nuclear energy is safe, well regulated and environmentally sound,

(ii) Reaffirming the necessity of continuing to promote a high level of nuclear safety worldwide,

(iii) Reaffirming that responsibility for nuclear safety rests with the State where a nuclear installation is located,

(iv) Desiring to promote an effective nuclear safety culture,

(v) Aware that accidents at nuclear installations have the potential for transboundary impacts,

(vi) Keeping in mind the Convention on the Physical Protection of Nuclear Material (1979), the Convention on Early Notification of a Nuclear Accident (1986), and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986),

(vii) Affirming the importance of international co-operation for the enhancement of nuclear safety by the use of existing bilateral and multilateral mechanisms and the establishment of this incentive Convention,

(viii) Recognizing that this Convention entails a commitment to the application of fundamental safety principles rather than detailed safety standards and that there are internationally formulated safety guidelines which are updated from time to time and so can provide guidance on contemporary means of achieving a high level of safety,

(ix) Affirming the need to begin promptly the development of an international convention on the safety of radioactive waste management as soon as the ongoing process to develop waste management safety fundamentals has resulted in broad international agreement,

(x) Recognizing the usefulness of further technical work in connection with the safety of other parts of the nuclear fuel cycle, and that this work may, in time, facilitate the development of current or future international instruments

HAVE AGREED as follows

CHAPTER 1

Objectives, definitions and scope

Article 1. Objectives

The objectives of this Convention are

(i) to achieve and maintain a high level of nuclear safety worldwide through national measures and international co-operation,

(ii) to establish and maintain effective defences in nuclear installations against potential radiological hazards in order to protect individuals, society and the environment from harmful effects of ionizing radiation from such installations,

(iii) to prevent accidents with radiological consequences and to mitigate such consequences should they occur

Article 2. Definitions

For the purpose of this Convention

(i) "nuclear installation" means for each Contracting Party any land based civil nuclear power plant under its jurisdiction including such storage, handling and treatment facilities for radioactive materials as are on the same site and are directly related to the operation of the nuclear power plant Such a plant ceases to be a nuclear installation when all nuclear fuel elements have been removed permanently from the reactor core and have been stored safely in accordance with approved procedures, and a decommissioning programme has been agreed to by the regulatory body,

(ii) "licence" means any authorization granted by the regulatory body to the applicant to have the overall responsibility for the siting, design, construction commissioning or operation of a nuclear installation,

(iii) "regulatory body" means for each Contracting Party any body or bodies given the legal authority by that Contracting Party to grant licences and to regulate the siting, design, construction, commissioning, operation or decommissioning of nuclear installations

Article 3 Scope of application

The provisions of this Convention shall apply to the safety of nuclear installations

CHAPTER 2

Obligations

(a) General provisions

Article 4 Implementing measures

Each Contracting Party shall take, within the framework of its national law, the legislative, regulatory and administrative measures and other steps necessary to implement its obligations under this Convention

Article 5 Reporting

Each Contracting Party shall submit for review, prior to each meeting referred to in Article 20, a report on the measures it has taken to implement each of the obligations of this Convention

Article 6 Existing nuclear installations

Each Contracting Party shall take the appropriate steps to ensure that the safety of nuclear installations existing at the time the Convention enters into force for that Contracting Party is reviewed as soon as possible When necessary in the context of this Convention, the Contracting Party shall ensure that all reasonably practicable improvements are made as a matter of urgency to upgrade the safety of the installation If such upgrading cannot be achieved, plans should be implemented to shut down the installation as soon as practically possible The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social, environmental and economic impact

(b) Legislation and regulation

Article 7 Legislative and regulatory framework

1 Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of nuclear installations

2 The legislative and regulatory framework shall provide for

(i) the establishment of applicable national safety requirements and regulations,

(ii) a system of licensing with regard to nuclear installations and the prohibition of the operation of a nuclear installation without a licence,

(iii) a system of regulatory inspection and assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of any licence,

(iv) enforcement of applicable regulations and of the terms of any licence, including suspension, modification or revocation

Article 8 Regulatory body

1 Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework established in accordance with Article 7, and provided with adequate authority, competence and financial and human resources to fulfil its assigned responsibilities

2 Each Contracting Party shall take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy

Article 9 Responsibility of the licence holder

Each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility

(c) General safety considerations

Article 10 Priority to safety

Each Contracting Party shall take the appropriate steps to ensure that all organizations engaged in activities directly related to nuclear installations shall establish policies that give due priority to nuclear safety

Article 11 Financial and human resources

1 Each Contracting Party shall take the appropriate steps to ensure that adequate financial resources are available to support the safety of each nuclear installation throughout its life

2 Each Contracting Party shall take the appropriate steps to ensure that for all safety related activities in or for each nuclear installation throughout its life sufficient numbers of qualified staff with appropriate education, training and retraining are available

Article 12 Human factors

Each Contracting Party shall take the appropriate steps to ensure that the capabilities and limitations of human performance are taken into account throughout the life of a nuclear installation

Article 13 Quality assurance

Each Contracting Party shall take the appropriate steps to ensure that quality assurance programmes are established and implemented with a view to providing confidence that specified requirements for all activities important to nuclear safety are satisfied throughout the life of a nuclear installation

Article 14 Assessment and verification of safety

Each Contracting Party shall take the appropriate steps to ensure that

(i) comprehensive and systematic safety assessments are carried out before constructing and commissioning a nuclear installation and throughout its life Such assessments shall be well documented, subsequently updated in the light of operating experience and significant new safety information, and reviewed under the authority of the regulatory body,

(ii) verification by analysis, surveillance, testing and inspection is carried out to ensure that the physical state of a nuclear installation and the operation of the installation continue to be in accordance with its design, applicable national safety requirements and with operational limits and conditions

Article 15 Radiation protection

Each Contracting Party shall take the appropriate steps to ensure that in all operational states the radiation exposure to the workers and the public caused by a nuclear installation shall be kept as low as reasonably achievable and no individual shall be exposed to radiation doses which exceed prescribed national dose limits

Article 16 Emergency preparedness

1 Each Contracting Party shall take the appropriate steps to ensure that there are on-site and off-site emergency plans that are routinely tested for nuclear installations and cover the activities to be carried out in the event of an emergency For any new nuclear installation, such plans shall be prepared and tested before it commences operation above a very low power level

2 Each Contracting Party shall take the appropriate steps to ensure that, insofar as they are likely to be affected by a radiological emergency, its own population as well as the competent authorities of the States in the vicinity of the nuclear installation are provided with appropriate information for emergency planning and response

3 Contracting Parties which do not have a nuclear installation on their territory, but are likely to be affected in the event of a radiological emergency in a neighbouring State, shall take the appropriate steps to ensure that emergency plans have been prepared and tested that cover the activities to be carried out in the event of an emergency

(d) Safety of installations

Article 17 Siting

Each Contracting Party shall take the appropriate steps to ensure that appropriate procedures are established and implemented

(i) for evaluating all relevant site-related factors which are likely to affect the safety of a nuclear installation for its projected lifetime,

(ii) for evaluating the likely safety impact of a proposed nuclear installation on individuals, society and the environment,

(iii) for re-evaluating as necessary all relevant factors referred to under sub-paragraphs (i) and (ii) to ensure the continued safety acceptability of the nuclear installation,

(iv) for consulting Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary information to such Contracting Parties, in order to enable them to evaluate and form their own assessment of the likely safety impact of the installation

Article 18 Design and construction

Each Contracting Party shall take the appropriate steps to ensure that

(i) the design and construction of a nuclear installation provides for several reliable levels and methods of protection (defence in depth) against the release of radioactive materials, with a view to preventing the occurrence of accidents and to mitigating their radiological consequences should they occur,

(ii) the technologies incorporated in the design and construction of nuclear installations are proven by experience or qualified by testing or analysis,

(iii) the design allows for reliable, stable and easily manageable operation, with specific consideration of human factors and the man-machine interface

Article 19 Operation

Each Contracting Party shall take the appropriate steps to ensure that

(i) the initial authorization to operate a nuclear installation is based upon an appropriate safety analysis and a commissioning programme demonstrating that the installation, as constructed, is consistent with design and safety requirements,

(ii) operational limits and conditions derived from the safety analysis, tests and operational experience are defined and revised as necessary to identify safe boundaries for operation,

(iii) operation, maintenance, inspection and testing of a nuclear installation are conducted in accordance with approved procedures,

(iv) procedures are established to respond to anticipated operational occurrences and to accidents,

(v) necessary engineering and technical support in all safety related fields is available throughout the lifetime of a nuclear installation,

(vi) incidents significant to safety are reported by the holder of the relevant licence to the regulatory body,

(vii) programmes to collect and analyse operating experience are established, that the results obtained and the conclusions drawn are acted upon and that existing

mechanisms are used to share important experience with international bodies and with other operating organizations and regulatory bodies,

(viii) the generation of radioactive waste resulting from the operation of a nuclear installation is kept to the minimum practicable for the process concerned, both in activity and volume, and that any necessary treatment and storage of spent fuel and waste directly related to the operation and on the same site take into consideration conditioning and disposal

CHAPTER 3

Meetings of the Contracting Parties

Article 20 Review meetings

1 The Contracting Parties shall hold meetings for the purpose of reviewing the reports submitted pursuant to Article 5 in accordance with the procedures adopted under Article 22 These meetings shall hereinafter be referred to as "review meetings"

2 Subject to the provisions of Article 24 sub-groups comprised of representatives of Contracting Parties may be established and may function during the review meetings as deemed necessary for the purpose of reviewing specific subjects contained in the reports

3 Each Contracting Party shall have a reasonable opportunity to discuss the reports submitted by other Contracting Parties and to seek clarification of the reports

Article 21 Timetable

1 A preparatory meeting of the Contracting Parties shall be held not later than six months after the date of entry into force of this Convention

2 At this preparatory meeting the Contracting Parties shall determine the date for the first review meeting This review meeting shall be held as soon as possible but not later than thirty months after the date of entry into force of this Convention

3 At each review meeting the Contracting Parties shall determine the date for the next such meeting The interval between review meetings shall not exceed three years

Article 22 Procedural arrangements

1 At the preparatory meeting held pursuant to Article 21 the Contracting Parties shall prepare and adopt by consensus Rules of Procedure and Financial Rules The Contracting Parties shall establish in particular and in accordance with the Rules of Procedure

(i) guidelines regarding the form and structure of the report to be submitted pursuant to Article 5,

(ii) a date for submission of such reports,

(iii) the process for reviewing such reports

2 At review meetings the Contracting Parties may,if necessary, review the arrangements established under subparagraphs (i)-(iii) above and adopt revised arrangements by consensus unless otherwise provided for in the Rules of Procedure

Article 23 Extraordinary meetings

An extraordinary meeting of the Contracting Parties shall be held

(i) if so agreed by a majority of the Contracting Parties present and voting at a meeting, abstention being considered as voting, or

(ii) at the written request of a Contracting Party within six months of this request having been communicated to the Contracting Parties and notification having been received by the Secretariat, that the request has been supported by a majority of the Contracting Parties

Article 24 Attendance

1 Each Contracting Party shall attend meetings of the Contracting Parties and be represented at such meetings by one delegate, and such alternates, experts and advisers as it deems necessary

2 The Contracting Parties may invite, by consensus, any intergovernmental organization which is competent in respect of matters governed by this Convention to attend as observers, any meeting, or specific sessions thereof Observers shall be required to accept in writing, and in advance, the provisions of Article 27

Article 25. Summary reports

The Contracting Parties shall adopt, by consensus, and make available to the public a document addressing issues discussed during a meeting and conclusions reached

Article 26 Languages

1 The languages of meetings of the Contracting Parties shall be Arabic Chinese English, French, Russian and Spanish unless otherwise provided in the Rules of Procedure

2 Reports submitted pursuant to Article 5 shall be prepared in the national language of the submitting Contracting Party or in a single designated language to be agreed in the Rules of Procedure Should the report be submitted in a national language other than the designated language, a translation of the report into the designated language shall be provided by the Contracting Party

Article 27 Confidentiality

1 The provisions of this Convention shall not affect the rights and obligations of the Contracting Parties under their law to protect information from disclosure For the purposes of this Article, "information" includes, inter alia, (i) personal data, (ii) information protected by intellectual property rights or by industrial or commercial confidentiality, and (iii) information relating to national security, the physical protection of nuclear materials or nuclear installations

2 When, in the context of this Convention, a Contracting Party provides information identified by it as protected as described in paragraph 1, such information shall be used only for the purposes for which it has been provided and its confidentiality shall be respected

3 The content of the debates during the reviewing of the reports by the Contracting Parties at each meeting shall be confidential

Article 28 Secretariat

1 The International Atomic Energy Agency, (hereinafter referred to as the "Agency") shall provide the Secretariat for the meetings of the Contracting Parties

2 The Secretariat shall

(i) convene, prepare and service the meetings of the Contracting Parties,

(ii) transmit to the Contracting Parties information received or prepared in accordance with the provisions of this Convention

The costs incurred by the Agency in fulfilling (i) and (ii) above shall be borne by the Agency as part of its regular budget

3 The Contracting Parties may, by consensus, request the Agency to provide other services in support of meetings of the Contracting Parties The Agency may provide such services if they can be undertaken within its programme and regular budget Should this not be possible, the Agency may provide such services if voluntary funding is provided from another source

CHAPTER 4

Final clauses and other provisions

Article 29 Resolution of disagreements

In the event of a disagreement between two or more Contracting Parties concerning the interpretation or application of this Convention, the Parties shall consult within the framework of a meeting of the Contracting Parties with a view to resolving the disagreement

Article 30 Signature, ratification, acceptance, approval, accession

1 This Convention shall be open for signature by all States at the Headquarters of the Agency in Vienna until its entry into force

2 This Convention is subject to ratification, acceptance or approval by the signatory States

3 After its entry into force, this Convention will be open for accession by all States

4 (i) This Convention shall be open for signature or accession by regional organizations of an integration or other nature, provided that any such organization is constituted by sovereign States and has competence in respect of the negotiation conclusion and application of international agreements in matters covered by this Convention

(ii) In matters within their competence, such organizations shall, on their own behalf, exercise the rights and fulfil the responsibilities which this Convention attributes to States Parties

(iii) When becoming Party to this Convention such an organization shall communicate to the Depositary a declaration indicating which States are members thereof and which Articles of this Convention apply to it, as well as the extent of its competence in the field covered by those Articles

(iv) Such organization shall not hold any vote additional to those of its Member States

5 Instruments of ratification, acceptance, approval or accession shall be deposited with the Depositary

Article 31 Entry into force

1 This Convention shall enter into force on the ninetieth day after the date of deposit with the Depositary of the [twentieth] instrument of ratification acceptance or approval, including the instruments of [fifteen] States, each with at least one nuclear installation

2 For each State or regional organization of an integration or other nature which ratifies accepts, approves or accedes to this Convention after the date of deposit of the last instrument required to satisfy the conditions in paragraph 1, this Convention shall enter into force on the ninetieth day after deposit of the appropriate instrument by such a State or organization

Article 32 Amendments to the Convention

1 Any Contracting Party may propose an amendment to this Convention Proposed amendments shall be considered at a review or extraordinary meeting

2 The text of any proposed amendment and the reasons for it shall be provided to the Depositary who shall communicate the proposal to the Contracting Parties promptly and at least ninety days before the meeting at which it is submitted for consideration Any comments received on such a proposal shall be circulated by the Depositary to the Contracting Parties

3 The Contracting Parties shall decide after consideration of the proposed amendment whether to adopt it by consensus, or in the absence of such consensus, whether to submit it to a Diplomatic Conference A decision to submit a proposed amendment to a Diplomatic Conference shall require a two-thirds majority vote of the Parties present and voting at the meeting, provided that at least one half of the Contracting Parties are present at the time of voting Abstentions shall be considered as voting

4 The Diplomatic Conference to consider and adopt amendments to this Convention shall be convened by the Depositary to be held no later than one year after the appropriate decision taken in accordance with paragraph 3 of this Article

5 Amendments to this Convention adopted under paragraphs 3 and 4 above shall be subject to ratification, acceptance, approval, or confirmation by the Contracting Parties and shall enter into force for those Contracting Parties having ratified, accepted, or approved or confirmed them on the ninetieth day after the receipt by the Depositary of the relevant instruments by at least three fourths of the Contracting Parties For those Contracting Parties which later on ratify, accept approve or confirm the said amendments, the latter will enter into force on the ninetieth day after that Party deposits its relevant instrument

Article 33 Denunciation

1 Any Contracting Party may denounce this Convention by written notification to the Depositary

2 Denunciation shall take effect one year following the date of the receipt of the notification by the Depositary, or on such later date as may be specified in the notification

Article 34 Depositary

1 The Director General of the Agency shall be the Depositary of this Convention

2 The Depositary shall inform the Contracting Parties of

(i) the signature of this Convention and of the deposit of instruments of ratification, acceptance, approval or accession, in accordance with Article 30,

(ii) the date on which the Convention enters into force, in accordance with Article 31,

(iii) the notifications of denunciation of the Convention and the date thereof, made in accordance with Article 33,

(iv) the proposed amendments to this Convention submitted by the Contracting Parties, the amendments adopted by the relevant Diplomatic Conference or by the meeting of the Contracting Parties, and the date of entry into force of the said amendments, in accordance with Article 32

Article 35 Authentic texts

The original of this Convention - of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Depositary who shall send certified copies thereof to the Contracting Parties

BIBLIOGRAPHY

FRANCE

Droit et politiques nucléaires, by Henri Pac, published by Presses Universitaires de France Paris, 1994, 346 pages

This publication gives an overall picture of the law and nuclear policies The author Counsellor at the Administrative Court in Toulouse, considers that the nuclear phenomenon has triggered an acceleration of history and notes that less than fifty years have elapsed between the discovery of radioactivity by Becquerel (1896) and the construction by Fermi of the first nuclear reactor (1942) which really opened the nuclear era The nuclear element is conceived as a "fact" with multiple forms Henri Pac calls it a scientific industrial and ecological fact The law regulates this fact

The book is divided into three parts, each dealing with a particular aspect of nuclear law civil law military law and international law Political concerns are woven into this analysis In addition a study of French legislation in the field is presented in parallel throughout the study

Civil nuclear law and nuclear military law reflect the two channels of atomic exploration industry and defence They are separated by the purposes, peaceful or military, it is intended to give to the use of atomic energy These two branches of law are state responsibilities for the most part

International nuclear law is an independent discipline in constant development It is made up of many different aspects ranging from scientific and technical co-operation to the safety of nuclear installations The author gives particular attention to environmental protection matters and denuclearisation

UNITED KINGDOM

Greening International Law, edited by Philippe Sands, Earthscan Publications Ltd, London, 1993 260 pages

International responses to global environmental problems are usually founded in law "Greening International Law" assesses the extent to which the international community has so far adapted to address environmental problems and examines the fundamental changes needed to the structure and organisation of the legal system and its institutions

The authors of the eleven chapters of this book identify and explore some of the critical issues in respect of which international law and its institutions have been called upon to respond to environmental challenges Each author has been involved in efforts to develop environmental law over the past decade, whether as a scholar or legal adviser to government or environmental organisations This book therefore reflects a range of political perspectives, ideologies and methodologies The authors are in broad agreement about the need for some fundamental changes to the structure and organisation of the international legal order The changes relate to the law-making process, to the type of rules adopted and to their techniques for implementation

One chapter, in particular, deals with radioactive waste dumping at sea in the context of the 1972 London Dumping Convention and provides an extensive review of the the Contracting Parties' successive Consultative Meetings, their work on this question, as well as the reasons for their growing opposition to such dumping practices (see note on the most recent developments in the Chapter on "Multilateral Agreements" in this issue of the Bulletin)

Editor s note the concept of "greening" means to implement a more ecologically oriented policy, to take into account environmental considerations in short, to be ecologically aware

UNITED STATES

Nuclear Non-Proliferation and Safety Challenges facing the International Atomic Energy Agency, United States General Accounting Office, Washington DC, 1993, 76 pages

The discovery of Iraq's nuclear weapons programme, North Korea's refusal to permit the International Atomic Energy Agency (IAEA) to conduct nuclear inspections in the context of safeguards (see Nuclear Law Bulletin Nos 50, 51 and 52), added to the Chernobyl nuclear power plant accident, have focused greater attention on nuclear proliferation and nuclear power plant safety These issues are of primary concern to the IAEA, which verifies the peaceful use of nuclear energy and promotes its use

This report has been prepared at the request of the Chairman of the US Senate Committee on Governmental Affairs It reviews the IAEA's safeguards and nuclear power plant safety programmes and the adequacy of its funding, the management of the US technical assistance to the IAEA's safeguards programme and the effectiveness of the IAEA programme for advising Member States about the safety of nuclear power plants and the adequacy of its funding

The report concludes, in particular, that

- the IAEA has limitations on its access to nuclear sites and because of limits on budget growth and unpaid contributions it has difficulty in funding its safeguards progamme,
- the US technical assistance programme for IAEA safeguards has enhanced the Agency's inspection capabilities,
- as regards the advice on nuclear power plant safety, despite funding shortfalls, the IAEA is meeting its basic safety advisory responsibilities but has been unable to fully implement additional safety activities recommended by its Member States

OECD NUCLEAR ENERGY AGENCY

Public Participation in Nuclear Decision-Making, Proceedings of an International Workshop OECD Paris, 4-6 March 1992 418 pages

Public acceptance has become a key factor in the successful implementation of the various stages of industrial development There is also a growing public involvement in the debate concerning energy choices, particularly with regard to nuclear energy Although the principle of public participation in the decisions is well-accepted, translating it successfully into practice requires that certain conditions be fulfilled to ensure its efficient use by the public concerned

The principle of public participation in decisions regarding industrial and technological matters is embodied in constitutional, legislative or regulatory provisions in most industrial countries This participation can take many forms direct participation (referendum) parliamentary representation local consultation, etc In this context the OECD Nuclear Energy Agency (OECD/NEA) and the International Atomic Energy Agency (IAEA) jointly organised an international workshop on public participation in the decision-making process in the nuclear field, from 4 to 6 March 1992 in Paris The objective of the workshop was to take stock of the nature and trend of legal provisions and institutional procedures governing public participation in decisions regarding the siting and operation of nuclear facilities in OECD and IAEA countries and to compare them to those for non nuclear installations

This publication contains the Proceedings of the Workshop and includes the main papers presented at the meeting in their original language, English or French

INTERNATIONAL ATOMIC ENERGY AGENCY

The Laws and Practices of the International Atomic Energy Agency 1970-1980 Supplement 1 to the 1970 Edition of Legal Series No 7 (Legal Series No 7-S1) edited by Reinhard H Rainer and Paul C Szasz, IAEA, Vienna, 1993, 741 pages

The 1970 Edition of "The Laws and Practices of the IAEA" is the basic book describing all the activities of the Agency until that date This book is its continuation along the same pattern covering the period 1970 to 1980 Detailed information is provided inter alia about the following

- the structure of the Agency, including its Statute, membership General Conference, Board of Directors etc
- its relationships with international organisations states
- its activities functions, projects, including safeguards, technical assistance programme, distribution of information, etc ,
- its administration,
- legal matters including agreements, settlement of disputes liability patents,
- procedures for reports

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